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Acronyms:

CCM: Department of Corporate Communication and Marketing
 CMF: Central Marketing Forum
 CMO: Communication and Marketing officer
 BLD: The Bureau for Learning Development
 DSAR: Department of Student Admission and Registration
 DL: Distance learning
 DSM: Diagnostic and Statistical Manual of Mental Disorder
 ODeL: Open Distance and e-Learning
 SOL: Students Online
 SRC: Student Representative Council
 Unisa: University of South Africa
 VSAT: (Very Small Aperture Terminal)
 XML: Extensible Mark-up Language
 XSL: Extensible Mark-up Style sheets

Chapter 1: The ecology of distance learning – an overview

1.1 Introduction to this story

*The universe, somebody said, and I know now it is true, is made of stories, not particles; they are the wave functions of our existence
(Imaginations of Sand, Andre P Brink, 2011:320)*

A life-changing encounter

I love libraries; to me they are places where I can get lost, often finding myself sitting on the floor with books scattered around me and I, disappearing in the ideas and stories of others. So as a 22-year-old social worker working in the Weskoppies Mental Hospital, I often spent time in the hospital library looking for something that could help me make sense of the world of psychiatry. In this world, people were admitted to the hospital, then a day or two later were called into a room filled with many doctors and “specialists” where the “patient” would be diagnosed according to the DSM standards, medicated and sometimes, if they were lucky, get a therapy session or two.

It felt like an alien world, as if humanness no longer existed there and I knew I had to do something to find it again in this context, even if it was just for myself. And what I found changed my life forever; you know that kind of serendipitous event that changes the course of your life. Sitting on the floor of the Weskoppies Mental Hospital Library I came across the book “Mind and Nature” by Gregory Bateson (1988). To someone coming from a pretty conventional academic background, Bateson was mind-blowing. His book was filled with all the things that nobody in psychiatry and even the social sciences that I studied wanted to talk about. In psychiatry everything is something, you suffer from some psychiatric illness, which usually has a big name and a long set of characteristics and of course the way to fix it is by a set of fixed programmes consisting of medication and therapies. Relationships, humanness, culture, interdependencies, wholeness, love, creativity, uncertainty, chaos, mind, art and the pattern that connects us all, at that point in time, at that hospital, were never discussed. These were considered the messy; “unimportant” stuff that social workers should deal with. And here was Bateson, describing life as that mysterious thing between us, that which connects us, binds us and creates the dance and stories of life and offered an alternative view to the world for me. From that day onward, my unease with the psychiatric world just grew and grew.

My journey with Unisa begins

The journey forward led me to a new relationship, one with the University of South Africa (Unisa), and yes, of course Unisa has the most extensive library. At first I enrolled in a Master's programme that taught not only Bateson's work but also cybernetics and specifically second order cybernetics in the field of social sciences and therapy. Now the world started to change, life became a dance of patterns that connect and disconnect with recursive feedback loops showing how dynamic and complex life really is. The consequence of course was that I now no longer could or wanted to work in the psychiatric hospital where people were reduced to psychiatric diagnoses and treated in a very inhumane way. I left the hospital and after some time in private practice a new kind of relationship developed between Unisa and me; I became an employee.

The web and I

This was almost 20 years ago when I was contracted to work for a small community project running a feeding scheme that Unisa was involved in, and the work grew to such an extent that less than four years later the university appointed me to co-ordinate community development initiatives for Unisa in the Department of Corporate Communication and Marketing (CCM). Part of my role as the head of Community Development was to ensure that all community projects had websites, and within a year or two I got very involved in the Internet and web development, simply because there was no-one else with the "knack" for computers in our department. And I had the "knack"! I enjoyed it so much and got so involved in this new world of the web that by 1999 the IT Director asked me to start a new section in CCM and this time Unisa appointed me as the Web Manager for the university.

Now I found myself in an exciting new place. Unisa just started to define itself as an Open Distance Learning (ODL) university, which meant two basic things, offering learner support services at various regional offices and using the Internet to communicate with students. I wanted to find the link between technology, mediated communication and education on the one hand and social cybernetics on the other hand, and I enjoyed the word play that I, a qualified cybernetic therapist, was working in cyberspace.

Student communication

In the next decade or so I not only worked on Unisa's web and digital strategy by growing my section into the Electronic and Web Communications Directorate (EWCD), but also became involved in student communication. After the merger between Unisa, TSA and Vista Vudec, communication tools were very fragmented and I became involved in creating a new strategy for how Unisa should communicate with students, especially in the corporate communication domain. We focused mainly on brochures and websites regarding a new model for engagement with students that is called "The Student Walk". One brochure and website was developed for each of the phases, namely application, registration, teaching and learning and graduation and life-long learning.

We developed ways in which qualification data could be displayed in multiple formats (meaning brochures and websites) by generating them directly from databases using XML and XSL. We developed sets of videos and CDs with multimedia content, all with the aim to assist students in the process of studying through ODL. We hoped that the brochures and websites for the application process would discourage students who were not suited for distance learning, from applying, but it did not. We just got more and more students. By 2013 Unisa's student numbers had more than doubled since 2003 to more than 360 000 students. We also hoped that a "how to guide" in ODL called my Studies @ Unisa, for the teaching and learning phase, would improve throughput rate, but it didn't.

The world was changing

In the meantime the world of communication changed dramatically. With the advent of the interactive web and social media the pace of communication was increasing fast. Communication became more effective, interactive and responsive and our students started to expect Unisa to respond in the same fast paced way. In this respect Unisa was not changing much fundamentally. We still had more or less the same number of staff members and more or less the same systems, but we had to deal with more than double the number of students.

In addition, the quality of education in South Africa is by no means homogeneous across various demographics. At some schools tablet computers are a requirement and students no longer work with paper and writing but engage with all content through

technology. Then there are schools that do not have the bare essentials like roofs or blackboards or chairs for the students to sit on. Higher education has to adapt to a world where diversity is the norm, where the student body comes from very diverse educational, technology-enabled and socio-economic environments.

Unisa was changing

In addition to these environmental changes, Unisa made some fundamental changes. In the last six years Unisa implemented a new admissions policy that was not effective at all in curbing the student numbers. In 2009 Unisa closed its Call Centre, which created a huge outcry from students about Unisa's lack of responsiveness to enquiries, especially the fact that students could no longer make contact with the university telephonically. In 2013 Unisa approved an Open Distance and e-Learning (ODEL) business model, which meant that Unisa would become an online university over the next few years. This included the development of compulsory online signature courses that all new students must complete. Students were also informed that from 2013 all new applicants must have access to a computer and the Internet since they would be expected to do the compulsory online signature module during the course of a degree. They were also informed that face-to-face tutorials would now be replaced by an e-tutor. In June 2013 Unisa celebrated its 140th birthday.

These changes had a great impact on our students. They tried to contact the university but "no one" was answering the phones, or so it seemed. Staff members on the other hand were suddenly inundated with telephone calls from students with enquiries that they were not equipped to assist with and the phones never stopped ringing. Academics and administrators complained about bigger workloads and less time for teaching and social media platforms like Facebook became the place where students could vent their frustrations. In 2013 alone, Unisa's Facebook page grew from 60 000 to 160 000 likes.

Over the last few years, it seemed to me that Unisa was bursting out of its seams and that frustration levels of staff and students were increasing. For instance, I heard the same senior managers saying on many occasions that Unisa's systems can really only handle up to 200 000 students and that we are doing pretty well considering we have almost double that number of students. I once heard an academic scream from her office as I walked past "I want the Call Centre back!" I regularly hear academics say that they don't have time for quality teaching anymore because they are given so much

administrative work often caused by new IT systems. Lately I have heard the word interdependencies more than ever, mainly with reference to unforeseen problems that have occurred because people did not understand or anticipate certain interdependencies between aspects in the university with often-catastrophic consequences.

By the end of 2013 there was trouble at the university when the student representative council and the main trade union of the university tried to stop the implementation of the ODeL model due to the fact that it would marginalise a large part of the student body and the fear of many staff members that they will lose their jobs.

The student forgotten

And like most others, I realised that I also fell into the trap of becoming so engaged with the technological aspects of how to use the new tools to communicate with students, that I sometimes forgot about the students themselves. But, I did start to feel that something was fundamentally missing at Unisa. Something became out of sync. It wasn't just me, as an institution we no longer talked to our students, person to person; we were almost becoming like a "Google" in our aim to be a faceless, efficient organisation. We started to refer to them as clients or customers and talked about becoming a high performing organisation, and I felt that somehow this institution that I love so much had forgotten something. What happened to relationships, humanness, culture, interdependencies, wholeness, love, creativity, art and the pattern that connects us all in this great university that teaches more students annually than any other university in Africa?

A new journey began

And thus a new journey started, and I found myself again on the proverbial library floor, this time connected to it through 3G and VSAT lines to my multiple devices and connecting much wider than the Unisa library. When I started to explore the field of student communication in the distance learning (DL) environment I found that most research relates to the issues of technology and how technology impacts on communication in the teaching and learning process. Very few explored the human side, student communication from a wider communications perspective including basic human communication, basic conditions for learning, new social and learning cultures, how technology changes our way of being, community building and even so-called

client or customer service. The ecology of the distance learning university was not often explored and this led me back to my academic roots and Bateson, asking similar questions to those I asked 27 years before at the mental hospital.

So I decided to enrol for a Doctoral Degree to help me make sense of Unisa and my relationship with the organisation and maybe gain some insights around how to create a place of learning that is more human, where learning matters and enables our students to be happy, successful and prosperous.

I went back to cybernetics and second order cybernetics and found a whole new ecology of ideas emerging since I finished my Master's degree in the early 1990s. A new work by Humberto Maturana (Maturana & Verden-Zöller: 2008) on the origin of humanness was published and a new theoretical field of complexity where great scientists and philosophers like Stuart Kauffman (1993, 2008) and Edgar Morin (1999, 2008) again captured my imagination and heart. Here I found new ways of looking not only at the patterns that connect, but also a way of viewing communication, humanness, creating a new type of society, new learning institutions and new ways of learning, rooted in our ancestry, in our human essences and guided by principles of humanness, complexity and ecology.

Bateson (2011:Video¹, 00:57:28-00:57:44) so beautifully explained how I came to see this study, story and journey unfold and which I am about to undertake when he said about science that "It is like climbing a mountain ... you have trails going up where people have gone before, right? If you want to get up higher than they went, you go up their trails and then you push a bit further than they were able to get." And this is how my theoretical journey continued. Yes, I started again with Bateson as before, but I found so much more. I found a way to continue my academic journey. This time I was able to trace my footsteps but then push a little bit further into the world of complexity and autoethnography, opening up possibilities of academic endeavour that I could not have imagined 20 years ago.

When I first discussed doing a thesis with my friend Rina (a few years ago), I mentioned that I wished I could write a thesis in the form of a story. At that point I had no idea that this would one day be possible. Because of my long history with Unisa I felt that there would be value in sharing my story of Unisa, but also to place myself in

¹ Video citation will be prepared in this format and all videos cited will be attached to the thesis on a CD

the story. This I always knew, however would not be enough, I had to find a rigorous theoretical base that would facilitate new and fresh thinking about Unisa and especially the way student communication is managed. I found this in combining various methods of research and philosophy. This enabled me to find a meta position that acted as new lenses or gave me a new perspective through which I could view the ecology of student communication at Unisa.

1.2 Aim of the study and formulation of the problem

Unisa, like most other universities, was modelled on the industrialised mechanical paradigm; the organisation functions as a hierarchical bureaucratic system; students move through it as if on a conveyor belt and staff form part of the big machine that must make things happen. Each in his/her own little isolated space. Problems are also identified and then solved using the same linear model, not taking into consideration the intricate dynamics of the complex network within which they occur. Since I started the study, it has become clearer to me that we do not often view Unisa as a dynamic living organisation with networks of interactions, interconnections and interdependencies and I think that in the process this machine has become so big that maybe our mechanistic thinking can no longer deal with the complexities.

The purpose of the study

The purpose of this philosophical exploratory and reflective study is therefore to view Unisa and student communication from a new or different epistemological perspective. One that is more humane in order to address the predominant organisational culture that is mechanistic and bureaucratic and often alienates both staff and students. In order to achieve this I first needed to find an epistemological lens through which to view Unisa differently. What evolved from this were 2 basic trains of thought. The first was an exploration of humanness, its origins and evolution in order to understand how we became so different from other mammals in the way we communicate and learn. This could maybe help me understand why students struggle so much in distance learning and why they are so unhappy with the way Unisa communicates and deals with them.

Second I explored systemic and ecological thinking, cybernetics, complexity and the ecology of mind/ideas. My aim was to find a strong epistemological basis on which I

could base my study in order to address my discomfort with the current climate in student communication. I did not just want to explore my experiences and feelings but also fulfil my intellectual and philosophical need to understand the Unisa student communication context in a way that would provide me with a framework to either cope with it better or to even attempt to assist in improving Unisa's relationship with its students.

Therefore, the main research question is: How can exploring a different world view based on ecology and complexity help to create a new framework for understanding future communication with distance education students at Unisa?

Research questions

Some pertinent sub-questions are:

- a) How does Unisa's current structures and processes facilitate or hinder student communication and success in the distance learning environment? (chapter 1 and 3)
- b) How can analytical autoethnography and philosophical reflection as methods of exploration be utilised in this study? (chapter 2)
- c) What are the basic conditions for effective learning and communication in humans and especially in a distance learning environment? (chapter 4 and 5)
- d) What different epistemological horizons are available that will help Unisa to create an environment where students feel connected, part of the learning process and self-empowered to drive their own success? (chapter 6)
- e) What recommendations based on my findings can be made to create a new framework for student communication at Unisa (chapter 7)

Objectives

The objectives of the study are:

- a) To assess current processes and systems and make suggestions regarding new approaches to student communication in distance learning. (chapter 3)
- b) To examine the basic conditions for effective learning and communication in a distance learning environment. (chapter 4 and 5)
- c) To provide the university with a new epistemological framework for communication

in distance learning in order to ensure academic and personal success. (chapter 6 and 7)

So I invite you to take this journey with me. The next sections of this chapter will give an overview of the journey and how it will unfold in the next six chapters.

1.3 Overview of the study

My intention was always to do a qualitative research study to explore student communication in the distance learning environment specifically at Unisa especially because Unisa is such a unique ecology. Unisa is unique in the way it has had to adapt to the dynamically changing South African context and this created an ecology with its own dynamics and problems.

1.3.1 The research methodology

As I explained in the first section of this chapter I wanted to place myself in the Unisa student communication context in order to develop a better understanding. A Qualitative research methodology was therefore the obvious choice. This helped me to bring a more personal view of student communication to the fore. Supporting this view, Henning (2011:7) states about qualitative research that “The researcher is unequivocally the main instrument of research and makes meaning for her engagement in the project – meaning that she will present as findings”.

Denzin and Lincoln (2000:4-6) compare the qualitative researcher as *bricoleur*, quilt maker or filmmaker. This means that a qualitative researcher is “a person who assembles images into *montages*.” Therefore qualitative researchers often use various strategies and methods and weave them together based on the questions being asked as well as the context explored. According to Denzin and Lincoln (2000:5) the multi-method approach often leads to triangulation, which “provide in-depth understanding of the phenomenon in question.”

If one describes this process from a second order cybernetic perspective, it would mean that using various methods and strategies in research would help

the researcher find a meta perspective that is richer and gives a perspective to the research that is both deeper and more holistic. In my own journey these methods and strategies were informed by a number of research decisions I made. None of these decisions were made in a linear way, but language and writing requires me to organise my thoughts so for the sake of clarity I will describe these decisions as if they happened linearly.

The typology therefore used in the study was phenomenological as described by Schultz and Scwandt in Fouche and Schurink (2011:316 - 320). This typology is “to explain how the life world of subjects is developed and experienced by them.” Fouche and Schurink (2011:316). The study and the research process described below will then give the reader an understanding of how I explain both my research journey but also how I brought my life world of Unisa’s student communication into the study.

1.3.2 The research process

The first decision was to select the qualitative research approach and in line with my need to place myself in the context of student communication at Unisa I decided to use autoethnography as a method. This provided me with the opportunity to share my personal and lived experiences of my work at Unisa in the student communication context. In addition I also selected documents, videos, events and reports mechanisms to validate my lived experience to the actual records when I felt I needed to. This is explained in much more detail in chapter 2.

The second decision was context. I knew that I wanted to use Unisa as a distance learning university, but specifically student communication as the context for a case study. This story is woven throughout the study but I focus specifically in chapter 3 on a description of my lived experience at Unisa, and how the evolution of Unisa, brought me to a place of internal conflict that necessitated, for me, this study.

The third decision was to explore this context through philosophical reflection and in the process find an epistemological home within which the study would reside. I declared upfront that the study fell within the domain of constructivist

research and made no claim that it is objective or empirically valid research in the positivistic sense of the word. However, I still wanted to achieve a rigorous philosophical aim and to motivate and support my epistemological position, I decided to explore the literature through 2 stories. The first as explained in section 1.2 and further elaborated on in chapter 4 was an exploration of humanness, its origins and evolution in order to understand why students struggle so much in distance learning and why they are so unhappy with the way Unisa communicates and deal with them. The second was to define basic fundamental principles from systemic and ecological thinking, complexity and the ecology of mind/ideas as elaborated in chapter 5. These explorations provided me, through a process of distillation with a framework or lens through which I could view student communication and Unisa with an aim to improve Unisa's relationship with its students.

Both these literature reviews provided me with a philosophical and epistemological framework, which led to the distillation of 7 basic principles, or fundamentals from which I could view Unisa and the student communication environment. It also helped me to meet the criteria set by Maturana and Verden-Zöller (2008:150-151) for rigorous scientific exploration. They define scientific endeavour as a careful mapping of the fundamental principles derived from philosophical rigour in the context explored. This is explained in more detail in chapter 2.

In chapter 6 I used each of the 7 fundamentals to further explore through autoethnographic writing the context of student communication at Unisa. This process of mapping theory to experience brought the autoethnographic story into the domain of analytical autoethnography, which is also explained, in more detail in chapter 2. During the process I mapped the fundamentals within the context by comparing the current context to the fundamental principle. In this process new ideas emerged through reflective thinking and combining the current context to the theoretical fundamentals. This provided me with new insights not only about Unisa and the way it communicates with students but also about my own position and role in that context. I was therefore able to distil these conclusions into findings and recommendations in chapter 7.

The process can therefore be described as a recursive process of philosophical reflection through analytical autoethnography and can be diagrammatically viewed as follows:

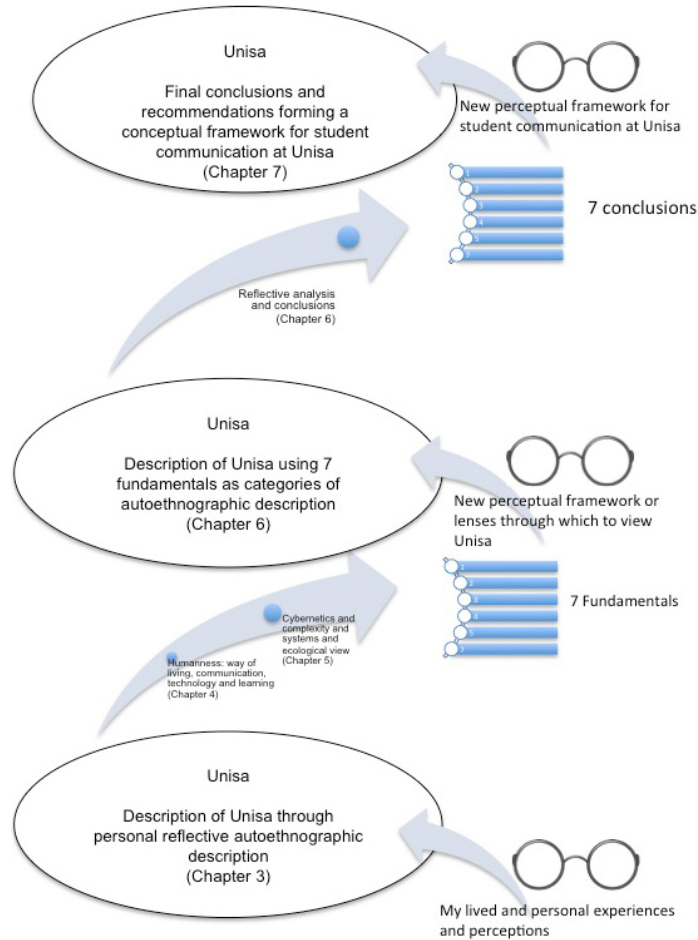


Figure 1.1: Recursive process of philosophical reflection through analytical autoethnography

The diagram shows that I looked at Unisa three times recursively weaving into the Unisa stories each time the theoretical fundamentals derived from the 2 stories of chapters 4 and 5. The three recursive stories of Unisa and the theoretical stories therefore were woven into a sort of quilt or tapestry that is constructed through a recursive reflection of the philosophical argumentation that leads to the 7 fundamentals and conclusions.

It then created 3 different versions of the Unisa story as shown in Figure 1.1 represented by the 3 circles. The bottom of the diagram shows that I first told the story of my perception of my lived experience of Unisa in basic descriptions but also in an autoethnographic format. This is a simple view of how I, as an individual, view how Unisa deals with student communication and my role in it. This is in chapter 3.

Second, through the theoretical framework described in chapters 4 and 5 I distilled 7 fundamentals that then acted as new lenses through which I could tell the second story of Unisa. Through this process I explored humanness in chapter 4 and cybernetics and complexity in order to gain a better understanding of ecological and systemic thinking in chapter 5. The 7 fundamentals then aided me in viewing Unisa a second time from a new perspective found in chapter 6. That process in turn provided me with a set of 7 conclusions that then aided me to view Unisa a third time and led to a new view of Unisa and my relationship that can form the basis of a conceptual framework for future communication with students at Unisa and possibly also as a conceptual framework to view any system or organisation.

1.4 Definition of key terms

Distance learning: According to Du Mont (2002) "Distance learning (DL), is an educational model in which the student and instructor are separated by time and place".

Epistemology: Bateson (1988:246) defines epistemology as "A branch of science combined with a branch of philosophy. As science, epistemology is the study of how particular organisms or aggregates of organisms know, think and decide. As philosophy, epistemology is the study of the necessary limits and other characteristics of the processes of knowing, thinking and deciding."

Ecology (of Mind): Bateson (2011, Video) often referred to Ecology of Mind and Ecology of Ideas as the same thing and said that "We live in a world that is only made up of relationships" His definition of the ecology of mind is used as synonymous with epistemology. That means that the ecology of mind means a way of looking at the world that does not consider the thing itself but the relationships between things

(Bateson 2000, 1988 and 2011, Video).

Ecology of Distance Learning: Ecology of distance learning therefore means that looking at distance learning will not be about looking at the components of distance learning only but more specifically focusing on the intricate relationships between all the components in the distance learning process.

Student Communication: Student communication in this study specifically refers to the relationship between the student and Unisa in all its dynamics including the process of studying through distance education and the intricate network that develops in the process.

Framework for Student Communication: Defining a framework for student communication in this study will be limited to the context of students studying distance education at Unisa. The framework distilled from the literature review to be investigated in relation to the students studying at Unisa.

1.5 Chapter summary

In this chapter I started to tell my story and how I got involved in student communication at Unisa and I described how I became concerned about how we as a Unisa community communicated and related to our students in a predominant mechanistic, reductionist and dehumanising manner. I explained the aim of the study and defined clear research questions and objectives to address the gaps in student communication in a fundamental way. Finally I described the research process and how I conducted the study through a recursive process of philosophical reflection through analytical autoethnography. In the next chapter I describe this process and how the research was conducted in more detail.

Chapter 2: Research Methodology

“Science Never Proves Anything.

Science sometimes improves hypotheses and sometimes disproves them.

But proof would be another matter and perhaps never occurs ...

truth would mean a precise correspondence between our description

and what we describe or between our total network of abstractions

and deductions and some total understanding

of the outside world. Truth in this sense is not obtainable”

(Bateson, 1988:27)

2.1 Introduction

In chapter 1, I explored how I came to do the study and how I view the research process as a recursive process of philosophical reflection through analytical autoethnography. In this chapter I will therefore elaborate more on the epistemological and methodological aspects of the research. I will explain the fact that this research falls within the constructivist philosophical approach to science and propose how I followed Maturana and Verden-Zöllner's (2008:150-151) approach to scientific explanations. Second I will discuss the qualitative research approach in general and thereafter the specific research design, or context of the study, namely a case study about Unisa and specifically the student communication environment.

I will give a brief overview of the research process but will not go into detail since this was discussed in chapter 1, but rather focus on the methods used, namely autoethnography and specifically analytical autoethnography as a reflective philosophical tool and a literature review tool for crystallising fundamentals as the basis for reflective philosophical study. In the last sections I will explain how I selected and analysed the data as an emergent research property. Finally I will discuss the authenticity and trustworthiness of the study as well as ethical issues.

2.2 The constructivist philosophical approach to science

The statement at the beginning of this chapter by Bateson was probably one of the most confusing for me when I started to read his work. If science doesn't prove anything, from Bateson, known as one of the leading scientists of the previous century,

then what is science? Bateson (1988:29-30) was convinced that conventional science could not prove anything because of two main reasons; the fact that we cannot observe the world objectively and that we cannot predict the future or other dimensions. Therefore, science as a “method of perception, is limited in its ability to collect the outward and visible science of whatever may be the truth.” For Bateson (1988:30), scientific endeavour can only probe what is out there, but we cannot prove anything. Ellis and Bochner (1996:21) stated that “Bateson knew there was no way to guarantee objective truth, but he didn’t think that meant the end result had to be make believe.”

Many others agree with Bateson. According to Morin (2008:68-69) Western science evolved, when with the help of early scientists such as Descartes and Newton, we broke the world up into two parts, the objective world and the subjective world. In the scientific world objective knowledge is attainable and any subjective perception of the world will only lead to scientific errors. However, humans and most living systems are self-organising or autopoietic systems (Maturana and Varela, 1992:43-44). Meaning that no fully objective perception or explanation of the world out there is possible, but that all explanations are interpreted through the self-organising nature of the observer. Self-organisation and autopoiesis is explained in more detail in chapter 5, but essentially it means that our own reflections and the patterns of reflections that we create and maintain through our living, create a perception of the world that is unique to each subject and cannot be objective.

Another feature of conventional western science is that it is based on a reductionist epistemology, which allows us to apply certain objective principles to the world and then gain objective knowledge. Kauffman (2008:17) explains that in the world of reductionism the “explanatory arrows point downward”, which means that everything can be explained by reducing the phenomenon explained to smaller and smaller components. Kauffmann (2008:69) shows very clearly that reductionism does not work in the complex biological world because the more you try to understand complex systems through reductionism the less clear it becomes. In Biology life is emergent and therefore explanatory arrows must “point upwards” to see how life emerges from the simple to the more complex. Kauffman (2008:34-36) says that you cannot explain why an organism needs a heart by reducing it to particles, but rather one has to look at the process of emergence and how the heart emerged in the process of evolution to understand anything about the heart’s functioning.

Morin (2008:87) believes that the traditional reductionist scientific world view is collapsing, because it has become clear that by understanding the most basic building blocks one cannot understand the whole, and by understanding cosmic phenomena one cannot understand the smallest component. Maturana and Verden-Zöllner (2008:156) claim that “science is not a conceptual and operational instrument that permits us to handle a domain of independent objective entities, rather it is an operation and conceptual instrument that permits us to explain and understand what we do as human beings...” Science then becomes a matter of epistemology and reflection and is governed by applying certain rules to our explanations and understanding.

It has become clear to me that the world we know and therefore the world of science are all made of complex dances of interactions and interconnections, woven together by what Bateson (1988:10) calls stories. This also relates to Denzin and Lincoln’s (200:406) metaphor of a researcher being a *bricoleur*, quilt maker or filmmaker.

Even though both Maturana and Bateson can be viewed as constructivists and do not believe in objectivity they were and are rigorous scientists that provide some suggestions on how to either validate or make deductions that are tested against the fundamentals of science. As humans we usually validate our experiences through reflections by stepping out of our current position and then looking back at what we reflect on. In the process of looking back we can evaluate what we experience against our own personal validation system and decide whether something is real or imaginary. This gives us freedom and autonomy as humans and as scientists and is the essence of constructivism, not knowing for sure that the reality that you perceive is 100% real or not (Maturana, 2011: Video, 00:44:30-00:44:38).

So how do we know in science what is valid and true and what is not? What then is the difference between a normal human explanation and scientific explanations? According to Maturana and Verden-Zöllner (2008:150) scientific explanations are not very different from general explanations, except that scientists use “certain criterion of validation of scientific explanations”. Maturana and Verden-Zöllner (2008:150-151) assert that as scientists we need to have a validation system that differentiates between general and scientific explanations. According to them there are four operations that should be followed directly or indirectly by scientists to ensure scientific explanations. These are:

- The scientist must have a description of what the observer must do to have the experience explained: In this thesis I have employed this process through my description of Unisa as a context or case for the study. The description of what I must do to have the experience explained forms the basis of my research methods, which include formal methods such as analytical autoethnography, literature review and metalogues (Bateson, 2000:3-58). I will discuss metalogues in more detail in section 2.6.2 (2) of this chapter.
- A generative mechanism or process, which the scientist wants to explain, must be proposed and the scientist must make it clear what his or her epistemological standing is. (A generative mechanism is a process where you can generalise by having the same experience in more than one context): In this thesis I explored the two stories in the 2 literature review chapters exploring humanness, its origins and evolution in order to understand how we became so different from other mammals in the way we communicate and learn. Second I explored systemic and ecological thinking, complexity and the ecology of mind/ideas. My aim was to find a strong epistemological basis on which I could base my study and to distil fundamental principles through which I could view the context of student communication at Unisa.
- Now the scientist can make deductions or validations based on the experience mapping the process and the epistemological standing in order to give a scientific explanation: In the thesis I employed the principle of mapping the 7 principles to lived experiences through autoethnographic accounts in order to come to 7 conclusions. These can then be viewed as scientific explanations of how the Unisa student communication context can change if it is viewed from a different perspective.
- Once generative mechanism or process has been validated as a scientific explanation, it can be used as a new experience that can be used for new questions: In the thesis I end up with recommendations and conclusions that can be used as generative mechanisms to apply to other contexts at Unisa and possibly also distance learning universities and for that matter any other organisation and system.
(Adapted from Maturana & Verden-Zöllner, 2008:147-154).

From these descriptions science gets a new meaning, as a system of validation based on our descriptions, thinking, living and doing, a process where we clearly state our epistemological positions, clearly define the phenomenon we want to observe, validate our experience through further doing and reflection or recursive reflections and then

map it back to fundamental knowledge already created and then hopefully define new fundamentals through the conclusions we make.

Capra (1988:18) explains how science is evolving and that new physics is showing us today that we cannot know the world out there for certain and that the observer has a great influence on what is observed. As observers we should then be aware of observing the world and how that influences our explanation of things. Observing how we observe, or what Maturana and Verden-Zöllner (2008) call “reflections of reflections” must be considered. As we observe the phenomenon we are looking at, we reflect, and our reflections can be reflected upon; again, by ourselves or by others.

Pretorius (1993:19-50) explains the recursive nature of the process of knowing in her study of families in therapy. Each family member forms their own knowing of the family through the process of recursive reflection and the recursive process again creates a next level of knowing as a family. The family therapist who observes and interacts with the family through recursive interaction and reflection forms a new level of knowing about the family and then the researcher observing the family reflects on the process on a new recursive level and this can go on to even more levels.

As scientists our role is to keep on asking rigorous questions and challenge our conventional way of viewing the world, to see things in a new light. However, simply asking questions does not define what we do as science. Science is a specific process according to Maturana and Verden-Zöllner (2008:147-154) that is a process of active validation through exploring the nature of a living system in an unhindered manner and where we can create common inter-objective (or as I personally prefer inter-subjective) perspectives of our collective experiences through open reflection. Alvesson and Sköldböck (2009:5) add that the process of reflection must be a recursive process between interpretation and reflection. This fits into the process defined in chapter 1 figure 1.1.

2.3 The research approach

According to Henning (2011:1) it is important that a researcher “work from a comfortable ‘epistemological home’”. The research approach selected for this study, based on the epistemological base defined so far, is constructivist in nature and I therefore selected the qualitative research approach.

According to Schumacher and McMillan (1993:14-15) certain distinctions can be made between qualitative and quantitative research. These are:

- Assumptions about the world: Qualitative research is more inclined to be constructivist whereas quantitative research tends to be positivistic based on a single reality.
- Research purpose: In qualitative research the researcher seeks to gain a better understanding and quantitative research tries to explain causes.
- Research methods and process: Mostly in qualitative research the designs are emergent whereas quantitative research has a pre-established design that does not change throughout the study.
- Prototypical studies: Qualitative research allows subjectivity in interpretation of the data, but quantitative research seeks to control the design, which creates bias through the design.
- Researchers' role: In qualitative research the researcher is immersed in the situation that is studied, both in terms of present, future and past. In quantitative research the researcher seeks to detach herself from the study in order to remain objective.
- Importance of the context in the study: Qualitative researchers tend to understand that generalisations are difficult especially across various contexts; whereas quantitative researchers tend to generalise their findings across contexts

Merriam (2002:3-5) maintains that qualitative research is constructivist in nature, as the researcher interprets and constructs the study as essentially interpretive. This approach fits in with the epistemological foundations of the study as well as the basic operations that are required. As already mentioned by Henning (2011:7) in chapter 1, in qualitative research methodology the researcher essentially becomes the research instrument both through making meaning of the context as well as the findings presented. The choice of qualitative research methodology is rooted in the constructivist nature of my thinking and working with meaning and I used myself as the main instrument of the autoethnographic description through my lived experience at Unisa specifically in the domain of student communication. In a sense, this study therefore extends beyond qualitative research into the domain of the personal life and mind of the researcher through autoethnographic narrative writing. My use of autoethnography will be described in more detail in section 2.6 of this chapter.

Williamson (2006:86) contends that “constructivist researchers investigate constructions or meanings about broad concepts such as cultural values, or more specific issues or ideas” which places the researcher at the centre of the study assuming that her ideas and background will have an impact on the study. LeCompte, Preissle and Tesch (1993:86) aver that when we as humans study humans we bring the complexity of our own meaning and symbolism to the research activity. This study definitely brought with it my own perceptions and lived experience into the data and brought with it a deeper understanding and reflection on how to create a new context for effective learning in the distance learning environment.

2.4 Research context: case study

According to Fouche and Schurink (2011:320) case study design is rather a “choice of what to study than a methodological one”. Qualitative researchers often use an emergent design, which means that the incremental research decisions depend on the prior process or information in the study (Schumacher & McMillan 1993:374). The outcome of the study is therefore emergent and cannot be predicted until the study is finalised. In broad terms I have always known that Unisa and specifically the context of student communication would form the basis of my case study as a research design. How it would be applied and which methodologies would be used has however been emergent.

Henning (2011:3-4) concurs, claiming that qualitative research does not pre-set or control the variables, and therefore guards against setting the boundaries of the study as too narrow, because that will limit not only the data but also our understanding of the field of study. Morgan (2008:3) takes it further: “Emergent design involves data collection and analysis procedures that can evolve over the course of a research project in response to what is learned in the earlier parts of the study. In particular, if the research questions and goals change in response to new information and insights, then the research design may need to change accordingly.” The research design was therefore the space or topic within which the researcher decided to conduct the study. In this study the context of student communication at Unisa was selected as the context, however, I never limited myself to only questions about student communication specifically and allowed the questions to extend beyond this area into the institutional cultural and communication aspects.

According to Gerring (2007, Kindle, loc: 105) case studies are ideal when the researcher wants to gain in-depth knowledge of one individual example or case instead of fleeting examples of many cases. He explains that a “Case connotes a spatially delimited phenomenon (a unit) observed at a single point in time or over some period of time.... In a study that attempts to explain the behaviour of individuals...” (Gerring, 2007, Kindle, loc: 477). A case study is not limited to certain numerical, temporal or spatial boundaries, as long as it has identifiable boundaries that are set out in the study.

In my case the need to enrol for the doctorate was born from my own personal involvement in Unisa and specifically student communication and the need to find new epistemological horizons in viewing student communication at Unisa. Henning (2011:40-41) contends that a case study is a study that looks at an identifiable phenomenon within certain boundaries. Some call these bounded systems. According to Merriam, cited in Henning (2011:41) the process of exploring the case is more important than the outcome. One can therefore initially set boundaries but does not have to limit oneself to such boundaries in a rigid way.

In this study I used this exploration of my own lived experiences as a recursive process of philosophical reflection by using analytical autoethnography and reflections to explore the context of student communication at Unisa. I ultimately discovered new ways of being and living in the distance learning environment and especially at Unisa.

2.5 Research process and methods

According to Ellis (2004, Kindle, loc: 988), in qualitative research, methods are “a variety of research techniques and procedures associated with the goal of trying to understand the complexities of the social world in which we live and how we go about thinking, acting, and making meaning of our lives”. In order to create a context where a framework for student communication at Unisa can emerge, we need to have certain procedures and techniques to understand what is going on. Data must be explored in order to ensure that the complexities of the social context of student communication can be understood.

To combine Ellis’s perspective with the scientific process proposed by Maturana and Bateson, the validation process can take place through mapping the fundamentals to

the data. The research process has therefore already been set out in chapter 1 and diagrammatically explained in section 1.3 as a process of philosophical reflection using analytical autoethnography. I will therefore not repeat myself here, but will rather elaborate on methods used during the process. These include analytical autoethnography and a literature review. I will also further discuss data selection and analysis and issues of authenticity, trust and ethics.

A little interlude

During a coffee break while writing this section, my partner, Jacques, asked, “So if what you are doing is autoethnography, what is the opposite?” “Well”, I said, “let’s start with the difference between quantitative and qualitative research, or, let’s say, the difference between using autoethnography and doing questionnaires. Doing conventional quantitative research, you would start with a hypothesis, such as: Student satisfaction is low because Unisa does not have an effective Client Relationship Management (CRM) System in place. Then you send out a questionnaire to thousands of students with a set of questions testing their satisfaction in terms of a particular aspect of enquiries handling. Once you have finalised the results you implement a CRM System and then a year or two later, you do the same questionnaire and test whether satisfaction has gone up. Now you have information from a lot of people about a very small aspect of student communication.”

“Well, that sounds like proper research to me”, Jacques said. “Yes, but there are other ways to do research, like with qualitative and autoethnographic research, the process is very different. You ask some broad questions about the area you want to explore but you never limit yourself. Here the following question could be posed: What conditions must exist for student communication to improve at Unisa. Then based on my years of experience and my memories of my interactions with people over the years, many university reports, magazines, policies and other documents write and explore the context. Second I will define my epistemology or lenses through which I will view Unisa and then will map the fundamental principles of complexity, cybernetics and ecology against the lived experience to see how we can fundamentally change not only how we communicate with students but also how we are being a university.” “Ok”, said Jacques, “that will give you much more in-depth and personal information about your own experience and the people you have contact with.” “Yes”, I replied, “information that will help me to reflect and think philosophically about how we can fundamentally change the way we communicate with students” (Ellis, 2004, Kindle, loc 442).

“But how can you do that?” asked Jacques. “It does not seem like science”, he exclaimed. “I know”, I replied. “That brings me to the second point I want to make about autoethnography. It seems to me that autoethnography is more than just qualitative research. It is a new way of being a researcher, where you stop distancing yourself from the context or people you are researching, but rather where you put yourself in the middle of the research.”

“Does that have to do with the way you write?” Jacques asked. “Yes”, I replied. “That’s exactly how I view it. It is much like writing a story, in which you place yourself as the main character of the story and then explore your experiences, perceptions and even feelings in the story.” “Like an autobiography of sorts?” Jacques asked. “Yes”, I replied. “Just like an autobiography, but one that very specifically explores yourself in a particular context you want to study and also explores not only your experiences but also your reflections of your experiences and memories.”

“That’s interesting”, Jacques said. “I didn’t think one could do that in science.” “Neither did I”, I replied. “Neither did I, until I learnt about autoethnography.”

2.6 Analytical Autoethnography as a reflective philosophical tool

I agree with Davies (1999:179) that bringing the researcher into the research as the research subject can play an important role in liberating us from the positivistic epistemology of the past and can align the study not only with the new epistemology of systems and ecology but also constructivism. Autoethnographers bring an additional dimension to the research process, namely the personal experience of the researcher (Jones, Adams, & Ellis, 2013:33). Autoethnography therefore is not simply another qualitative methodology. It is a way of being a researcher, bringing a much greater part of yourself into the research process. It is the view of Ellis and Bochner (2000:739) that “Autoethnography is an autobiographical genre of writing and research that displays multiple layers of consciousness, connecting the personal to the cultural.” So, it is more than a research methodology; it is a way of writing and researching that is all-encompassing and permeates the way the study is done; moving from very personal to cultural to social aspects of the study (Ellis & Bochner, 2000:739).

In this study, autoethnography helped me to share not only my very personal experiences in the cultural work context in which I find myself but also reflect on those

experiences in a recursive way using fundamental theoretical principles. Sometimes I simply shared my experiences as I remembered them, in other cases I explored cultural and social aspects and I also used it to reflect on the theory. In addition I used it as a meta-conversational tool or metalogues to aid the process of reflection. This will be discussed in more detail in section 2.6.2.

2.6.1 What is autoethnography?

According to Ellis (2004, Kindle, loc: 1000) “Ethno means people or culture; graphy means writing or describing” and auto means “the self” and that autoethnography is where the researcher writes or describes a cultural context from their own personal perspective (Ellis, 2004, Kindle, loc: 1000-1081). In contradiction to conventional research methods, the researcher uses stories and narratives in a way that, “becomes believable, lifelike and possible” in order to reveal more about what is happening in the self and the cultural context (Ellis, 2004).

McIlveen (2008:1) describes autoethnography as “a reflexive means by which the researcher-practitioner consciously embeds himself or herself amidst theory and practice, and by way of intimate autobiographic account, explicates a phenomenon under investigation or intervention.” Hamilton (2006:115) describes the difference between an autobiography and autoethnography, stating that autobiography simply focuses on the self- whereas autoethnography focuses on the self in the social context being studied and how the shifting self creates new ways to explain the context. Therefore “auto-ethnography is a balancing act between the research and the writing” (Hamilton, 2006:115).

Ellis (2004, Kindle, loc: 375) defines autoethnography as “research, writing, story and method that connect the biographical and personal to the cultural, social, and political”. In autoethnography the “I” of the researcher is not only peripheral but also central as the lived experience of the researcher. She feels strongly that autoethnography not only brings the researcher into the centre of the study but that it can have a therapeutic effect. This may help researchers understand themselves in deeper ways and therefore the stories being told in the autoethnographic study are both the method and also the subject of the research (Ellis, 2004, Kindle, loc: 325).

According to Gannon, cited in Lemmer (2012:551) "In auto-ethnography, the subject and object of research collapse into the body/thoughts/feelings of the (auto) ethnographer located in his or her particular space and time." The self of the researcher is central in the cultural context as well as with others in this social context. It even includes the impact that the context had on the researcher or writer and how she/he deals with all these influences (Lemmer, 2012:551). Ellis and Bochner (2000:733) state that autoethnography is therefore not only a method but also a form of writing that gives the researcher the, "opportunity to show how important it is to make the researcher's own experience a topic of investigation in its own right".

An important aspect of autoethnography is to aid researchers in creating a new way of thinking about the subject that they are studying. According to Jones, et al. (2013:21) "autoethnography creates a space for a turn, a change, a reconsideration of how we think, how we research and relationships, and how we live." In this research study, autoethnography gave me the opportunity to reflect on my own way of thinking, doing research and living that ultimately had an impact on how I viewed student communication at Unisa.

In addition, Ellis and Bochner (2000:745) state that autoethnography is not about the researcher alone, but it is almost like a conversation between the researcher and the reader. "They ask their readers to feel the truth of their stories and to become co-participants, engaging the storyline morally, emotionally, aesthetically, and intellectually" (Richardson in Ellis and Bochner, 2000:745) This is a very personal perspective because some people might be engaged with your study and others not, but the attempt of the researcher is to engage the reader into the story in a way that it is believable and emotionally valid. Once this is achieved there is a sense of authenticity of the study.

Autoethnography is a relatively new methodology and evokes a lot of debate, but according to Lemmer (2012:551-552) there are two identified approaches namely evocative realistic autoethnography and analytical autoethnography. The first evokes a lot of emotion and is more used in therapeutic and psychological research; whereas analytical autoethnography is a theoretical tool to analyse and interpret a wide range of social phenomena.

As explained in chapter 1, I chose analytical autoethnography as a method of research, to help me not only share my personal emotional and lived experiences of the context but also to provide a deep philosophical and theoretical base for the study.

2.6.2 Analytical autoethnography

Anderson (2006:373) proposes analytic autoethnography as, “research in which the researcher is (1) a full member in the research group or setting, (2) visible as such a member in published texts, and (3) committed to developing theoretical understandings of broader social phenomena.” The researcher then becomes a “social actor” in the study and her/his own “feelings and experiences are incorporated into the story and considered as vital data for understanding the social world being observed” (Davis, cited in Anderson, 2006:384).

Anderson (2008:166-167) however contrasts analytical autoethnography with evocative autoethnography. According to him analytical autoethnography may have emotive features but its main aim is to develop a, “deeply personal and self-observant ethnography [that] can rise above idiographic particularity to address broader theoretical issues.” (Anderson (2008:168). In contrast focus of evocative autoethnography is to evoke emotional resonance with the reader as the main aim (Anderson (2008:166-167).

The analytic autoethnography fits well within the context of this research study due to the complementary nature of using both very strong theoretical foundations and fundamentals derived from theory as well as autoethnographic contextual and emotive data. In addition I used analytical reflections and theoretical understanding to gain further insights.

Anderson (2008) defines 5 features of analytical autoethnography as follows: I list each of the features and then discuss briefly how it applies to this study.

a) Complete member researcher (CMR)

The main reason for doing this study was to develop a clearer understanding of student communication and my role in it, especially since I have been

working within this context for many years. I am therefore embedded in the context of the research as a staff member working in the field of student communication at Unisa. This gives me a sense of place. Lemmer (2012:549) uses Bourdieu's concept of habitus to clarify how the involvement of the researcher or academic is embedded in the context. Analytical autoethnography has in my case provided me with a similar lens by placing me in a position to describe myself within the context that would aid the recursive process of philosophical reflection.

So the sense of place where the writer finds herself becomes not only part of a physical context but also a lived context with social relations, conceptual ideas, cultures, practices and lived experiences or as Maturana and Verden-Zöllner (2008) would put it, living and languaging environments. Through the autoethnographic account the researcher then becomes visible not just as an individual, but as a person with a sense of place, a context in which she/he finds herself/himself. In my case I am visible in the study as the writer/storyteller but also as an actor in the stories as well as the person reflecting on her own experiences both emotionally, intellectually and theoretically.

b) Analytic reflexivity

Anderson (2006:382) stresses that in autoethnographic research, reflexivity is used to make the researcher aware of their own connection to the bigger research context. In more traditional ethnographic research reflexivity is used to ensure the objectivity of the researcher. However, in autoethnography self-reflexivity is used to personalise the research process even more (Lemmer, 2012:555; Davies, 1999:4). As the researcher I must then reflect on my own lived experiences. This is in line with Maturana's recursive reflection as mentioned earlier. In this process every person reflects on themselves but also on the context and others and recursive reflections where many levels of reflections is part of normal daily living.

According to Ellis (2004, Kindle, loc: 2787), when we write personally and honestly we gain greater understanding of our lived experiences, seeing the world in a more complicated way and then one must "reflexively turn that lens on ourselves". As a researcher I deliberately used my reflections of both my

lived experience in its story format but also used conversations with people who are close to me to reflect on my existing reflections as described in figure 1.1 of chapter 1. These then became recursive reflections from a second order point of view.

In this thesis I employed personal conversations with individuals to help me gain deeper reflexivity. These conversations real and imagined acted as “metalogues” meaning they assisted in helping me see the context and myself in it from a meta position. The people in the conversations did not act as informants, but were real people in my life, mostly my personal life who helped me to create meta-reflections that created the necessary distance or meta positions from the subject of student communication at Unisa. In one case I used an ex-colleague but in all cases these individuals not only agreed to be named in the study but also signed off the sections they were “participants”.

Bateson (2000:3-58) used the concept of metalogues to explain very complex concepts in this way through dialogues with his daughter, which he called metalogues. Such accounts or dialogues then become reflections of one’s own reflections on the issues at hand. My accounts became very personal in this way or I just wanted to make my own very personal voice heard.

I used these personal reflections to enrich the story but also to add to the research process and highlight some critical issues. In the end I used these reflections in the process of mapping my lived experiences to the fundamentals extracted in the literature review and then again reflected on these connections in order to provide fundamentals for effective student communication.

c) Narrative visibility of the researchers’ self

Anderson (2008:173-174) says “By virtue of the autethnographer’s dual role as a member of the social world under study and as a researcher of that world, autoethnography demands enhanced visibility of the researcher’s self. Such visibility demonstrates the researcher’s personal engagement in the social world under study.” This includes analytic insights as well as experiences and even explores the struggle the researcher experienced

throughout the study.

In my case not all the accounts that I used happened prior to the study and I therefore needed to rely on other mechanisms to assist with gathering the data or accounts that were relevant to the study. Lemmer (2012:548, 555) notes that the memory of the writer as well as other mechanisms to assist the writer's memory become very important. Such mechanisms include both "hard facts" and "soft impressions" and by combining them one can comply with research requirements.

Anderson (2008:175) warns against self-absorption where the tool (autoethnography) becomes more important than making sense of the social world we live in. One of the main reasons I selected analytical autoethnography was because I feared that simply exploring my lived experience would not lead to a new way of dealing with the specific issue of student communication at Unisa and also would not contribute to the knowledge around the issue in general. I therefore used the reflective philosophical and analytical approach to aid me in this process

d) Dialogue with informants beyond the self.

Atkinson, Coffey and Delamont in Anderson (2008:175) note "We must not lose sight of the ethnographic imperative that we are seeking to understand and make sense of complex social worlds of which we are only part". We have a responsibility, according to Anderson (2008:175) to engage with others and data in order to ensure that we place ourselves in a context of interrelatedness and not as isolated beings.

In the study I included informal conversations, university reports, resolutions, policies, strategic documents, statistical analysis and even videos. This provided a very rich set of data that complemented my own personal opinions, emotions and perceptions. The analytical autoethnographic script was woven with 3 main elements especially in chapters 3 and 6 that focus on my story of Unisa. These included:

- Personal accounts and stories some of which were more factual and some very personal reflections.

- Metalogues which acted as a reflexive and reflective tool to help me explain and or clarify the ecology of ideas and concepts that I engaged with in the study.
- Documents and videos were extensively used to complement the personal accounts. In the study I specifically selected a number of documents and videos that aided the research process and I will briefly discuss them in section 2.8.1 when I talk about selection of data.

e) Commitment to theoretical analysis.

Anderson (2008:176) defines this characteristic of analytical autoethnography as a commitment to “use empirical data to gain insight into some broader set of social phenomena than provided by the data themselves.” The process explained in section 1.3 of chapter 1 explains my own personal commitment to using theoretical analysis to gain a meta view of the way Unisa communicates with students. In order to gain this strong theoretical base I committed to 2 literature review chapters in the thesis, some of which might be viewed as long and drawn out. However, their aim is to ensure that a clear understanding is gained of what conditions is required for effective learning and communication in the distance learning environment and to define a clear epistemological framework for communication in distance learning in order to ensure academic and personal success as set out in the objectives of the study.

Analytic autoethnography can therefore be defined as the fundamental basis for how the research itself was conducted as a process of philosophical reflection through analytical autoethnography using a theoretical base to aid the reflective process. In the next section I will then explain the importance of the literature review as a tool to crystallise the fundamentals as the basis for the reflective philosophical study.

2.7 Literature review as a tool to crystallising fundamentals as the basis for reflective philosophical study

Chapters 4 and 5 of this study consist of two literature reviews and I will explain the purpose of a literature review and how I will use a literature review in this emergent

study. According to Henning (2011:27) a literature review is important in most studies in order to contextualise the study. This provides the background and context in which the study will take place. However, LeCompte and Preissle (1993:153) maintain that a literature review can be more than a context setter but also form part of the argument between the researcher and the reader or audience. This is what I did in this study.

The review of literature is important because it defines and limits the problem and also puts the study in an historical perspective. An important aspect is also to help create a theoretical framework, define academic terms or identify knowledge gaps as well as to identify what other researchers have already done. A literature review should also assist the researcher in gaining deeper knowledge and insight into the area that is studied and even sometimes provide justification for the research or avoid replication of similar research (adapted from Schumacher & McMillan 1993:113-114; De Vos, Strydom, Fouche, Poggenpoel & Schurink, 1998:65; Bless, Higson-Smith, & Kagee, 2006:24-25).

According to Baumeister and Leary (1997:312) the main goal of a literature review is to either develop or construct a new theory or to evaluate an existing theory. Literature reviews can also survey the state of knowledge around the topic being studied and identify problems, weaknesses, contradictions or controversies in a particular area of investigation. Last, they also mention that a literature review can provide a historical account of the development of theory and research on a particular topic.

A literature review is critically important in understanding the field of research. It ensures relevance and indicates similar studies in the field. It also facilitates the clarification and development of new theories and approaches for research. In my case however, most of the above reasons and goals are valid, but another aspect of the literature review is to weave the story or narrative that I aim to share with the history of humanness as well as placing the study in a theoretical framework by adopting an epistemological position which distils the theoretical fundamentals to aid my own reflective processes.

The importance of a literature review in this study is to do three things:

- To clarify and select research methods and methodologies to be used in the study in this chapter.
- To provide an historical account of how humanity, humanness and learning

developed into the society we have created today, showing how our historical evolution still impacts on us today even though we are changing as a society rapidly becoming a network society. This also showed how our process of living, communication, use of technology and especially learning evolved and what the current context is in relation to these found in chapter 4.

- To clarify my epistemological and theoretical foundations and distil out of the theory the fundamental principles for humanness, communication, change and learning in order to map against my own autoethnographic experiences as found in chapter 5.

The literature review not only creates the context of what is happening now but also reveals the evolution of humanness and a new way of thinking and doing that may impact on student communication at Unisa. Most importantly, the literature review creates a theoretical framework against which the research data can be mapped. Henning (2011:25-26) claims that the theoretical framework frames the study. It “is like the lenses through which you view the world”. The theoretical framework or in this case the theoretical fundamentals will not only frame the study but as shown in chapter 1, figure 1.3 become the lens through which I then study Unisa and student communication.

In this study I have not only reviewed the literature, but have also used audio-visual material extensively to immerse myself in the subject matter. As part of the network society, as a doctoral student, I have access to an unlimited supply of articles and books and videos of lectures and films, snippets of discussions especially of Bateson, Maturana and Kauffman. These helped me obtain a deeper understanding of the subject matter. I have tried, where possible, to not only reference videos alone, but to co-reference them with other literature, but in many cases these videos were like living with the scientist, getting to know them and in Bateson and Maturana’s cases, getting to know the way they speak and their personalities which helped gain a much better understanding of their work.

2.8 Data selection and analysis as an emergent research property

Although it might seem that this autoethnographic and the research process will give a singular perspective of one persons’ account of events, the autoethnographic part of the study included more than just personal accounts, but provided references to policy

and strategic documents as well as video material to aid the validation process. The process of data collection for this study can be described as emergent and follows a more inductive logic where data were collected predominantly through literature study and autoethnographic reflections and the theoretical conclusions emerge from the study (Bryman and Bell, 2003:12-13). In addition, these autoethnographic accounts and reflections will be mapped to the fundamentals or theory which as elements of deductive reasoning can be seen in the description of the research process in chapter 1 section 1.3 and figure 1.1.

2.8.1 Data selection strategies

In this study various forms of data were selected and the process of decision-making will be explained. The following emergent data categories were selected:

a) Autoethnographic accounts and vignettes

In chapter 3 I gave a chronological account of my lived experience at Unisa. I relied heavily on my memory and work reports to provide a coherent story of my lived experience at Unisa. In chapter 6 however, after I distilled the theory, I consciously selected *vignettes* and discussions that had a good fit with the appropriate fundamental discussed.

b) Metalogues

The metalogues with Rina, Jacques and Stan selected in the study were consciously selected from memory in order to explain particular points. In some cases the conversations took place before and during the process of writing the thesis and some aspects were imagined in order to explain a particular concept or context. Although they were emergent they were always intentionally selected to make a point.

c) Literature review

The process of a literature review, although it was also often emergent in nature was deliberate in the need to find two stories that crystallise basic principles or fundamentals into which I could map my data. As already

explained in chapter 1 section 1.2. The first story in chapter 4 of humanness was an exploration of humanness, its origins and evolution in order to understand how we became so different from other mammals in the way we communicate and learn. Its aim was to assist me to understand why students struggle so much in distance learning and why they are so unhappy with the way we communicate and deal with them. Second I explored systemic and ecological thinking, complexity and the ecology of mind/ideas in chapter 5. My aim was to find a strong epistemological basis on which I could base my study.

d) Documents

The selection of Unisa documents in chapter 6 was collected in a very deliberate manner. The context required me to map the theory to the Unisa context of student communication and I selected those documents that best explained how Unisa communicates with students. Since Unisa had no unified policy for student communication I selected documents that either described the essential DNA of the organisation or documents that described Unisa's strategy in general and then derived from them key aspects that touched on student communication. However, no lengthy document analysis was carried out and only key aspects eminent from those documents were used as references to derive how Unisa views student communication the following documents were selected:

- Institutional Statute of the University of South Africa: this document forms the essential DNA of Unisa and describes what Unisa is and how it should be structured.
- Unisa 2015 strategy: This document has been the guiding strategic document for more than a decade since the merger of Unisa, TSA and Vista Vudec. In it one can clearly derive Unisa's strategic intention in relation to student communication.
- Transformation charter: The charter clearly states how Unisa wants to change and which strategic direction Unisa is taking.
- Unisa Open Distance Learning Policy: This policy is the one at Unisa that most clearly describes the way Unisa sees itself in terms of teaching and learning and therefore also indicates the type of relationship Unisa sees

itself having with students.

- Organisational Architecture for Unisa: This document was the most controversial document at Unisa during the time of the study and created a lot of debate around how Unisa wishes to communicate with students in the future.

e) Videos

Various videos were used in the thesis but most acted as sources in the literature review. However one video stood out and this was a video of the Unisa Staff Assembly in September 2013. I personally attended the event, made personal notes, afterwards also transcribed large sections of the video to use in the study. The reason this event was selected was that it was the perfect event to analyse in terms of how the members of Unisa as a community related to one another. Relationships between management, staff, academics and students played out right in front of me and I was fortunate that the event was captured on video.

2.8.2 Data analysis strategies

Data analysis can often be tricky in qualitative research and most difficult in a study with a strong philosophical component. Chang (2008:131-137) however, proposes 10 analytical or interpretation strategies that qualitative researchers can use to ensure a clear understanding of the analysis process. These are:

a) Search for recurring topics, themes, and patterns:

I employed this strategy in the autoethnographic study but also the literature review. In the autoethnographic section of the study I identified specific themes in student communication that are recurrent such as the pattern of disconnect between Unisa and the student facilitated by the closing of the call centre and the ODeL model.

In the literature review section I relied heavily on this strategy because I identified topics, themes and strategies from the literature to distil the fundamentals that would then become the basis of the study.

b) Look for cultural themes

Identifying cultural themes in the study was an important strategy employed. In chapters 3 – 5 a number of themes were identified that relate to Unisa and student communication in particular but also to the way we as humans live, communicate, use technology and also learn. These were then used to identify not only the cultural patterns but also patterns of thinking, looking, deciding and living in the environment of distance learning in general but could be applied to the Unisa context in particular.

c) Identify exceptional occurrences

Certain exceptional occurrences were identified and used in this study. These included decisions like the University's decision to close its call centre, development of a new business model and events such as the staff assembly that will be discussed in chapter 6. These events had a dramatic impact on how the university community functioned and how people related to one another and could not be ignored in the study. These would be difficult to identify if one was not a member of the community, but as a member, there were instances that almost jumped out at you as events that provide insights into how Unisa dealt with student communication.

d) Analyse inclusion and omission

This is an issue that a qualitative researcher must be aware of. When the researcher actively selects certain events and theories, she/he must also take responsibility for inclusions. With regard to the autoethnographic stories of Unisa, I tried to include aspects that were relevant to the study, however, all events and conversations could not be included. The omission does have an impact on the study, however, deciding on relevant ideas and events I had to ensure that they had relevance as patterns and not as singular events.

In terms of the literature review I also made various decisions around inclusions and omissions. The field of cybernetics, complexity and ecological thinking is a vast one and I had to punctuate or frame the studies within certain boundaries. How I did that will be explained in the introductions of

each of the literature review chapters.

e) Connect the present with the past

This strategy was employed in various ways in the study. Telling the Unisa story from a general and personal historical perspective helped to link the present to the past in chapter 3. In addition I also linked our human history and story to our present society in order to see whether from an evolutionary perspective there are things to learn about who we, as humans have become.

f) Analyse relationships between self and others

In the thesis I used a dialogical strategy by viewing my relationship with Unisa as an organisation as well as how others in the field of cybernetics and complexity as well as learning, specifically distance learning, view learning and student communication. I also employed the metalogues as a deliberate strategy to engage my ideas with people who are not directly involved in the field of student communication at Unisa in order to gain a deeper perspective.

g) Compare yourself with other people's case studies

This was mainly carried out using the literature review, focused on scientists working in the field of learning, specifically distance learning and self-organised learning as can be seen in chapter 4.

h) Contextualise broadly

This was again mainly done using the literature review and particularly scientists working in the field of learning, specifically distance learning and self-organised learning this can be seen in chapter 4. However, in the final chapter 7 I also indicated how the fundamental conclusions could be viewed as general principles that can be applied not only in this study but also more broadly in distance learning and any other system.

- i) Compare with social science constructs and ideas.

In this thesis the theoretical constructs, derived from chapters 4 and 5, of living, communication, use of technology and learning as well as cybernetics, second order cybernetics, complexity and the ecology of ideas and the biology of love played an important role in finding a comparative tool to map student communication at Unisa.

- j) Frame with theories

Not only did I use the theory in chapter 4 and 5 to compare but also to frame the study with the theories that I then used to map the student communication context of Unisa.

In chapters 4, 5 and 6 I will refer to these strategies to aid the reader in understanding how I employed them.

2.9 Authenticity and trustworthiness of the study

In order to ensure the validity of constructivist research, authenticity is according to Starr (2010:5), one of the basic principles to comply with. Without a sense of authenticity the reader will not view the research as valid or believable.

According to Guba and Lincoln (1989:245-250), five criteria for authenticity are essential in constructivist evaluative study namely fairness, ontological authenticity, educative authenticity as well as catalytic authenticity and tactical authenticity.

- Fairness is a process where one must ensure that participants and audience agree with the underlying values of the study: It is therefore important for the researcher to explain her/his motivation for doing the study but also as I have done in this study, take the reader through a step-by-step process of how the study was completed and why certain critical decisions were made.
- Ontological authenticity implies that the study aids in the improvement of the researchers' practice in the field: This was critical in aiding the process of understanding and therefore the research process formed the basis of this criteria and how the process lead to the distillation of theory and mapped onto the context

lead to my gaining a better understanding of the ecology of student communication at Unisa.

- Educative authenticity is where the researcher, through self-reflexive awareness and dialogue, gains greater understanding by closer examination of the experience of the other and self: The main instrument used in this study to achieve this was the metalogues and personal reflections that helped me to take the reader with me on a journey in understanding the step by step process of doing the research.
- Catalytic authenticity shows how research stimulates and facilitates action. In my opinion, this is one of the main goals of research especially because it provides me with the opportunity to change: How then will this research change my own life and work? In chapter 7 I made definite recommendations based on the research, however I also share how these new ideas might and have changed the way I live and work.
- Tactical authenticity shows how stakeholders in the evaluation are empowered to act: As the main stakeholder in the study the aim of the study is to empower me with new ideas and a new way of thinking that I might be able to employ in the field of student communication at Unisa. In addition I also intend to further promote these ideas through further research and publishing to share and possibly apply the principles in other contexts.

By applying these criteria, not only do we do research but in the process, learning and change takes place and a sense of connectedness develops with the research (Starr, 2010:5-6).

To help the audience to trust the process Chang (2008:103-112) suggests that the autoethnographer may use three main forms of external data or supporting data. These include interviews, textual artefacts, other artefacts and literature. They help to give authenticity to the study. I have demonstrated in sections 2.6, 2.7 and 2.8 how I have used various stories, events, incidents, conversations, strategic documents, reports, plans, speeches and videos to complement the “soft impressions” with some “hard facts”.

According to McIlveen (2008:4) the autoethnographer must have a framework for quality and trustworthiness to ensure acceptance of her/his research in the research community. A number of criteria, applicable to the research, are suggested. It should:

- a) Be a faithful and comprehensive rendition of the author's experience: Although one runs the risk of not satisfying each reader faithfulness and comprehensiveness in the rendition of your experience is important. In my case it made the thesis quite long, but ultimately the story had to unfold the way it emerged in order to ensure that the reader will trust the process.
- b) Transform the author through self-explication: The process rigorously engaged with my own ideas and thoughts and combined them with the ideas of others and integrated the theory. This has been a transformative process and will be described in the final chapter.
- c) Inform the reader of an experience he or she may not have endured and would be unlikely to in the future: The uniqueness of the context in which I live and work makes my experience quite unique and although some readers might be able to relate to it, the story this time is told from a new and different perspective in this research study.

(Adapted from Mcllveen, 2008:4)

In the process of doing the research the self of the researcher is central, ensuring that all information shared is authentic, clear, explanatory and communicates a sense of truthfulness. Ellis (2004, Kindle, loc: 1814) states that one should always think that the people who one writes about will read what one writes. This will ensure that we treat them in our writing with as much respect as possible. Essential respect for the research community, the community in which you do research and for yourself is therefore critical in qualitative but especially autoethnographic research.

Schurink and Fouche (2011:422) points out that the authenticity and trustworthiness of qualitative research depends largely on the extent to which the researcher provides an audit trail that will allow the reader to follow the story. "An auditing trail is a systematically maintained documentation process of the researcher's continuous critical analysis of all decisions and actions taken during the entire research process." (Schurink and Fouche (2011:422)

In this study I used the research process in figure 1.1 as well as introductions and chapter summaries to assist the reader in understanding the process followed in each chapter and will explain how the audit trail was developed, often elaborating on them in the appendixes. In appendixes C, D and E I have also referenced the fundamental principles to chapters 4 and 5 where the content is linked to the principles. Finally, in chapter 6 I have indicated in the text wherever I discussed a principle by indicating its

number in brackets in the text. This has left a clear conceptual trail back to the fundamental principles.

2.10 Ethical issues

Ethical issues related to constructivist and autoethnographic research must be addressed, especially since autoethnography is a new method and is still viewed with some suspicion by some parts of the academic community as not “objective” and therefore not very ethical. However, Jones, et al. (2013: 27-28) claim that autoethnography liberates the researcher from ethical issues especially, “concerns about how cultural members will be studied – how they will be probed and prodded, what questions they will be asked, who will be interviewed, how the data will be used” (Jones, et al. 2013:27). Personally, I feel that ethically, autoethnography is much more honest about my role and position in the study and essentially I used myself alone as the subject of investigation and placed no blame on others.

On the other hand, according to Davies (1999:47) the researcher can face two main difficulties in deciding how to present the research findings to the academic community, namely:

- How to present research findings that are meaningful to a particular audience.
- The effect that the research may have on the context due to any disclosure (Adapted from Davies, 1999:47).

The researcher must ensure there is a common understanding about the research, how it is accomplished and how the information about the research is both communicated to the research community but also with the participants in the study, whether they are individuals or organisations. Davies (1999:48) says “The purpose is to provide information that will enable people to assess the likely effects of the research on them and to make an informed decision about whether or not they are willing to participate.”

In this study I have ensured that I followed both formal and informal processes to comply with my own and Unisa’s ethical standards. Formally, I have complied with all the university policies. I followed the Ethics Approval Process (see Ethical Clearance Certificate: Appendix A) to ensure that the formal structures of the university are satisfied with the process followed and the study itself. I have also ensured that I have

explained how autoethnography as a method works through exploring the literature and explained how I will use it.

In addition I followed the formal process of getting written permission from all individuals named and used in the dialogues. These formal permission letters can be found in Appendix B. With regard to other characters in the stories, with the exception of the Vice-Chancellor I have not identified any characters specifically. The reason for this is to not compromise anyone but to rather place myself as the central character in the story. In this way I could focus on my own story, perceptions and reflections as the storyteller rather than assigning that to anyone else. This is my story and mine alone.

2.11 Chapter summary

The purpose of this chapter was to elaborate on the research process described in chapter 1 section 1.3. In this chapter I explored the epistemological and methodological aspects of the research. I explained my epistemological stance as constructivist, philosophical and reflective and therefore used the qualitative research approach. I explained how I decided to use Unisa's context of student communication as a research case study and explained why autoethnography and particularly analytical autoethnography was used together with a literature review as methods in my research. I explained how an analytical autoethnography and literature review acted as a reflective philosophical tool by crystallising the fundamentals as the basis for a reflective philosophical study that I mapped onto the case study context. I also explained how I selected and analysed data and then discussed authenticity, trustworthiness and ethical issues.

In the next chapter I will begin my autoethnographic journey at Unisa.

Chapter 3: Current context of student communication at Unisa: an autoethnographic account

Part of "The Student's Prayer" by Humberto Maturana

*Don't impose on me what you know,
I want to explore the unknown
and be the source of my own discoveries.
Let the known be my liberation, not my slavery
(Zohar & Marshall, 2012:290)*

3.1 Introduction

The purpose of this chapter is to give a brief historical background of Unisa and my relationship with it. I have tried to describe the course of events based on what I remembered but also from my own sections annual reports. I have discussed Unisa's evolution from an examining body to a correspondence university as well as the phase where Unisa tried to become an open distance learning university. I described the merger in 2005 and how it affected the processes of the university as well as key decisions Unisa made about the kind of university it is such as the closing of the call centre, the new admissions policy and the ODeL model.

In between each section I have added my more personal story of Unisa in a more autoethnographical format of the history not of Unisa alone but placing myself in the text. These more personal sections I have italicised to create a balance between more factual and personal accounts. I have also deliberately outlined this chapter with metalogues using Rina as a reflective tool that points to my own personal battle with the university.

3.2 Metalogue

"Where do I begin my story of Unisa", I asked. "It is such a complex organisation with such a long history. My own history with Unisa goes back more than 25 years." "You know", Rina said, "any place will do." "That's easy for you to say." I sighed. "But how do I decide?" "Maybe you can view it as if you want to take a trip around the world", she said, "and you don't know where to start, you take a map of the world and close

your eyes and point your finger on the map. Remember, we played a game like that once.” “Yes, I remember, but Rina,” I said, “that’s my problem, I don’t even have a clear map of Unisa as I’m sitting here. It just feels like a muddle, a muddle of experiences, emotions and thoughts.”

“I asked the same question of a few people recently and they had very different answers,” I continued. “What were their answers?” Rina asked. “Well, they didn’t really have answers.” I said. “They mostly had questions. Jacques asked me how my history with Unisa began and what Unisa meant to me personally. Japie wanted to know what is going wrong at Unisa at the moment that makes me want to do this study and Bronwyn asked me where I wanted to end up?” “Wow, these are all very good questions,” Rina said. “The one asks about the past and the other about the present and the last about the future.”

“Yes,” I said. “And I feel that I’m stuck in the middle.” “So how can you combine these ideas, the past and the future of your experience with the stuff that is wrong on the one hand but also right on the other,” Rina asked. “Mm, I don’t know,” I replied. “You know love,” Rina said. “I know that you complain a lot about Unisa and work and that you often feel very frustrated with Unisa, but you know, I have studied at Unisa over many years too, and I know and you know that this is an amazing organisation. It has an amazing past. Isn’t it the oldest distance learning university in the world?” “Yes,” I said. “And it has changed a lot over the years,” she replied.

“It surely has,” I said. “From humble beginnings as an examining body in the late 1900s to a correspondence university and then attempting to become an open distance learning university. But now, with all the new changes trying to become an open distance e-learning university everything seems to be going wrong.” “Yes, you told me about the students and unions that are striking because they do not want the new business model,” Rina said. “But maybe that is just also part of the changes that Unisa has been going through.”

“Didn’t I see that Unisa had a birthday celebration recently,” Rina asked? “Yes, Unisa is now more than 140 years old, quite an achievement,” I said, “but you know, sometimes it feels like Unisa is bursting out of its seams, and I often have fears that this amazing organisation won’t survive the onslaught of the online learning opportunities out there, unless we adapt.” “Yes,” she said, “and now while trying to change very fast, some parts of the organisation want to hold Unisa back.” “I know,” I

said, "maybe they are right, because sometimes it is not good to change too fast. I have a lot of empathy for those students who not only do not have access to technology, but also simply do not live in a world where technology is familiar to them."

"But you know", Rina replied, "no matter what happens, Unisa has an amazing legacy and it is changing as always and no matter how it changes, it is and will leave an amazing mark on South African society." "Wow, what a liberation to see it that way," I exclaimed. "Yes," said Rina, "and even if Unisa does not survive this, it is still amazing what it has achieved. If I think of all the lives Unisa has transformed," I said. "Bronwyn and I visited some of the regions last year to talk to students about the student websites and brochures, and we listened to the most amazing stories. Although many students have complaints, they told us about the opportunities Unisa has opened up for them. A couple visited the farm the other day, Karen and Luke and they are both studying at Unisa and when they heard that I work for Unisa they started to tell me how many of their family members have studied at Unisa. Between them and their children none of them would have been able to go to university if it was not for Unisa."

"That is amazing," said Rina, "Unisa creates opportunities for so many people, you and me included, and I beg you not to forget this. Please Love; don't let the struggle to make Unisa a better place get in your way of seeing the wonder of Unisa. So tell the stories, all of them, the good and the bad of the past, but never forget that you are treading on 'holy ground', because the idea of Unisa can never be erased and the vision that you have for Unisa stands like a lighthouse in the dark."

3.3 Unisa: the evolving university

Vignette:

I entered the Unisa library and had to go one floor down to reach the archives. I stood in front of a locked door with the sign "Unisa Archives" on it. I knocked and waited. After a while I knocked again, no answer. I took out my cellular phone, looked up the archivist number online and called her. After a short while she opened the door with a big smile on her face. "I was expecting you," she said, "but I didn't hear you knock. Prof Wiechers is here," she whispered. She led the way down a narrow passage and suddenly, before me stood the tall ex-rector of Unisa. I had a sudden flash back of decades ago, standing in his office, asking him for assistance. I had just started

working at Unisa as the coordinator of a community project and I didn't have a computer. He was just as friendly as today and offered to buy the project a laptop from his discretionary fund in order for me to get the job done.

"Hello," Prof Wiechers says. "Wow, we haven't seen each other in such a long time. How are things in Corporate Communications?" "We're doing well, thank you prof, and you?" "I'm keeping busy thank you, I'm here at the archives helping a film crew with a documentary," he replied.

And so I find myself in the Unisa archives. Initially it didn't seem like an archive, but just like a busy office, until the archivist opened a huge door that looks like a very big safe. Inside there seems to be a roof, a high steel wall split into shelves of wide vertical pieces with vertical handles on each. She complains that in the last decade or so since the advent of the Internet, people don't send her documents as diligently as before. "You know," she says, "they just put it on the Internet and think that it is safe there."

"What is it you are looking for?" she asks. "Well, I am mostly looking for documents that will tell me how Unisa communicated with students in the past and a little information about student statistics." "Come," she says, "I'll show you." She pulls on one of the handles and opens a shelf that reveals shelves on each side with old leather and newer bound covers, decades of Unisa's past. I felt totally overwhelmed but she started to remove some of the books for me and took me to a window-covered room where I could read in peace.

3.3.1 Introduction

While I was on sabbatical in June 2013, Unisa turned 140 years old and I watched from a distance how the event was celebrated. It gave me the perspective to reflect on this organisation that I not only work for but that is giving me the space and time to do this study. Unisa has gone through many phases in its own evolution. Initially Unisa was an examining body and during the 1940s became a correspondence university. With the advent of the Internet there was a push for Unisa to become an open distance learning university. In 2004 Unisa, Technicon SA and the distance education arm of Vista (Vudec) merged, which had a great impact on the university. Today, Unisa is at the brink of becoming an open distance e-learning university. So let me share with you some of the

story. Part of it will be more factual accounts of what happened, but I will also incidentally, tell my more personal story and encounters in order to provide a little window into my world at Unisa.

3.3.2 Examining body

There is currently a debate looming around whether Unisa was the first university in South Africa. According to Boucher (1973:25) Unisa was established 1873, as the University of the Cape of Good Hope. According to the ICDE (2009:13), Unisa is the oldest distance university in the world.

The University of the Cape of Good Hope was established in Cape Town in 1873 to act as an examining board for various levels of education in the then Cape of Good Hope under the auspices of the British government. In 1918 the South African government university bills were enacted creating three universities, two teaching universities, the University of Cape Town and the University of Stellenbosch, and one examining university, the University of South Africa, Unisa. The University of the Cape of Good Hope was incorporated into Unisa. This meant that various colleges and schools could teach a variety of subjects but would receive accreditation through Unisa's examining board (Boucher: 1973: 25-79).

3.3.3 Correspondence university

In 1946 the division of External Studies was established and trials in correspondence learning began (Boucher, 1973:213-220). Now Unisa became an option for people to study higher education that would otherwise not have been able to do so. These included mostly employed people who could study while working and even prisoners, some who went on to change South African society. These included Nelson Mandela (1994) and Dikgang Moseneke (2008) who studied through Unisa while in prison and admitted that Unisa changed their lives.

In 1954 the Unisa the student newsletter said (Student, 1954:1-2):

There is a kind of corruption abroad in the world to-day by which learning is discounted, an inverted snobbery which has its origin in the twisted values of an exclusively materialistic society. The university cannot hope to be untouched by it, but it can, by its awareness of that corruption and by refusing to lower in the slightest degree its traditional standards, fight against it, fight to preserve and propagate the humanism which has always given to the world its most truly valuable men. For the university's function is no more merely to confer degrees than it is to cram students with knowledge like geese with food, in order that they may command a better market price. Its aim is to lead men and women to a stage in which, thinking independently and fearlessly, they may discard prejudice and false values, may distinguish early between the worthlessness and worthwhile; and armed with the power to discriminate, make their own lives – and so the life of the community in which they live – balanced and rich.

By the early 1990s Unisa was still a fully-fledged correspondence university with approximately 100 000 students. The Print Production Department had “modern” equipment (for that time) printed all the study material and study guides. The Dispatch Department ensured that all postal mail, which was the main form of communication, reached students on time. During this period communication with students was a slow contemplative affair. All communication took place through correspondence and the postal service and all qualifications were year modules. The time it took to communicate and the way the university was structured was in synch. Distance learning was for the mature thinking person wanting to better his or her life.

My Story: Studying at Unisa

My history with Unisa goes back almost 27 years during the phase where Unisa was very much a correspondence university. I remember registering at Unisa for the first time, standing in long lines, first to get brochures, then to register and then to pay. Because I was a postgraduate student we did not have such long queues, but the sense of both chaos and order was overwhelming, and then the wonder at being done. Undergraduate students still had to go to another queue to fetch their study guides before they were through.

Studying at Unisa was for me a life-changing experience. It was not distance learning at all. There was flexibility in the curriculum development at that point that allowed face-to-face education opportunities for courses that required them. I did the MS (Social Science) Mental Health programme and it was a course

where we attended classes one day a week and every few months we attended full week sessions. We built intense personal relationships with fellow students and lecturers learning how to be therapists and community workers, facilitating change in other people's lives.

3.3.4 Towards open distance learning

During the early 1990s two major external forces had a great impact on Unisa. First, South African society changed radically with the abolition of apartheid and the country went into a phase of rapid change. Although Unisa provided higher education to all South Africans, most of its staff however was still white. A very slow process of transformation followed and by 2001 Barney Pitso Moseneke was appointed as Unisa's first black Principal.

The second major impact in the 1990s was the advent of the Internet. Unisa responded fairly quickly and by 1995, Unisa went online and published its first website and established a "student portal" called "Students Online" in order to deliver online teaching and learning to students (Unisa homepage, Web Archive:1996; Students Online, Web Archive:1996). Unisa expanded its footprint over the next decade by opening up offices in all provinces and providing a range of student support services to students. These included registration and administrative services, discussion classes with lecturers, tutorial classes with tutors, assignment boxes for students to drop off their assignments and Unisa started to refer to itself as an Open Distance Learning university.

Around 2000 Unisa started to move away from year modules to semester modules. This also had a great impact on students. From a system where they had three or four assignments per year, tutorial classes and discussion classes with lecturers and students and one examination at the end of the year, students now had to take semester modules. They would register in January, study and do assignments from February to May, write examinations in June and then reregister again for modules in July and so on. This placed great additional burdens on the administration of the university with twice as many registrations and examinations, but it meant more money for the university.

From a teaching and learning perspective Daweti, cited in Heydenrych (2006:5) states that the semester model did not provide adequate assessment opportunities for students and that had a great impact on the throughput rate of students. The problem however was that Unisa made quick decisions and moved fast on issues like semesterisation but did not respond quickly to the needs of the changing ODL environment and students. The lack of student support and the dominance of text as a medium of communication however created an environment of isolation for the student, which is very different from how ODL should be. Unisa's position regarding this was that it had to keep its commitment "low cost and easy access". Academic workload contributed significantly to the lack of the development of ODL instructional design and the development of Open Distance Learning courses. According to Heydenrych (2003:1-2) the university did not have the capacity to change.

By 2003 Heydenrych (2003:2-3) writes: "Unisa has 130 000 registered learners. It delivers 4000 different courses through 60 teaching departments, and learners can take examinations at 500 centres worldwide....Unisa has a well-oiled production system in place, which is well-staffed, in fact, the number of administrative and technical support staff is 2 063 compared to 1 244 teaching and research staff. " Distance learning at Unisa meant that the student studied using correspondence, study material was sent through the post or e-mail and lecturers seldom held discussion classes to meet with students. The use of radio, video, teleconferencing and even the tutor system was very limited.

My Story: Working at Unisa, from community co-ordinator to web manager

After I completed my structured Master's degree at Unisa, I still had to do a dissertation during the period that I had a baby and a small family therapy practice with ex-students and lecturers. The next phase in my relationship with Unisa started with a phone call from Margaret O'Neil, who was a lecturer in the social work department. They had a small community project and received funding to appoint a project manager for a few months just two days a week. Within 9 months I was appointed full-time, because our fundraising efforts were so successful and the project grew so much that it needed someone full-time. We named the project Tiisanang (meaning supporting one another).

Working in the social work department was like being part of a family. Everyone knew one another and time was regulated by tea and lunch times with lots of conversation, but consisting of hard working and dedicated people passionate about their work. The project worked very closely with the Project Development and Fundraising office in the CCM and after three years working for the project, the Department of CCM created the post of Co-ordinator Community Development and I was appointed to this position.

Suddenly I found myself in the hustle and bustle of CCM, communicating directly with top management members and working with professors and lecturers supporting them in their community outreach programmes, while still managing Tiisanang. Part of my responsibility was to ensure that community development had a website on the Unisa website, but I knew nothing about websites. When I approached the IT department they were very friendly but it was clear that we were all still trying to find our feet in the new world of the web. IT assisted me with software and a little pointer here and there but basically I was on my own. And I loved it, I could play and be creative and soon CCM asked me build their website and then the community projects kept streaming in, everyone needing help to create websites.

Managing the web

One day, I was asked by the head of department of CCM to attend the newly created Internet committee on his behalf. You go please, he said, you're the only one that knows anything about that web stuff in this department. And of course I went and became involved in the redevelopment of the Unisa website "by committee", as I called it. The committee consisted of about 20 people from various departments and I still remember how everyone gave their input and the poor graphic designer had to take everyone's opinions into consideration. The end product it seemed to me was just like a collage of varied opinions. I felt that it could not be the right way to do it.

After the website was launched and many conversations at the Internet committee and with the IT director it was decided that the web responsibility had to move from IT to CCM and the IT director approached me to start a new web section. Everyone agreed that this was a great idea and two staff members from IT were transferred to CCM and I was appointed as the Web Manager for Unisa.

Now you must remember that this was the beginning stage of the web. Nobody really knew what they were doing and we were all learning as we went along.

Co-ordinating the web

By early 2000 managing the web became exceedingly difficult. There was no clear policy on how to manage the web and every department simply did what they wanted. Websites were created when departments had someone who was technically competent and they tried their best to create a website that would reflect the nature and information of that department. We soon realised that Unisa needed two things: A web content management system and some form of co-ordination to help manage the web. The IT department was responsible for managing the IT infrastructure for the web as well as the “Students Online (SOL)” portal infrastructure and policy. The Bureau for Learning Development (BLD) was responsible for new online course development initiatives and I was responsible for all Web information excluding academic content.

Out of the need emerged a working group consisting of myself from CCM, two people from IT, one responsible for Students Online and another one coordinating infrastructure and development relating to the web and one person from the Bureau for Learning Development, responsible for online teaching and learning. We called ourselves the Transitional Unisa Web Structure or TUWS. Each one of us was responsible to co-ordinate all our activities across the organisation and was fully responsible for our own areas of responsibility. We came together once a week to talk about areas where our work overlapped or impacted on one another.

Eventually the group wrote the first Internet Policy for the university and tried to create a synergy between the various aspects of the use of the web including communication, academic teaching and learning and technical issues. We worked together on issues such as consistency in branding and communication; new technical needs identification and methods to bring true online learning to the university. Technology was such however that most websites had to be built by hand and IT made contractors available to CCM and BLD to help with the development of websites. During 2001 the IT department assisted us to purchase a web content management system. So by 2003 we had converted all Unisa websites to a new web content management system but most course

websites were still built manually. In 2003 Unisa won the excellence award for the best university website in South Africa.

By 2003 Prof Pityana (Unisa Annual Report, 2003) described Unisa as a university building strong support systems such as expanding learning centres, implementing new satellite learning centres and offering more online services to students. On the surface, and from where I was sitting, everything seemed to be working well.

3.3.5 The merger and post-merger Unisa

Another major change for Unisa was the merger between Unisa with SA's two other major distance education service providers, Technikon Southern Africa and Vista University in 2004. Following the merger, Unisa became the sole provider of distance learning in the country and was by then the largest distance institution in Africa and among the largest in the world. In 2005 Unisa established myUnisa, the new Unisa student portal. Satellite broadcast was introduced to the university and various regional offices created space where academics could provide student support classes at the regional offices.

A new strategy

After the merger, Unisa developed a new strategy called Unisa 2015 in which Unisa defined the vision: "Towards the African university in service of humanity." The strategy admits that the student profile was changing to a younger student who cannot gain access to residential higher education and that students often feel alienated and have negative experiences due to the lack of effective student support services. The strategy aimed to create a new model where Unisa was accessible and could address the needs of the diverse student body. This would be achieved through relevant student support facilitated by appropriate information and communication technology (Unisa 2015 Strategic Plan: 7).

Some of the issues identified, especially internal challenges, specifically referred to the lack of service to students such as the low throughput rate of students, low staff morale that leads to the lack of service for students, but at that point not much was said about the fact that student numbers were growing too fast and

that the service to students was not on par.

The strategic objectives were also very much focused on, making the organisation more efficient although two of the objectives aimed to create a nurturing environment for students and establishing a service-oriented culture in the organisation. One of the targets set in the strategy was the student head count target for 2015 of 250 000 students and specifically focusing on growth in Science and Engineering as well as Agriculture and natural sciences. The problem however is that Unisa's headcount at around 2013 was about 360 000 formal qualification students. Including informal qualifications it is more than 400 000, and this is creating serious capacity issues for the university especially since staff numbers have not increased at the same ratio and systems cannot cope with the capacity. The strategy seems to support the notion of excellent service to students considering their own personal circumstances and the need for a deep understanding of their needs and addressing these needs in a flexible and supportive environment (Unisa 2015 Strategic Plan:18).

Looking back now, it seems that many of the targets set in the strategy were not realised and often implementation was slow. Many of the targets such as an ICT plan, increased throughput rate, a tracking system for students and increased student services which will lead to a marked improvement of Student Satisfaction has not been reached. The target of 100% Student Support Service Satisfaction Index was very unrealistic and not only did the index increase from 76, 31% in 2005, but lowered to 64, 99% by 2012 (Student Satisfaction Survey, 2012:16). Pass and throughput rates have all also decreased although great targets to increase them were set (Annual report of the Principal and Vice Chancellor to Council on the performance of the University, 2013:13).

The Centre for Graduate Studies that was set as a target was established as the College of Graduate Studies but as a graduate student, I personally have had no support from them in the process of either applying, registering or other support. I am, however, also aware it took the new college a long time to set up adequate resources to support graduate students. The strategy also states that more regional infrastructure should be created, but the rumours around campus are that support services in regional centres will be limited and that in future tutorial support and administrative support will move towards the online environment.

The strategy states that a well-functioning Student Representative Council (SRC) has always been the backbone of effective relations between the university and students, but in the last few decades the SRC elections have become more politicised and students are only participating in student elections at a rate around 3%. In general the intent of the strategy seems sound, but the university does not seem to find adequate ways to effectively meet these targets, especially ensuring effective communication with students to facilitate the teaching and learning as well as the smooth running of the administrative processes with students.

A little statistics – the student explosion

According to The South African Survey: Education (2010/2011), Unisa had 32% of all university students from South Africa although it only gets approximately 9% of the government spending on higher education. The academic staff/student ratio of Unisa is 165:1 whereas it is between 15:1 and 59:1 for most other universities. It is difficult to make this comparison, since Unisa is a distance education university but it simply means that Unisa is able to provide higher education to many more students than any other university in the country, educating approximately a third of the country's graduates.

After the merger the student numbers kept rising exponentially. At this point it would be good to share how Unisa changed in terms of numbers.

Unisa Students

Over the period 2005 – 2011 there have been quite a few changes to the student profile at Unisa (An institutional profile: Unisa Facts and Figures, 2012):

- Student numbers: The student population grew from approximately 200 000 in 2005 to more than 330 000 in 2011. It seems that Unisa will exceed 400 000 in 2014, virtually doubling student numbers in 9 years. The growth however has been doubling on average every decade but the exponential nature of the current growth makes it unmanageable.
- Age: The proportion of students younger than 30 years old increased from 31% to 51%.

- Gender: The female student population grew from 55% to 61%.
- Race: The black student population grew from 56% to almost 70%.

Some other interesting statistics are:

- Geography: More than half of Unisa students live in the Gauteng Province and the rest are mostly in the Durban, Cape Town and Polokwane regions. International students comprise only about 8 % of the student body.
- Employment: 48% of students are employed, and 22% do not indicate their employment status, whereas 10 % classify themselves as full-time students and 20% as unemployed.
- Language: Only 23% of students are English-speaking but a study recently carried out indicates that most students want tuition to be in English.
- Colleges: 45% of students are studying Economic and Management Sciences, 21% Education, 15 % Human Sciences, 10% Law, 7% Science, Engineering and Technology and 2% Agriculture and Environmental Sciences.
- Success rate: The graduation rate, which is an indication of the success rate of students at Unisa was only 8, 9% in 2010, even though it increased from 6.8% in 2008.

Unisa Staff

Although the student population has increased from 200 000 to almost 330 000 students in just 6 years from 2004 – 2011, the staff body has shrunk from 6 574 to 5 575 in 2011. The academic community had shrunk from 2 572 to 1 839 (Unisa Facts and Figures 2011 & Unisa Staff Statistics, 2011). Some staff statistics are:

- Age: About 21% are under 30, 55% are between 30 and 50 and about 24 % are older than 60.
- Gender: almost 57% are female and 43 % male.
- Race: 57 % are black and 35% are white. Indian and Coloured people constitute about 7%.
- Of the 5 575 members of staff 1 849 are academics and in total 470 have Doctorates, 376 have Master's Degrees and 212 have an Honours degree. This means that more than 40% of all academic staff do not have

postgraduate qualifications.

New admissions policy

In 2008 the university decided to implement a new admissions policy, which meant that students now had to apply before they studied at Unisa. The reason for this was to ensure that adequate admission standards were set to ensure better throughput but also to enable the university to do better planning regarding printing of study material and appointment of tutors, amongst others. The application process was initially outsourced but by mid-2008 the Registrar started a new Admissions Division to oversee the application process. CCM launched the AB4R (Apply Before you Register) media campaign. The aim of the campaign was to ensure that students understood that they could not simply come to Unisa to register anymore, but first had to apply in the August/September period of the previous year. This initially only applied to those prospective students who had never previously studied with Unisa.

The student walk

This created a lot of confusion amongst staff and students about how the process now worked. In addition to the AB4R campaign, the Department of Corporate Communication and Marketing launched an internal campaign for staff, based on a framework and model developed by the ODL office. CCM redesigned the “The Student Walk”. This framework defined the different phases that a distance learning student goes through from basic awareness to graduation and lifelong learning and aimed to develop not only a better understanding of ODL amongst students but also simplify the communication products and services for students.



Figure 3.1: The student walk 2008

During the campaign in 2008 and later the ODL group participants indicated that this student walk did not represent the process the student had to go through. Mainly it did not place the student at the centre of the process but metaphorically portrayed the university as a building that the student has to ascend.

By October 2008 Unisa's Council approved the Open Distance Learning Policy (2008:2), which defined Open Distance Learning as:

... a multi-dimensional concept aimed at bridging the time, geographical, economic, social, educational and communication distance between student and institution, student and academics, student and courseware and student and peers. Open distance learning focuses on removing barriers to access learning, flexibility of learning provision, student-centredness, supporting students and constructing learning programmes with the expectation that students can succeed.

The policy applied the principles of ODL in terms of providing open access through the new Admission Policy (2011) and facilitation of student centred teaching and learning through the Curriculum Policy (2010). The basic principles established were that Unisa would provide access to students that will enable success in Open Distance Learning, provide adequate student support in a range of formats including the Internet, multimedia and face-to-face support at Regional Offices.

During 2012 and 2013 the student walk was revised to be less rigid and instead of a metaphor of a building that a student must climb up, have a more circular and process based metaphor. By the end of 2012 the new student walk looked like this:

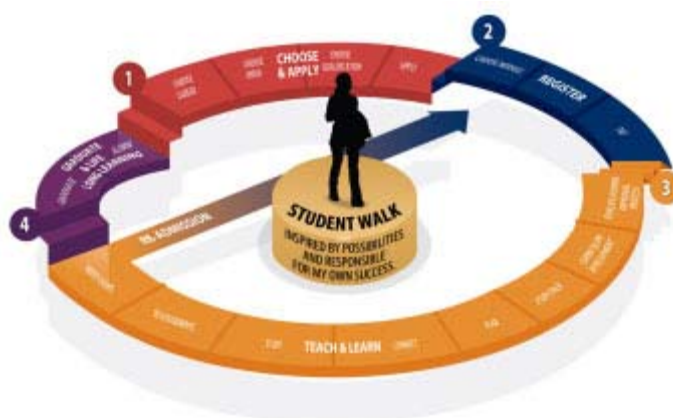


Figure 3.2: The student walk 2012

Student information and communication

During the period of 2006 to 2009 many changes took place in terms of defining Open Distance Learning. However, there was much confusion after the merger regarding what Unisa means by ODL amongst both staff and students. Various departments also produced different products in the form of brochures, websites and CDs and DVDs to assist students in understanding the processes of the ODL University. There was however no uniform communication strategy and communication to students was very fragmented.

Early in 2009 the Deputy Registrar and her DSAR approached CCM to explore ways to improve and simplify and streamline student communication. Since 2009, CCM has been actively involved in managing the process of developing and implementing a Student Communication and Marketing Strategy. The strategy was linked to the university's Corporate Communication and Marketing Strategy as well as linked to the university's strategy and operational plans.

The main objective of the strategy was to ensure that students understood the process of studying through open distance learning and to provide them with all

the information on how to manage all processes from application to graduation and becoming an alumnus. The project itself aimed to co-ordinate all student communication materials across the university in order to provide students with clear information about processes and services that the university provides. My personal intent was for these sets of products to be like “how to” manuals for navigating Unisa.

CCM integrated the “Student Walk” into sets of products to streamline student communication. Each phase of the student walk would consist of at least a brochure, website and a CD or DVD and would contain all the information that a student might need in that phase of the student walk. A Student Communication and Marketing Steering Committee was formed in 2010 represented by many of the senior managers, mostly consisting of executive directors. Line managers from each area who played a key role in the project were also represented. Between 2010 and 2013 the informal nature of the committee created problems and by the end of 2013 there were plans to form a formal subcommittee of the Senate Tuition and Learning Committee to co-ordinate activities.

Development of Student Communication Marketing and Information Products

Part of the process was to ensure that all information has only one source. All brochure and web content, both structured and unstructured, were created and stored in one place and once approved and signed off, were published to all output formats such as websites, brochures and CDs.

The product sets indicated in the chart below included touch screens and CDs for each phase of the Student Walk. After much consideration regarding the usefulness of touch screens at regional centres, it was decided to postpone implementing the products on touch screens until Unisa has finalised the Digital Signage Project that will manage all digital notice boards on campus including touch screens. CDs have also become redundant because many new computers do not have CD drives and CDs as a means of storing and distributing data is becoming redundant.



Information



Figure 3.3: Product set in the student walk

The four product sets were developed from 2009 for the academic year 2010 and every year since then.

The four phases and their product sets are:

- Choose and apply: the product set is *myChoice @ Unisa*. During this phase students must choose distance education, Unisa, a career as well as a qualification and then go through the application process.
- Register: the product set is *myRegistration @ Unisa*. During this phase students must select their modules, register and pay.
- Teach and learn: the product set is *myStudies @ Unisa*. Here students and lecturers engage in teaching and learning. This includes the process of qualification approval and development of curricula, planning by students and connecting with Unisa's student support, student affairs as well as counselling processes, studying and doing assessment in the form of assignments and examinations.
- Graduate and Life-long Learning: the product set is *myLink @ Unisa*. Once a student has completed their studies she/he must understand the graduation process as well as how to either continue their studies or remain a part of the university community through the alumni association or further study.

Each set of products was developed as a sort of manual to help the student through the process in as many touch points and channels as possible. To a large extent the project was a success, because all information was now the same and no duplication of information existed. However, many of the aims of the project have not been achieved. Some of these include:

- By the time the applications open the information about the curriculum for a qualification is not yet available so applicants often make uninformed decisions about what they want to study. This is because often Senate still makes changes to curricula in the June Senate meeting and the brochures and website are already finalised by May/June.
- The *myChoice @ Unisa* product set was meant to discourage students who are not suited for distance education from applying but this clearly did not work.
- The registration information is often very late and sometimes only reaches students by mid-December or early January, while registration is already open at the end of November. Part of the problem here is that the systems from which the information for the websites and brochures are created can only be updated once the previous registration is closed. This leaves very little time to update the information, get approval and publish the information.
- The intention was to provide students with a “how to” guide on how to study distance education by developing the *myStudies @ Unisa* brochure and DVD with the hope that this would improve the throughput rate but we have no idea how effective this is.

Transactional systems

Over the last few years, Unisa has moved from paper and personal modes of application and registration to a full online system. All students are now required to either register on the web using their own technology, or come to one of the Unisa regional offices to register themselves online on one of the university self-help systems. Often students do experience problems with the systems, but every year issues are identified and the system seems to be working more effectively. The application and registration systems are the responsibility of the DSAR and these systems are managed fairly well and the roles and responsibilities for managing them are quite clear.

In terms of the transactional system for the students during their studies, myUnisa is the student portal for transacting with the university. Students can do almost any transaction with the university such as download study material, submit and track assignments and get their results for both assignments and examinations, communicate with lectures through discussion forums, re-register, pay, update personal details and much more. In 2013 more than 400 000 students used myUnisa and the system has logged more than 30 million visits to the site. This means that on average the student visited myUnisa more than 77 times in 2013. This is an indication that almost all students find a way to access myUnisa either via computer or cell phone at some point during their studies.

Unisa has a separate alumni system where alumni can update their contact details and this is the responsibility of the alumni directorate. The information in the system is regularly extracted from the student system and imported into the alumni system. Alumni can then update their details on the web. The alumni office then uses this data to communicate with alumni mainly through emails and newsletters.

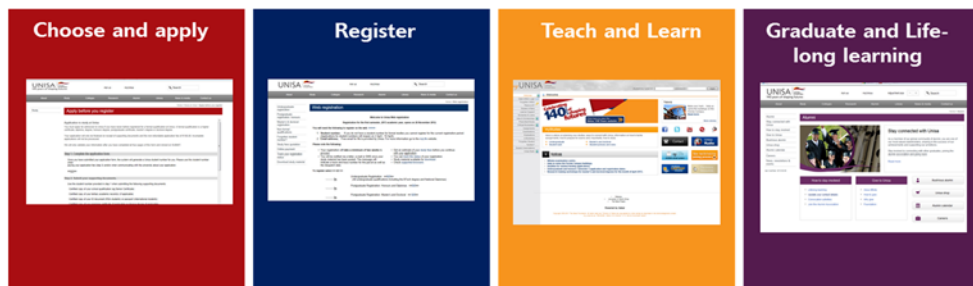


Figure 3.4: Student walk access to transactional systems

Each phase at this point therefore has a separate transactional system through which data flow. The only part of the system that is still disconnected is the alumni system that does not send information back to the central Unisa database.

Student enquiries

Over the last two decades the way the world communicates has changed dramatically and so did Unisa. Not only did the Internet and email revolutionise

the way people find information, but also social media and cell phones have created a sense of urgency and immediacy in terms of communication. And with the change in society, so the needs of students also changed. Students no longer had the patience to wait for responses in the mail and by the early 2000s Unisa started a call centre. After the merger the call centre was expanded and moved to the Florida Campus.

The call centre experienced many problems, including being disconnected from the rest of the university. Call centre agents did not have access to the right systems and could not assist students effectively. In addition the call centre was physically housed on the Florida Campus, which is a city away from most other student support departments. Attempts to streamline systems and business process failed and in 2011 Unisa Management decided to close the call centre. Management gave instruction that all student communication must be run through e-mail and SMS and initially no telephone calls were answered. After a flood of complaints by students the university decided to open the telephone lines again and a list of telephone numbers was republished on the website.

Complaints sites such as HelloPeter.com and university e-mail systems are still inundated with complaints by students who cannot get through to telephones and individual departments such as the Student Admission and Registration Directorate, Dispatch, Student Assessment and myUnisa started to appoint contract workers to answer telephone calls.

Management's attempt to develop a Student Relationship Management Model and System does not seem to get off the ground due to internal political issues. In the process students are still expressing their frustration on Social Media sites and any channel in the university that they can find. Recently however, ICT has identified a Student Relationship Management system as one of its highest priorities, but the procurement process will take about two years, resulting in a delay before such a system is implemented.

Social Media

Unisa started to embrace social media and in 2009 began a Unisa Facebook page. Since then it has grown to more than 210 000 users by mid-2014. Other social media platforms are also used such as Twitter but Unisa has so far used

Facebook most extensively.

The debate regarding Social Media is on-going on the basis that we should control how the university communicates using social media on the one hand and the need for students and staff to create as many platforms as they need to effectively stimulate communication. Unisa has adopted the position that we must control some of the content and therefore has created one Facebook and Twitter channel each for the university. This has paid off and the growth in the use of the Facebook site demonstrates this.

CCM manages the social media sites and produces a weekly report that goes to the management committee. Some interesting trends have emerged from social media:

- Students use the social media platforms to vent their frustration regarding inadequate services.
- Students are not interested in the internal politics or social activities of the university.
- Students appreciate it when Unisa posts encouraging messages, especially about assignment and examination times, on social media.
- Students get very impatient when Unisa does not respond to their needs, whether this is on social media, telephonically or any other way.
- Students often assist each other on social media platforms and use the platform often to sell or exchange books and for study groups.

My Story: The Merger and student communication

In 2001 we had already heard rumours that the Minister of Education wants various higher education organisations to merge. In early 2003 the announcement was made that Unisa would merge with the Technicon SA and the distance education arm of Vista, Vudec. People often talked about this in the corridors but most believed that it would not happen. It was as if nobody believed that it would happen. Unisa resisted this move and after a long battle including the plea to retain the name Unisa, the merger took place in 2004.

The Merger process created great political turmoil and uncertainty for many of us. People were uncertain about whether they would keep their jobs and some of us felt that we had to fight for our own survival. In the end it was decided that CCM would retain the responsibility of managing the corporate websites but that ICT (as IT was now known) would manage all aspects of online teaching and learning.

I remember this phase of my life at Unisa as a phase of utter turmoil. I had built up a small team of people and there were days when I was not sure that the section would survive or whether I would still have a job during the restructuring process. There were other times when I was told that I was a threat to some individuals and that individuals in the other pre-merger organisations feared that they would lose their jobs because of the existence of my section. But the dust eventually settled and myUnisa, the new Student Portal was launched early in 2006. After a massive rebranding process, Unisa also launched a new website by 2006. However, it was still based on the old Unisa infrastructure.

It was decided that the Bureau for Learning Development, now the Directorate for Curriculum and Learning Development (DCLD) would play a more consultative role regarding online learning. Soon a myUnisa board was formed to co-ordinate web activities around teaching and learning. I was part of the board, but the co-ordination and integration between the corporate web activities and the IT department was largely lost. Suddenly we are no longer partners but clients. We had to ask for assistance from ICT by logging a call, just like everyone else.

On the one hand I felt alienated from ICT but on the other hand I had built relationships with various key people in ICT and we managed to cope. As the needs for more online services grew, the Web section also grew, adding more responsibility such as daily online notices and a weekly online staff newsletter. And as the work grew, so did the team and today the team consist of fourteen people and is known as the Directorate: Electronic and Web Communication.

Student communication – brochures and websites

My involvement with student communication was very serendipitous. In 2009 I was called together with my Executive Director and a number of my colleagues to a meeting with the Deputy Registrar and DSAR. They wanted the

Department of Corporate Communication and Marketing (CCM) to assist them in order to improve, simplify and streamline student communication, especially through brochure and web development. They were having problems with too many brochures and websites and often the information on various products would contradict each another.

Initially the Marketing Directorate in CCM would run the project but soon we realised that the project required a lot of technical skills and I was roped in. Information and brochures had to be identical and together with ICT we went through a rigorous process of trying to generate the Unisa brochures directly from the Academic Information Management System (AIMS). This system was managed by the Directorate Programme Accreditation and Registration. Prior to the merger the Calendars, as the qualification brochures were called, were produced by the registration department but this function was now moved to the Academic Planner's office.

Without going into too much detail, getting the brochures for applications and registrations produced over the last few years has been very difficult. The main reason for this is that the process of a qualification being created and approved starts with the academic community who then go through a process of approval through the academic department, College Board and in the end the university Senate. Once approval is granted the Directorate Programme Accreditation and Registration then does all the formal registrations with the Department of Higher Education. After final approval the data is captured in the AIMS after which ICT must export the data in the correct format and we at CCM must apply XSL style sheets that then generate both the printed brochures and the website content from the same data.

My biggest problem has been that I was informally appointed to manage the process of producing the websites and brochures. A critical factor is that the brochures must be ready around September of each year to go to production. This is important because after September the Print Production Department must focus on study guides. They must also be ready well in advance of application and registration dates so that students can make informed decisions. Over the past five years we have not been able to have the brochures in on time due to the great set of interdependencies amongst all these departments. Often colleagues do not understand that they must sign off data from the database and

not only after the brochures are generated for print and web, other times Senate makes very late changes and we are obliged to implement these changes and start over.

My biggest frustration has been to get everyone on the same page so that we can agree that we all want the same thing, excellent information and service to our students. I have to admit, I know that everyone wants that, but the complexity of the problem of getting hundreds of people to line up like a set of dominoes or production line to reach a specific deadline seems impossible.

The problem, however, in my mind, is not that simple. In my position as co-ordinator I am communicating with all individuals involved and I am able to put myself into the position of each individual in this production line. Each individual is not only trying their best but also trying to be innovative in creating solutions to make the timelines shorter and meet deadlines. But the time it takes and the deadlines that should be met simply do not match and most people feel that we are in a deadlock situation. These issues have been discussed at various top organisational committees such as senate and the management committee and various attempts have been made to resolve them. Senate has decided that no qualification changes may be made after March of the year in which applications open, but there are always exceptions, and in the world of production, databases and XML, one change has the same level of impact as 100 changes. Getting the right information, perfectly correct and on time to the students seems like an impossible task.

Another issue is that individual staff members or departments often become bottlenecks in the system. A recurrent problem is that a particular individual who forms an essential part of a process is either inefficient or absent, thus arresting the process. If a system fails, or someone is absent from work, or there is a peak in enquiries with not enough people to deal with them a bottleneck occurs. Unisa has various committees to address these concerns, but in my experience these committees are not very effective in dealing with issues. Due to the large number of committees in the organisation, attendance at these meetings are often delegated to junior staff members who often do not have the authority or power to resolve the issues. It seems to me that Unisa is like a big machine that must produce graduates with this incredibly complex production line to transport students to the end of the assembly line. If the machine runs smoothly, people

are relatively happy, but if one small part of the machine breaks or is dysfunctional it can lead to a total breakdown of a particular student's process.

I have experienced this personally with my own registration process at Unisa. I went through the first steps of filling in the forms and paying within one day. The efficient administrator who registered me sent the file with all my documents to the academic department the next day. She told me that I should have an answer from the college within a week or two. After a month I called the administrator and after a few days of frustrating phone calls to the college she could not get an answer. Out of frustration I called a senior manager in the college who physically went in search of my file. The file was never found and a new file had to be opened and the process started from the beginning. So if one domino does not fall, the whole process stops.

Unisa, the faceless organisation

I will never forget the day in July 2011 when we were told that CCM must develop a campaign to inform students that Unisa wants to improve communication with them by closing the call centre. The campaign was supposed to inform students that Unisa will improve communication with them by only communicating with them via email and SMS and no longer have telephonic communication. We were all dumbstruck. Resistance to the idea was simply dismissed with statements that it was a management decision that could not be debated. So CCM launched the campaign by the end of July because the call centre closed on 1 August and we were given the assurance that all SMS and email enquiries will be answered within 48 hours. We were also instructed to include this in the campaign. Within days, telephones all over the campus started to ring. Students needed help, wanted to ask questions, have conversations with someone about complicated issues and SMS and email just wouldn't do.

In December 2011 management made a decision to publish all the telephone numbers of the managers of various student front line sections in the university who get the most enquiries on the Unisa website. My number was included under general enquiries. The result of this was that telephones of the people on the list were ringing out. Students were asking whether they can take particular modules in specific programmes, why their registration hadn't been processed,

or simply that they could not contact their lecturer. I was unable to answer any of these queries, and I would attempt to transfer the call to a relevant person only to find that the phones were engaged constantly because everyone else was trying to achieve the same results by similar means. There was no a call waiting feature or answering service, just engaged lines.

Social media sites were inundated with angry students and complaints. Websites were inundated with students asking complex questions. The service departments where most enquiries were directed to, had in the last two years tried very hard to create more capacity by appointing more staff, but due to limited staff points they could only get seasonal contract workers to assist at times of high volume.

I personally have had numerous encounters with Unisa students, at work, in my personal life as well as on social media platforms, expressing their frustration at Unisa's unresponsiveness. Their complaints are that Unisa does not respond to their enquiries and when there is a response to their enquiry often only one of many problems are resolved. Many have said over the last few years that they'd rather have the old call centre back, because at least someone picked up the phone and even if the person could not help them they had someone to off load their frustration on.

However, I must put this in perspective. Unisa handles hundreds of thousands of applications, registrations, assignments, examinations and other enquiries annually and most of these enquiries are resolved with relatively few problems. The moment someone gets stuck somewhere, for instance if the enquiry is either complex or has more than one aspect, Unisa's responsiveness diminishes.

Standardisation of processes

Over the past few years there seems to have been a standardisation of processes in the university. Due to the enormous number of students that we have to deal with and the limited staff to deal with them, processes are standardised and if a student does not conform to the process, then no progress can occur. When this happens there is little the student can do. A cousin of mine once had an enquiry about his registration and because he did not get an answer, drove about 150 km to the Cape Town regional office, simply to find out

that they did not have access to the system or information to assist in resolving his issues.

These are some of the reasons that I have decided to embark on this study. It does not seem that Unisa's policies are helping students to be more successful in their studies, and Unisa's response to the needs of students is simply not working. The harder staff members try, the more they hear words such as service excellence and servant leadership, potential for success, high performing university, the more they hear administrators say that the IT systems and the staff capacity cannot cope with the volume of students. The majority of academics' complaints are about the focus being placed on research and more administrative tasks and that they have less freedom to teach. Two other words I have heard very often lately are silo effect and lack of interconnectedness in the organisation. This often leads to misunderstandings or initiatives failing because the one hand does not know what the other hand is doing.

3.3.6 Open distance e-learning

In April 2012 Unisa published a report on a new organisational architecture for the university. It proposed a radical shift in the way Unisa interacts with students and suggested an overhaul of all Unisa's major systems in order to deliver a true Open Distance and E-Learning model to students. The business model was approved by the Unisa Council. The document stated that all transactions will be captured and handled digitally and all "*educational resources, required by students will be provided to students exclusively in digital form*" (Unisa's Organisational Architecture: Interim Report, 2012:4).

According to the document Unisa will also move towards an open licencing regime and "*a default licence for all products produced through its various activities and engagements, a Creative Commons Attribution (BY) licence*" (Unisa's Organisational Architecture: Interim Report, 2012:5).

A modern student relationship management system should be implemented that will facilitated effective communication with students, including having access to a personal e-tutor and all students will be required to have a digital device and access to the Internet. This new operational model will require big internal

changes in the university, including changing procurement and human resources policies in order to create an agile institution that can react fast to the changing environment.

The plan states that the model sees a complete shift to open, distance, and e-learning at Unisa, with corresponding implications for all operations and systems. In this model, the entire institution's "transactional environment" with students is transformed so that all aspects of that environment are fully digitized and thus underpinned by robust, effective, and integrated ICT applications". Student support and all administrative services will move from face-to-face and postal services to online services including signature courses that are fully online. Only in 2012/2013 the following new policies and initiatives were introduced:

- Unisa moving towards an online environment: Unisa is moving towards an ODeL business model and this will affect every student.
 - Signature courses: Every student who started a new undergraduate qualification at Unisa from 2013 must do a signature module, which is a full online module.
 - E-tutors: Every student doing NQF level 5 modules will be provided with an e-tutor.
 - Postgraduate going fully online: All postgraduate studies will be fully online from 2014. This will apply to all students who start new qualifications in 2013. Students will not receive any printed study material from 2014.
- Admission and re-admission: Unisa has new admission and re-admission policies. From 2013, all students must now apply, whether they have studied at Unisa before or not. In addition higher admission requirements were also implemented. To be re-admitted as a student in 2014, a student must register for and pass at least 36 credits (or three modules) in 2013 and from the second year of study, a student must pass a minimum of 48 credits (four modules) per year.

In August 2013 Unisa launched a "Unisa is changing" media campaign to communicate the above messages to students. Soon various debates started raging in the university. Academics feel that they are marginalised in teaching and learning developments in an online environment. Administrative and ICT

processes were not yet ready for the new business model. Students feel marginalised because they either do not have access to technology and the Internet. They also feel that they do not have the necessary technical skills to be successful in Open Distance Learning if ICT access is a requirement.

Later in August the trade unions and students started to protest. On 11 September 2013 the Vice-Chancellor Prof Makhanya called an extraordinary staff assembly to discuss the issues. It was decided that the implementation of the business model would be placed on hold and a committee was formed to make recommendations to the Council. In the meantime Unisa's ICT Department was trying to find the capacity to implement all the systems to make the ODeL model work.

My Story: Where do we go now?

I was summoned into my Executive Director's office in May 2013 after she called to discuss the new campaign for the new ODeL business model. We had several meetings with various role players. After many meetings and various discussions with other senior managers, we developed a new campaign to promote Unisa as a university moving towards ODeL. After months of struggle to get the right messages we launched the "Unisa is Changing Campaign". Newspaper advertisements, web banners, social media campaigns and even a YouTube video was launched ready for the applications phase to start in mid-August 2013.

By late August 2013 phone calls start coming from all quarters of the University. "Who approved the Unisa is changing campaign?" "We cannot say that students can only register online, please remove that from the website, and recall the media campaign!" And within a week I had been called to top management offices to explain. After showing proof of all approvals and slapped over the wrists we fixed what we could and life went on. I however had a strange realisation. I was on my own, nobody wanted to take responsibility for launching the campaign and everyone wanted to blame everyone else.

In early September CCM received an instruction to send out invitations to all staff to an extraordinary assembly. The hall was packed and facilitated by an external facilitator and all control was almost lost. Students and union members agreed that the new Business Model is fine but that the implementation plan is lacking

and in the end the Principal appointed a committee once again. I was not selected for the committee but one of my colleagues was, two weeks passed and the committee had not met.

At the time of writing this, I have no idea where Unisa is going in terms of both student communication and business model. Will we abandon our dream to move into the future? Will we be sensitive to those students who simply do not have access to the Internet? Will we again open our telephone lines and have capable people responding to the needs of our students? And will we survive the onslaught of global universities providing accredited degrees through full online courses?

3.4 Metalogue

“So did you read the chapter,” I asked Rina as she answered the phone? “Yes, I did,” she patiently replied. “What do you think? Is it balanced, did I step on too many toes?” I could sense that she was smiling at the other end of the line. “Yes, I think it’s balanced and no, I think you were just honest in your description of Unisa, but I feel that something is still missing.” “What,” I asked. “Well, you talked about Unisa and where it came from and where it is now, and you describe a lot of events, and I noticed you really tried hard not to blame anyone for the situation that Unisa is in.”

“Yes, I tried hard,” I said, “because I truly believe that the issue is not one of guilt. As a systems thinker, I’ve learnt that blame is not very useful.” Rina was quiet for a moment and then said very slowly. “I think that Unisa has forgotten to be in awe with itself.” “What?” I asked. “Yes,” she replied, “Unisa is an amazing place, a very complex organism, with complex problems.” “Oh, I see what you mean, we have forgotten to see the complexity of Unisa,” I replied, “and that Unisa has many people who can work together on these complex problems. So we follow the rules that we have been following all along, and some new ones introduced by our education systems and consultants and business models that say we are like a machine, if it breaks, just fix it.” “Yes,” said Rina, “kind of like a very complicated machine that just needs the right manuals and mechanics in order to make it run well.”

“That is very true,” I said, “and that is why we need to get experts in to develop new business models, or as they call it organisational architecture in order to help us

design new systems and business processes in order to fix our problems.” “You know Louise, even that student walk does the same thing,” Rina said. “What do you mean,” I asked defensively. I helped to design that, so it hurt a little to hear her say that. “Well,” she said, “I know that the purpose behind the model is to make the journey more personal, but I don’t think it succeeds, because all it does is makes the organisation forget the complexity.” I giggled. “You know, you make me feel ashamed, I totally did not see that one coming. I know that was not our intention, but now if I look at the model from a distance, it seems like the process is so simple, and it totally forgets the uniqueness of the student and how the journey for each student can be very different. Don’t get me wrong, it’s okay that Unisa has four steps and everyone should for instance apply and register, but putting the model up there and thinking that the model itself will help to resolve the complex issues we are facing is a little naïve.”

“You know,” Rina said, “you sometimes take things a little too far, I think models are good, but we must understand their place.” “Ok,” I said, “what is their place?” “Maybe to help us simplify life,” Rina replied, “but the danger is that others will think that the problem is very simple.” “Yes,” I replied, and it places us in a very different mind-set. It makes us think that we can design a complex human system like we do with houses and machines.” “Yes,” Rina said, “and you and I know that that is simply not true, especially where humans are involved. Yes, humans are unpredictable, emotional, each has their own ethical values, they are unique and it is not really possible to control them or predict their behaviour. Yes and they are creative, I said, we were designed to deal with complexity.”

“Well, it seems like most organisations forget that, and it is easy to forget that because we get so overwhelmed with all the problems that we just want easy predictable answers,” Rina replied, “and then we end up viewing people as simple parts of a machine, and if the machine doesn’t work well, you either just fix a part or you redesign it and then it will work well again.”

“Goodness, you just made me realise that that is what we have all been trying to do,” I exclaimed. “By forgetting how awesome Unisa is, and by that I mean forgetting to be in awe with the complexity and wonder of this intricate web of interconnectedness between all of Unisa and all students and the world of learning, we have created a place where staff and students are all just parts that must stand in line in order to produce a very specific outcome, just like a machine. That is very sad,” I said. “Why sad,” Rina asked, “it can easily happen especially in an organisation where we don’t

often see our students face to face, easy to forget that there are people at the other end of an email or SMS or even telephone line.” “Well I’ve been reading a lot lately about humanness and cybernetics and complexity” I said, “and it seems to me that we, and by we I mean humanity, in general and Unisa in particular, have forgotten our humanness, we have forgotten to be in awe, to respect the fact that we often don’t have a singular answer to a complex problem. Yes, and in the process of trying to fix the problems of so many students, Unisa forgets about the student who lives in a shack without electricity or the student in prison who wants to better their life or the student who wants to do psychology as well as business management and wants to have a conversation with someone about it.”

“You know,” I replied, “it is as if the harder we try to help and fix things, the more we forget why we are really doing this. We just want to fix the problems, thinking that we want to create a better organisation, but in the process we lose our hearts. And what makes it sadder, is that our Principal, Prof Makhanya, has tried so hard to instil ethics into the institution but it is not radically changing people’s behaviour and unless we radically change our behaviour, things will just stay the same. So that is why I want to explore the story of humanness, why as humans we have created systems of education and for what purpose.”

“You know,” Rina said, “this reminds me of a Man of War, do you know what that is.” “No,” I replied, “what is a Man of War?” Well, it is an organism that lives in the sea, kind of like hundreds of little blue bottles, each with many tentacles, connecting all of them together and together they function as one organism, all surviving and thriving because of each other. That’s what Unisa should be like.” “And in this case,” I replied, “Unisa’s aim should be to create these connections so that we can all thrive.”

3.5 Chapter summary

In this chapter I explored both the more factual and more personal stories of Unisa. As explained in section 1.3 of chapter 1, this story is told without any theoretical lens but is simply my account of how events happened. In this section I relied on various memory organising references, but mostly relied on my more than 20 year lived experience in the Unisa context and culture. I tried to share my frustrations and our inability to create a context where students could succeed. Many of my own attempts to solve these issues were fruitless but as with most people in the University

community well intentioned.

In the metalogues I however expressed my inner battle with Unisa, and how the organisational strategies and policies pushes the student further and further away. I admitted to my role in this and how I to a large extent participated in the mechanised way of problem solving and inability to understand how the organisation can remain functional despite the doubling of student numbers. I also alluded to a possible different way of thinking by not blaming any individual but viewing Unisa as a community that attempts to address the issues of ineffective communication with students, even though these attempts do not seem to work.

This leaves me with a sense that the more we try to “fix” the system, the more things go wrong. It seems that those students who do not have access to technology are the most alienated and distanced from Unisa, but even the ones with access feel that Unisa’s is not responsive to their needs.

Where does the answer lie? Do we need to create new IT systems that will streamline business processes? Do we need a new business model that will enable us to move into the new age of technology and online learning? Do we need to focus on the students who do not have access or those who cannot cope with ODL and put huge amounts of capacity into preparing them?

Maybe the answer lies somewhere else. Maybe the problems are not problems of capacity but simply the way we view the world. If we can look at ourselves as a human community or we accept the complexities of the massive organisation that we are part of, maybe some patterns will emerge or new ideas about how to co-evolve into a university that is not only efficient, but will empower our students to be successful in their studies and also in life.

In the next two chapters I will pause, so to speak, to explore 2 stories as explained in the research process in section 1.3 of chapter 1. The first story is the one of humanness to gain a clearer perspective of what humanness originally was, how we became who we are, the journeys we took and the new society we created with new demands in living, communication and learning which I will discuss in chapter 4. The second story is the one of the ecological epistemology where I will explore cybernetics, second order cybernetics and complexity in chapter 5.

Chapter 4: The Human story: Exploring our epistemological past

Gregory Bateson (1988:13) often told this story: "A man wanted to know about mind, not in nature, but in his private large computer. He asked it (no doubt in his best Fortran), "Do you compute that you will ever think like a human being?" The machine then set to work to analyse its own computational habits. Finally, the machine printed its answer on a piece of paper, as such machines do. The man ran to get the answer and found, neatly typed, the words: THAT REMINDS ME OF A STORY."

4.1 Introduction

As explained in the research process (see figure 1.1) in section 1.3, the aim of this chapter is twofold. The first is to tell the story of humanness, its origins and evolution. The story will tell how we, as humans evolved and what made us a very unique species and what basic conditions in life we need to thrive, both in living and learning. The purpose of the chapter is to gain insight and understanding of why students struggle so much in a distance learning environment in general, but also to understand what conditions Unisa can create that would be more ideal for students to be successful in their studies and thrive in the distance learning environment.

The second aim is to derive from this chapter basic fundamental ideas of what conditions would be ideal for both living, communicating and learning. Throughout the chapter I will underline those ideas that such conditions and at the end of the chapter in section 4.9, I will distil these principles in order for them to be usable data later in the document. Ultimately the aim of the chapter is to provide me with useful ideas about how to improve the context of student communication at Unisa.

In this chapter I will start with a metalogue and will then continue with the chapter as explained above.

4.2 Metalogue

"Morning", Stan said, as he walk to the table in the coffee shop that I was sitting at. "I haven't seen you in a long time, what have you been up to?" He asked. "Well, I've

been very busy reading and writing”, I said. “I’ve written a chapter for my thesis on “the history of humanness”. “Why?” Stan asked, “what does that have to do with your thesis?” I was quiet for a few seconds and then asked, “Have you read Maturana’s latest book?” “Which book?” Stan asked. “The one about the biology of love”. I could see Stan’s eyes go wide. Biology of what? He asked. “Yes, the name of the book is, “The origin of humanness in the biology of love” by Maturana which he co-wrote with a woman called Verden-Zöller”. I could see that Stan was impressed because he took out his notebook and wrote down the title. As a professor in psychology he knows Maturana well but this was different. “Yes”, I said, “I was also surprised. You know I never really liked Maturana. His work was always very impersonal and distant for me and I just could not find an emotional connection with him. Although I was able to appreciate his brilliance, something for me was missing in my connection to it.”

Yes, Louise, Stan said, he’s a philosopher and theorist; they are kind of supposed to be boring.” I smiled. “But this time, he’s different Stan, this time, working with Verden-Zöller he was able to speak in his own voice and in a language that is much closer to the way he thinks”. “Anyway”, Stan interrupted me, “get back to the point, why this chapter?” “Well this book”, I said, “sparked something in me. Maturana talks about how humanness evolved during our long process of evolution and how we mostly lived in intimate and loving communities and that this still impacts on us as humans today and it made me think. He said that we are love dependent beings and that almost all problems in life can be traced back to the fact that we are not living in the original conditions that we evolved in. For me that was something that might explain what is going on, not only in our society today but also in the way we are educating and specifically how Unisa deals with our students. Maturana is concerned that we have started to forget much of our humanness over the last few thousand years.

“Was it like a spark that ignited a fire in you?” Stan asked, “Yes, exactly” I said, and after that I just could not stop. I wanted to know what happened to us as humans but my real need was to find a way back, back to humanness.” “Back to humanness at Unisa?” Stan asked, “Yes”, I said. “You’ve convinced me”, Stan replied. “I think this is important enough to warrant proper investigation.”

4.3 Introduction to our human evolution

The story of how we, *Homo sapiens sapiens*, became human and how our humanness evolved is filled with myth, stories and scientific explanations. These stories are as varied as humanity itself and through the ages the stories themselves evolved from the myths and storytelling traditions of our ancient past to our contemporary archaeological and scientific explanations. The stories are coloured by our beliefs, whether these are spiritual, religious or scientific. To understand human learning and creating contexts for optimal human learning and creativity, one should track the story of how human nature came to be and how humanness evolved. We should have a sense of what defines humanness and how it emerged in a different way from other species. This question has preoccupied philosophy, religion and science for a very long time. As humans we have often asked the question why we are so different from the rest of nature, especially primates, and how we became who we are today. One could ask the question: Is it because we are thinking animals? Descartes said... "I think, therefore I am." Was he right, but how do we prove that thinking is the exclusive domain of humans? (Buckeridge, 2009:428).

So what defines humanness? How do we know the world? How do we communicate, how do we learn and what made us who we are today? Ultimately we can ask; how did we come to create the learning environments of today and how can we now create learning environments that will enhance not only our learning processes but also our humanity? In this chapter I will explore some of these questions through a historical account of human evolution, but before I start it is necessary to clearly state my own epistemological position in terms of what will seem like a linear historical account. This is a necessary exercise, because in my opinion, explaining history is an issue of worldview and epistemology.

Bateson says: (1988:10) "a story is a little knot of complex of that species of connectedness which we call relevance." For Bateson, the living world as a whole "thinks" in terms of stories. The way the redwood forest grows and the patterns on the sea anemone are stories of a bringing to life a "context of pattern through time" (Bateson, 1988:10). Stories are accounts of what happened in the past or present or future or even our imaginations, and no story, not even formal history, which is supposed to be a formal account of the past, can fall totally in the domain of the ontological nor can it be totally linear. As Bateson (2000:314) said: "In the natural

history of the living human being, ontology and epistemology cannot be separated.” Therefore, one can say that who we are as humans and the stories or histories we tell are inseparable. We are all the co-creators of our stories.

I see this study and the stories and history interwoven in it as a co-creation or co-construction of those I quote and my own experiences and ideas while engaging with all aspects of the study. So, this account of the history of humanness is coloured; not only by my perspective but also the perspectives of every source I investigated. History often seems like a linear affair, but the past and present and future are interwoven and seem to me often more like a maze of punctuation. The way we view the world today, determines how we tell the stories of yesterday and today and even how we project our imagination into the future.

Giving historical account is made difficult by the verification of the accuracy and the interpretation of the historical events as well as the “angle” or perspective you use to tell the story. Even when history is documented, it is always told from some person’s perspective and we cannot separate the so-called “truth” from our own and that person’s epistemologically. Maturana and Varela (1992:26) say, “Everything said is said by someone. Every reflection brings forth a world” and in this way written history is told by someone bringing forth a world to explore.

In giving this historical overview, I am not attempting to tell the complete or “linear truth” of humanity’s past but rather to create a version of our story that describes humanness; what made us human in this context in which we evolved that created a species who is able to communicate and learn in a very different way from other living beings on our planet. With the evolution of civilisations and our use of technology, something happened to us as humans that changed our destiny profoundly. This change gave us power over our environment and our own destiny in such a way that it may even lead to our destruction. It also fundamentally changed the way we view learning. I would like to explore the difference between, how we evolved as humans and how we naturally learn and live through to the way we changed our ways of living and learning up to the present, and how new ways of learning are evolving that might be closer to our essential selves.

In this study I will explore various historical periods in our evolution and will specifically look at the following aspects that will amplify those aspects of our history that brought us to where we are today:

- The evolution of humanness and the organic way of living.
- How we came to control our environment and the development of civilisations.
- How man became a "rational" being and "conquered" the world with force and reason.
- What we are becoming now through the evolution of a cybernetic networked society.

Each of these phases will be explored within the framework of the following very broad aspects that are prioritised for the purpose of this study:

- The biological and epistemological evolution of humanness and our way of living.
- The way we communicate and the communication systems we created.
- The development of technology and its impact on our way of living.
- How we learn and learning systems we created.

Diagrammatically it will look like this:

	Pre-historical era and organic way of living	Agricultural revolution and controlling the environment	Age of conquest and reason	Cybernetic revolution and era of complexity
Way of living				
Communication				
Technology				
Learning				

Table 4.1: Framework for phases vs. aspects of human evolution

During my reading for the thesis I realised that there are many other aspects of human societies and our evolution that cannot be discussed here due to limitations in terms of time and space, but more importantly, not to lose focus of the issue at hand, which is human learning in the distance learning environment. Some of the main issues that will not be discussed extensively are the political and economic development in our societies. In some of the phases I will cover certain aspects in more detail than others, for instance in the organic phase I will focus much more on the issues of biology and in the later phases more on epistemological and technological issues. Ultimately the aim is to see how we can develop some basic principles of organic and natural learning that can be applied to the learning and specifically the distance learning environment.

4.4 The evolution of humanness and the organic way of living

There are many scientific opinions about how humans evolved and the timeframe of human evolution. Even though our direct ancestors, *Homo sapiens sapiens*, only appeared about 400 000 years ago, humans have roamed the earth for more than 3.5 million years. The debate about why humans are so different from the great apes varies greatly and is usually linked to our physical development, i.e. walking upright, jaw and language development and the development of a larger brain. There seems to be a great variety of perspectives on why we developed larger brains, language and tools (Buckeridge, 2009; Darwin, 1887/2012; Headrick, 2009; Maturana & Verden-Zöllner, 2008; Moran, 2010; Morowitz, 2002; Olson, 2003; Renfrew & Morley, 2009; Schramm, 1988; Short, 1976; Staats, 2012).

4.4.1 The biology and epistemology of humanness

Anthropology and archaeology rely greatly on the physical evidence from archaeological finds to fill the historical gaps of how and where we began. The more I read, the more I realised how varied these opinions are. Most evidence of human existence has disappeared and aspects such as how we communicated and how society worked are almost impossible to study. Renfrew and Morley (2009:29-30) admit that in analysing the “ancient finds” many errors of interpretation are made, mostly because no written or ethnographic evidence was left behind by these societies. Most scientists then rely on interpretation of the physical evidence. In my opinion many of these interpretations and explanations lack exploring the process of how we became human. Most just state the so-called “historical” chronology based on physical evidence but with no explanation of why we are who we are today.

The works of Maturana, Varela, Verden-Zöllner (Maturana & Varela, 1980, 1992 and Maturana & Verden-Zöllner, 2008) and others, however, are not only rooted in exploring historical evidence alone but also in mapping the patterns of human existence back from the basic characteristics of humanity and humanness today. They describe the process and conditions of living that brought forward humanity and do this in a way that explains how it came to be that humans evolved from primates into the beings we have become (Maturana & Varela, 1992; Maturana & Verden-Zöllner, 2008).

According to Maturana and Verden-Zöller (2008:50-51) most mammals and in particular, primates' way of living can be defined in terms of hierarchy, aggression and competition. This is the prevailing pattern of their way of living. Maturana and Verden-Zöller (2008:69) say that approximately 3.5 million years ago, something happened biologically, which had a huge impact on the evolution of primates. The short annual period of female desire became continuous and not occasional or seasonal as before.

Short (1976:4-5) says that humans are the only mammals that have “forsaken the periodic behavioural phenomenon of oestrus, when the female is instinctively attractive and receptive to the male, and exchanged it for a situation in which she is potentially attractive and receptive at any time from adolescence to old age.” In addition human females are also the only female mammals that get physical pleasure from sexual intercourse in the form of orgasm.

Maturana and Verden-Zöller (2008:70) say that this changed the sexual nature of females, from only wanting intimacy for a very short period of time (once or twice a year) to almost continuous desire for intimacy and closeness with their partner. “Such a happening separated sexual intercourse from reproduction for our ancestors, allowing sex as the domain of acceptance and enjoyment of body contact in general, and genital intercourse in particular, to operate as an expanded source of pleasure and stability in the formation of interpersonal relations” (Maturana & Verden-Zöller, 2008:70).

In addition to the increased need for closeness and intimacy between males and females, the intimacy between parents and children also increased. The period of neoteny, or the period of closeness and intimacy between mother and child “entails also the expansion beyond the reproductive age into adulthood of features of the mother/child relations such as sensuality and tenderness” (Maturana & Verden-Zöller, 2008:71). The need for intimacy and closeness extended to the whole family and throughout the life of offspring and included fathers in the child-rearing process. The phenomenon of mother/father and child closeness, intimacy and love going beyond maturity is unique to humans.

Dunbar (2004:88) confirms that humans are almost unique in forming these types of long-lasting family relations that extend from couples to the bigger community. These close relationships that formed also assisted in sparking

other factors that co-evolved with more developed linguistic interactions. This was also triggered by bipedalism (or walking on two legs), which made us ground dwellers, respiratory and structural changes in the neck, different facial features and fully extendable fingers capable of caressing. This had an impact on not only language development but also societal changes and changes in sexual behaviour that led to a new way of living (Maturana & Varela, 1992:57-65, 218-220). This way of living was characterised by close, intimate social relations as is evident in today's family life. Even though our political and work life today might be defined by competition, our expectation is that our social relationships should be defined by new ethics based on love and caring (Maturana & Verden-Zöller, 2008:50).

Larsen (2011:297) supports the idea by saying that early humans had "little sexual dimorphism in body size". This is an indication that there was little competitive behaviour in humans, especially between males and that human society was much more co-operative in nature. It also led to closer bonding and the phenomenon that one male paired with one female. Lull and Neiva (2012:45) confirm that humans evolved as co-operative breeders and that the whole family was involved in raising children in a co-operative environment. The need for co-operation and close living together in a community became predominant as a way of living (Maturana & Verden-Zöller, 2008: 69 - 72). This co-operative way of living could not evolve "in a space of demands, mistrust, and control" but only in one where nearness and trust exist and where pleasure is derived from doing things together. Maturana and Verden-Zöller (2008:48-83) are saying that humanity would not have evolved without this very specific way of living grounded in intimacy, co-operation, trust and love.

Maturana and Verden-Zöller (2008:72) assert that only by living in this way, where close co-operation exists in a loving environment, could our intelligence have developed the way it did and only in such a space could language arise. According to Lull and Neiva (2012:45) emotional expression forms the key adaptive mechanism for evolutionary change and that gestures and sounds formed important tools in creating an environment of communication and bonding. They also mention that co-operative communication, work and play created an environment of greater interdependency and more complex communication.

Although ancient humans lived from about 3, 5 million years ago humans as we know them physically emerged in Africa around 400 000 years ago as Homo sapiens sapiens. Although other species of humans lived during that time they all became extinct, with the last one, the Neanderthal becoming extinct around 30 000 years ago (Olson, 2003: 89). The story is told that between 90 000 and 65 000 years ago, a group of around 150 humans left Africa and slowly populated the entire planet, not by fast migration but through a slow expansion of hunter and gatherer of lands. According to Morowitz (2002: Loc1795) humans spread an average of about 15 kilometres per generation and it took them around 10 000 years to move from East Africa to China. Scientists are not clear how exactly current humans evolved, but what is certain, based on research of Y chromosome and mitochondrial DNA studies, is that “all modern human genetic diversity found around the world was in Africa around 60 000 years ago” (Wells, 2003:59).

Up to about 14 000 years ago, humans lived in small intimate groups of hunters and gatherers, following the seasons for better hunting and gathering of food. In this way they spread throughout the world living in very similar ways. Maturana and Verden-Zöller (2008:58-60) summarise this way of living of humans as:

- Living as gatherers and occasionally hunting.
- Living in small groups of about 5 to 8 individuals of all ages.
- Sharing food as a way of living with no competition involved.
- Neoteny or intimacy between mothers and children exists throughout the life of humans and extended to fathers and the whole family.
- They were sensual beings and often touching, talking and caressing, improving the well-being of the individual.

According to Olson (2002:30-31) the San or Bushmen of Southern Africa lived a relatively isolated life, not really mixing with other peoples, which gave us a window into the way early humans lived. The way of living of hunter-gather communities are well documented, with the San people of Southern Africa still remembering the way of living of their ancestors. Sadly this way of living is also now becoming extinct. They seemed to have until recently, lived a life of co-operation, mutual trust and mutual acceptance, not only of each other, but also with everything in nature (Myburgh, 2013).

The San people did not even have a name for themselves because they did not

see themselves as separate from nature. Other people gave them the names “Bushman” and “San”. They had no chiefs or leaders as we know it and they saw life as a truly integrated community, from a deep ecological perspective, with no rigid hierarchical structure amongst themselves or with nature. Early Europeans thought they had no religion but misjudged them because even their spirituality was totally integrated into daily living, rituals, myths, stories and art (Smith, Malherbe, Guenther, & Berens, 2000: 2, 37-43). Spirituality was central to their lives and life in all its facets formed part of a sacred unity that included the physical and metaphysical world that had to be respected, protected and cared for and in return they believed that nature and the sacred bestowed on them everything they needed.

These hunter-gatherer communities lived in small groups, but would regularly meet and form tribes through regular interaction, finding mates and sharing. Olson (2002:94) mentions that “One important aspect of tribal life is that everyone has at least the potential of knowing everyone else personally.... They typically share a way of life and belief system.” Maturana and Verden-Zöllner (2008:69) state that this way of living is ingrained in the human species and that “Modern human beings are love dependent animals at all ages ...” and when we get sick, physically or emotionally it relates to not living in closeness, co-operation and loving environments.” Humanity evolved in a context of co-operation, interdependence and love, in a small caring community and we are longing for it still today. It forms the core of our humanity.

4.4.2 Language and Communication

Lull and Neiva (2012:45-52) explain that many evolutionary changes helped us to become the languaging “animals” we are today. Bipedalism or running on two legs helped by freeing our hands which allowed both more expressive gestures and better success in hunting as well as tool making. Having better tools helped us to gather better food, which led to better nutrition, including a more protein-rich diet, more creative communication and in the end the evolution of a bigger brain. Maturana and Verden-Zöllner (2008:61) maintain, “...nearness of co-existence in doing many things together is necessary for language to arise.” It is therefore the desire for closeness and the way of living as social beings that is the only kind of context where language can arise. According to Tomasello

(2008:169-217) collaboration and living in a co-operative way is a basic requirement for language development. Language must have developed in a phase of human development when most of our activities were co-operative and where we had joint goals and complementary roles living in small groups. In this context of openness, helping and informing, sharing is evident and creates a sense of belonging where language evolves.

Capra (2003:63-64) confirms this by defining human systems as ones that have meaning at their core, something that can only exist in a world of complex codes and language. Language gave meaning to our lives and made us more co-operative, connected and intimate than other species. Reading Maturana's work is quite difficult because he does not define the various components linearly. The way he sees life is almost metaphoric, very much a non-linear view. All of these aspects named before were conditions of living or what he called Natural Drift, which were aspects of an intricate web of interconnectedness as an evolutionary process. This web of interconnected living created a species quite unique (Maturana & Verden-Zöller, 2008: 44-46).

Language therefore defines us as humans through a way of living that is interconnected, co-operative and intimate. According to Lull and Neiva (2012:53), human language was well established by the time humans left Africa due to the difficulty and complexity of the exercise and they assume that language was a necessary communication tool to help us succeed in this difficult endeavour. According to Schramm (1988:11) language was one of the most important achievements of man and he likens language development to a sort of prehistoric renaissance, because language was portable. It meant that ideas could be transported over space and time. In this, human memory played a critical role, because through remembering the stories of the past, history and ancestry lines were preserved from one generation to the other. Communities also allocated the role of remembering to specific people who preserved the stories, myths and ancestral family records and then shared these with the next generation (Schramm, 1988:51). Stories weave these communities past and present together, and music and art create oneness with the environment and the spiritual (Moran, 2010: 38-39, 57-59).

4.4.3 Technology

According to Headrick (2009:1-2) the oldest stone tools were found in Ethiopia and are an estimated 2.5 million years old. These tools were very basic and thought to be used mainly for breaking bone. Some stone flakes were used to cut hide and meat. There is however no clear indication as to exactly when humans started creating objects to improve their lives. There is evidence of stone tools found around 100 000 years ago, but by 65 000 years ago quite sophisticated tools were made not only of stone but also of bone and antler (Olson, 2002:86).

These objects were mostly functional, such as spear points for hunting, but often also decorative and for the pure purpose of art or music (Headrick, 2009:506). According to Some (1997:60) the use of technology in indigenous communities differs greatly from how we use it in modern society. Technology in these communities was created as a tool for individuals to interact with the environment around them and not to create a “better society”.

Technology in organic communities therefore extended beyond simply tool making but also art, music, dance and ritual. These communities lived in a truly holistic way, seeing everything around them and themselves as part of the bigger whole (Moran, 2010: 38-39, 57-59).

4.4.4 Living as a way of learning

Olson (2002:88) declares that learning to speak had a tremendous effect on the way humans learnt. Now, not only could learning take place through behaviour but also codes of speech. “Children would be taught from an early age how to make sounds and how to associate those sounds with things external to themselves. Learning during this phase of human development was very much a case of learning to survive in the midst of nature in a social setting with a lot of dangers out there.” According to Moran (2010: 38) as early as 40 000 to 50 000 years ago “our ancestors drew and painted pictures on cave walls, incised and sculpted images on bone and stone and in the clay, fashioned adornments for personal wear, shaped and used musical instruments, and created and developed ever-increasingly sophisticated tools and tool making methods”.

Based on what has been learnt from archaeological finds as well as the way of the life of the Bushmen, humans lived in small groups, collecting food such as roots and fruit and occasionally hunting for meat. They lived in small shelters to protect them from the environment and made fire to cook and socialise (Myburgh, 2013). In this environment learning was part of playing and living, mothers teaching their children by gathering food, fathers by hunting and making music and dancing and singing built the social fibre of society. Storytelling and myths formed the basis of living and art and daily living where learning took place (Lewis-Williams, 1991:6-11). Some (1997:85-100) writes how the indigenous community worked and how every person was valued and welcomed as a valuable part of the community and the kind of intimacy in community life that we seldom see today. "In an indigenous community, each person is precious. No one is born on this earth without a reason, a special purpose" (Some, 1997:100).

Art such as rock engravings and painting formed an important part of their daily living, and apart from its spiritual significance, they also seem to have conveyed messages to others about the hunt or encounters with physical and spiritual phenomena (Lewis-Williams & Pearce, 2004:34-36). Learning, living and spirituality were all intertwined and ritual played an important part in learning and living. Schramm (1988:7) notes that cave paintings were probably also part of initiation ceremonies that taught young adults about life as an adult. Learning in these societies was therefore not something that was separate from daily living but formed part of learning how to survive in the here and now and learning was about knowing only what is necessary for now (Schramm, 1988:84). According to Maturana and Verden-Zöller (2008:84-87) learning and living was the same thing and living in a context where self-acceptance and acceptance of others was the way of living and learning.

From all the stories I could gather it seemed that the way humans lived up to about 14 000 years ago was very much a deep ecological way of life. During this phase humans lived as part of the environment, did not see themselves to be more or less important than anything else. Nor did they see themselves as separate from it and did not change the environment substantially to suit their needs (Maturana & Verden-Zöller, 2008:48-83).

4.5 Controlling our environment and the development of civilisations

Around 14 000 years ago (around the end of the last ice age) in areas around the Middle East humans started to domesticate animals and plants. This changed the way humans ate, lived, communicated and learnt and even the way they saw themselves in relation to the world (Moran, 2010: 40; Olson, 2002:99-100) Other factors such as the development of culture and population growth will be discussed but all these factors combined changed humanity forever.

4.5.1 Taming the world and the development of early civilisations

Between 14 000 and 4 000 years ago humans started to domesticate plants across the globe and apparently independently from one another, first in the Middle East and then in India, China, Central America and then spread to all corners of the world. Plants such as rye, corn, wheat, barley, rice, millet, potato and beans were cultivated and animals such as sheep, goats, cattle and pigs were domesticated in the Middle East (Davis, 2004: 12-13).

Humans initially gathered by rivers where there was plenty of food and animals and soon realised that if they could keep the animals close to them they would have a regular supply of meat. Davis (2004:11-12) claims that women probably started planting grain seeds in order to ensure future supplies of food. Due to the domestication of animals and plants human populations grew rapidly because of the availability of food and shelter. In a way it created a vicious circle, because the more people gathered the more the populations exploded, the more mouths there were to feed and in the end the more humans were pushed into a world of agriculture and farming and building settlements and even later, cities. Why and how farming spread globally at more or less the same time with no evidence of physical interaction is a mystery, but it did and changed humanity profoundly (Davis 2004:12).

Once humans were settled around central places they increasingly started to control their environment and also grouped together in ways that made living together easier. In early Mesopotamia (in the Middle East), approximately 6 000 years ago the process of people gathering together led to the development of basic forms of towns, cities and government and a way of living that was more

stable. It is at this point that scientists start to define humans as “civilised” (Davis, 2004:14). Davis (2004:16) defines civilisation as a “place where people live in villages and towns, work at many trades, obey a government, worship a god or gods, and read and write.” Olson (2002:103) mentions that before civilisation appeared, humans spent most of their time with their family and tribe, so that most relationships were based on kinship.

However, as civilisation evolved people had more time and although their focus was still on family and tribe, they also spent more time on other things such as protecting cities, agriculture and developing a bureaucracy to manage communities. At the same time there were great advancements in technology and art, but one of the most dramatic changes was the growth in population. Olson (2002:101) contends that populations grew “from 20 000 some 150,000 years ago to a million around 65, 000 years ago and then 6 million right before the invention of agriculture” but after the invention of agriculture “population growth took off.” Between 10 000 years ago and 1 AD, human populations increased fortyfold. From small sparsely scattered families connecting with tribes through a network of interaction created by art, music, storytelling and ritual our way of living changed and we became a race of rulers and slaves and we began to control not only the environment but also each other. Hierarchical structures and patriarchy became dominant because control and physical strength go hand in hand and the art of war was invented to protect land and to seize more territory (Davis, 2004:20).

Once civilisations organised themselves, people not only specialised in food production but also in technical skills and hierarchical social structures. Early kings in Egypt and China made themselves gods and created myths that gave them power over others, and the people were mesmerised and often enslaved to serve the needs of the worldly and heavenly gods (Davis, 2004:18). In creating these hierarchical structures the “gods” could protect themselves from the common man and live a better life.

Approximately 6 000 years ago, various formal religions began to form in various civilisations with intricate sets of gods and goddesses, often living, but many born in myth who created the earth and ruled man (Spry-Leverton, 1994a; Video, 26:30; Davis, 2004:11-28). Some of these religions like Hinduism were more organic, all embracing male and female and others such as Taoism,

Buddhism and Confucianism were more philosophical, focusing on the non-material aspects of the world (Davis, 2004:107-114). Most however were controlling and patriarchal and had a role in governing societies.

About 4 000 to 2 000 years ago, through the evolution of various religions from the Middle East a new way of believing emerged; believing in one god. The Monotheistic religions all originated with Abraham, who came from Sumeria, the birthplace of civilisation. He became the father of Judaism, Christianity and Islam. These religions confirmed the patriarchal system and man's control over the environment, confirmed by God (Spry-Leverton, 1994a, Video, 30:17-31:33; Olson, 2003:106-119; Davis, 2004:31-47, 107-125; Welsh, 2011: Loc 187-1288).

As part of the evolution of civilisation, cultures developed further with unique new arts and endeavours such as writing, mathematics, painting, weaving, pottery, poetry, ritual, music, religion, cuisine, warfare, agriculture, commerce and shipping. Between religion and political power and their newfound skills, humanity became the rulers of the world and we saw ourselves as distinctly separate from the environment. Inevitably the few started to rule the many, manipulated through brutal force, religion and economic power (Welsh, 2011, Kindle, loc: 186-568).

4.5.2 Communication and language

As people moved across the globe over many millennia, various languages evolved. According to Moran (2010:47) as many as 500 000 languages developed but today we have about 6 000 languages left in the world. Ironically, he predicts that by 2 100 AD, 96 % of these languages will be extinct. The process of language development creates a lot of controversy but it is generally accepted that all human languages come from one single pre-language (Moran, 2010: 48-52). As language and societies developed together, more complex mechanisms to communicate were required. Painting on walls, music and drumming and narrative storytelling could not keep the more complex societies organised. In Sumeria, which is where modern Iraq is today, the merchants and bureaucrats found it difficult to deal with the complexity of the trade and goods. In approximately 3200 BC scribes started to develop symbols, which they scratched on clay tablets, each signifying various objects in the world (Davis,

2004:17-19).

Again as with many other human developments, writing developed independently in other parts of the world such as Egypt, India, Mesopotamia, China and even Central America (Moran, 2010:90). The alphabet as we know it today evolved from West Sumeria, Greece and Rome, but the Greek alphabet with its 26 letters spread quickly between 1 000 and 800 BC. In China, the Chinese logographic writing system was apparently developed approximately 4 000 years ago and contained characters and graphs which were developed in such a way that people speaking different languages in that area could use the same writing system (Moran, 2010: 91-108). The development of writing not only helped bureaucrats to develop their economies but also assisted in cultural and social development through the recording of events for instance in history and poetry. Communication and especially mass communication as we know it still did not exist, but knowledge and events could be recorded and shared.

Due to surplus supplies, trade developed between various communities and civilisations, often after invasions or wars. After the Greek and Roman invasions of the near east, trade routes developed between India, China and the West and Rome built an elaborate system of roads that connected what they called the known world (Wells, 2011:75-76). Communication changed dramatically, with writing and travelling by land and sea and changed humans from quite isolated beings, only communicating with kin and tribe to communities interconnecting beyond their own borders, seas and continents (Wells, 2011:73-77), Now the world was more connected, linking up different cultures, races, continents and economic systems, allowing people to not only learn from each other but also exploit one another.

4.5.3 Technology, specialisation and hierarchies

Some of the earliest developments in the technology of most civilisations were in agriculture and architecture. The creation of settlements and the growing of food created new technologies such as more efficient tools for agriculture and building walls around settlements for protection (Headrick, 2009:12-13). With the development of new technologies, individuals and communities produced more than enough food and other goods for themselves and could store and trade

some. In the process of exchanging goods, commerce developed. As empires grew they also clashed with other civilisations and often started to trade with them (Seignobos, 1906). Civilisations built monuments to their gods and to the dead and these can be found in all early civilisations around the world such as Egypt, China and the Americas, India and the Middle East. Cities were built with elaborate walls around them to protect the citizens (Moran, 2010:89) and the pyramids and temples scattered all over the globe are evidence of the skill and vanity of man (Headrick, 2009:25-45). These pyramids seem to be a symbol of the hierarchical structures they started to create.

Approximately 3000 years ago, with the development of iron smelting (the Iron Age), agriculture and travel improved with iron used for ploughs, utensils, and in boats and weapons. At the same time horses and camels were tamed and the wheel was invented, all transforming travel, agriculture and warfare (Headrick, 2009: 32-45). Headrick (2009: 35-36) explains that “Imperial governments devoted resources to great public works projects, such as roads, aqueducts, and walls. They also encouraged shipbuilding and shipping and, to a lesser extent, crafts and mechanical engineering.” Slowly humans started to travel by land and sea, connecting the world. But the Romans were the champions of civil engineering, building a network of roads around 300 BC that connected the “known world” including Europe and Asia, improving travel and interaction between various civilisations (Headrick, 2009: 46).

According to Stein, cited in Wailes (1996:25-26) specialisation was enhanced by the production of surplus so that the surplus can be exchanged for other goods. Sometimes the craftsmen remained independent but often came under the power of others. This led to the politicisation of economic activities where those with power started to control the economic surplus and those producing the surplus. The phenomenon of social and economic differentiation appeared which led to slave labour and trade.

4.5.4 Learning in a specialised environment

With the many new technologies and skills required in human societies, one person could no longer do and know everything needed to support living in the community, because there was simply too much to know (Staats, 2012; Kindle,

loc:4905). Much more knowledge was required in order to survive in more complex societies and therefore people had to focus or specialise. Specialisation also meant that more time was spent doing those specific things that also led to better practices and even more particular skills. Learning in this environment was also a specialised affair. However, formal schools were not available and children would still learn from their parents or in some cases from a “master” in their community.

As writing developed around 5 500 BC, ideas could be put down on tablets or paper, although the first writings were mostly about economic issues. However, evidence has been found of poetry and creative writing even early in the development of writing. Many philosophers and teachers such as Socrates, Confucius, Aristotle, Pythagoras, Plato, Avicenna, Kong Qui, Lau Tzu and Buddha, to name a few emerged in the period after writing was invented, emphasising the art and skill of contemplating (Schramm, 1988:51-52, 75-78; Frater, 2011:Website).

As civilisation developed more needs, the development of skills became a priority, masters teaching their apprentices. Some skills such as agriculture, hunting and weaving were still learnt through normal living. However evidence of formal schooling first appeared in Sumer where writing, mathematics and science emerged. Formal education in reading, writing, astronomy, mathematics and engineering were however the domain of the few. In most civilisations this privilege was reserved for boys (Schramm, 1988:84-85; Headrick, 2009:33-34).

According to Schramm (1988:96-98) the first universities evolved in the Middle East and India, centuries before they did in Europe. While Europe was in the grip of the Middle Ages, Indian and Muslim scholars developed centres of knowledge where mathematics, botany, astronomy and medicine were taught. It was only in approximately by the 11th and 12th centuries that European universities emerged with a particular model and structure, much like we know them today.

4.5.5 The ebb and flow of civilisations

All civilisations have patterns of beginning and end and as one civilisation grows another would come to an end but each usually leaves a legacy for the next. Sumeria as a nation no longer exists, but has evolved into the new nation of Iraq. Capra (1982:8-9) states that states usually develop beyond their equilibrium, leading to disequilibrium that often leads to their destruction. And so with most civilisations there is an ebb and flow of growth and destruction. Civilisations have a way of growing and shrinking or dying, because in the search for a better life we ruin the land and people in the desire for control (Spry-Leverton, 1994b; Video). The Middle Ages in Europe was a phase where the impressive empires of Greece and Rome collapsed and became dormant for millennia. Some disappeared like the Mayans and Sumerians whereas others prevailed or came back, such as the Chinese and Europeans and in their re-emergence changed life on earth dramatically (Capra, 1982: 9-17). Maturana and Verden-Zöller (2008:90) are of the opinion that this phase in human development was a turning point for humanity as the creation of cities, kingships and patriarchy created an environment that was no longer based on co-operation, intimacy and love but rather based on the emotions of aggression and enmity and living in hierarchies disconnected from the environment around them.

4.6 The age of conquest and reason

Even though many civilisations appeared and disappeared across the world, various communities kept on living as hunters and gatherers and basic rural agriculturalists, living a life of community and connectedness. Even many of the great civilisations returned to that way of living where people lived close to the land, lived in close communities and treasured their indigenous spiritual practice.

In the west, however, a new era was looming around 1000 AD that would change the destiny of all humanity (Capra, 1982:8). Europe was in the Middle Ages, a period that saw society going back to a more organic way of living with very little technological and cultural development and the Roman Catholic Church and Christianity ruling the lives and hearts of the people. Even though other civilisations such as the Chinese, African and Middle Eastern civilisations were far ahead of Europe in terms of technological and scientific developments, the new changes that were about to happen required

another kind of impetus. Moran (2010:113) avers that “techniques and technologies by themselves do not cause any major cultural changes but only provide opportunities for change if a culture is open to change”. But something was brewing in Europe.

4.6.1 The birth of individualism and the quest to conquer the world

In the documentary video *Legacy: Origins of Civilization, The Barbarian West* (Spry-Leverton, 1992, Video, 26:00-27:20), the presenter Michael Wood explains the changes in social structure that emerged in England in the 12th century: “Here 800 years ago changes can be detected in ordinary people’s lives which will have a crucial bearing on the future.” How could such a small country end up dominating the world as it did? In England as early as the 12th century conditions were prevailing of late marriage, small nuclear families, “a possessive property based individualism and a free market philosophy”. MacFarlane (1978:255-277) confirms that individualism was mainly driven by ownership and capitalism that moved England from a “peasant” nation to an individual-capitalist environment.

These were the conditions required for a new way of living to emerge called individualism, one that is determined to cut up the earth and own pieces of the land and gather knowledge for personal gain and not necessarily for the greater good. These were the conditions that led to the beginning of the Renaissance in Europe, which awoke, after the Middle Ages, with Europe turning back to art, science and philosophy. Artisans, artists, scientists and philosophers could thrive and people started to feel that they had control over their own destiny (Hudson, 2012:228). The conditions were ripe for political, religious and scientific change.

Great individual social and political liberty emerged and “the democratic spirit was largely the result, and was everywhere the accompaniment of immense development of industry and trade” (Hudson, 2012:13). With it came a worldview no longer grounded in religion but in liberty and science. With the advancement in maritime technology, European nations set off to discover the world including the “rediscovery” of the Americas, the Cape of Good Hope, China and India in the 14th to 18th centuries. This also shows their arrogance rooted in individualism; according to them they discovered these continents viewing themselves as discoverers and conquerors rather than visitors (Hudson, 2012:270-331).

Not only did they “discover” new worlds (as if the people were not already there) but they found new ways to enrich themselves and cut up more parts of the world for personal and collective ownership. Discoverers such as Columbus and Da Gama brought back wonderful new products and the rich in Europe became even richer and exploited those who did not understand this worldview that was strange to them (Hudson, 2012: 336-337). So with the new discoveries came immense suffering of the people whose land and dignity were taken from them. European nations were drawing lines on continents to cut them up and claim them for themselves. The humanity of people not European was totally disregarded. Even though from an economic point of view Europe was now enlightened, socially it was indeed a dark time in history (Headrick, 2009: 82-83).

However, science and philosophy flourished. Some called the 17th century the Age of Reason and the 18th century the Age of Enlightenment. Knowing became everything. Many philosophers and scientists had a great impact on this period, although Descartes and Newton’s influence can still be seen today (Capra, 1982:41-56). In the 17th century, the French philosopher Descartes (1644/2008:35-36) coined the well-known statement: “I think, therefore I am.” Through this statement and throughout his works he explains how the human mind, soul and passions are separate from the rest of the world, including the human body. Although Descartes (1644/2008) writes beautifully about passions such as love, hatred, laughing, desire, joy and sadness, he believed that a “little gland in the middle of the brain”, or the Pineal gland, is the centre of the soul or it connects body and mind/soul (Kauffman, 2008:15). A new dualistic perspective emerged, separating mind from body, man from nature. This had a profound influence on human Western thinking and the development of science and education. Humans were now formally separated from nature and could study it objectively.

In the 17th century the English scientist Isaac Newton invented calculus, proposed a new theory of light and colour, invented the reflecting telescope, devised the law of gravity and in the process established himself as the father of modern science (Tyson, 2005:Website). This “new” science was based on the principles of reductionism and the mechanistic worldview. This coincided with inventions such as the time clock and these “machines” became the metaphor for all life. Reductionism basically means that if you want to understand something complex, you must look at it in terms of its smallest components and

there is no place in reductionism for interaction between parts (Kauffman 2008:10-11). The mechanistic worldview sees the world “like a machine, governed by immutable (or fixed) laws” (Capra, 1982:52). According to this worldview, man was on top of the hierarchy, controlling everything around him.

Science became the guiding force of the modern world and the Catholic Church started to lose its hold on people. Luther led the religious reformation in Germany and later Calvin brought greater religious freedom to Christians, seeing God as a loving father rather than a condemning God (Wells, 2011:121; Boorstin, 1983:68-69). All the new inventions, new ways of learning, changes in the view of religion, science and philosophy and great developments in art and literature as well as property ownership and the capitalist system changed the way people viewed themselves and the world around them. These were conditions ideal for democracy to take hold, and in the 17th century the French revolution set the stage to bring down the aristocracy with a new vision of individual freedom (Hudson, 2012:164).

When Darwin (1887/2012) set out on his voyage of discovery in 1831 he never realised it would take five years, but during this period he explored South America and various Pacific islands, developing insights into natural life which led to his publishing *On the Origin of Species* and helped him develop the theory of evolution. (There is some controversy around whether he was the first one to develop the theory, with some believing that Alfred Russell Wallace was the first). Although the theory of evolution now viewed humans as part of nature, we were still viewed as the crown of nature (Boorstin, 1983:465-476).

The next revolution that was about to take place was the Industrial revolution of the 18th and 19th centuries. According to Headrick (2009:91) the aim of industrialisation was to divide work into simple tasks, put people on assembly lines to do these simple tasks, and where possible use machines to do the work. So the idea was to produce goods at the lowest cost possible with the best profit margin, all of this fuelled by fossil fuels. Suddenly goods were available in a mass that was never imagined before, but the downside was the terrible exploitation of natural resources and of people who now had to do the same mind-numbing simple task all day long in a factory.

The divisions between people were no longer based on class but on economics and wealth and now the rich exploited the poor, especially women and children (Headrick: 2009:95-96). This also had a wider impact, leading to the depletion of resources and exploitation of people and other living beings as well as the environment. Devastating pollution and destruction of the environment is the price being paid for our greed (Headrick, 2009:91-129; Spry-Leverton, 1994; Video, 37:00-38:00).

4.6.2 Technological development and industrialisation

The wheel was literally turning in Europe. In a period of just more than 400 years there were great new inventions and “new” continents were discovered, but not without the foundations laid by previous or other civilisations. According to Headrick (2009:111) the benefits were great for those who controlled the new systems. They had access to all the resources and energy they needed and could pay for the scientists, engineers, technicians, and businesspeople who would create more and newer inventions. For the first time, it meant that people could create inventions on demand.

It is impossible to discuss the extent of the technological development of this time, but the following are exceptional inventions that had a great impact on humanity:

- In the 13th century the mechanical clock was invented (Boorstin, 1983:64-72).
- In the 14th century Copernicus declared that the world was round and that the earth was just one of many planets in the solar system that moved around the sun (Hudson, 2012:439).
- In the 15th century Galileo invented the telescope (Boorstin: 1983:314).
- In 1440 Johann Gutenberg invented the printing press in Germany, which was followed by an explosion of literature and knowledge made available for the common man (Headrick, 2009:85).
- The first newspapers appear in the 15th century, but daily newspapers only appeared in the 19th century (Moran, 2010:121-123).
- The optical telegraph was invented in the 18th century (Headrick: 2009:103).

- The first factory system in the textile industry emerged in the late 18th century in Ireland and Britain (Headrick, 2009:95).
- Benjamin Franklin invented electricity around 1750 (Moran, 2010:194-195; Headrick, 2009:113).
- In 1814, the steam engine was invented to create a steam-powered train and other new sources of power (Headrick: 2009:101).
- In the late 19th century Henry Ford built the first car or motor vehicle (Headrick, 2009:119).
- Alexander Graham Bell invented the telephone in 1874 (Moran, 2010:203-204).
- The radio was invented in the late 19th century and television in the early 20th century (Moran, 2010:219-223).
- The first airplane was flown by Orville and Wright in 1903 (Headrick, 2009:120).

All these inventions confirmed to humanity a view that the world was a machine to be controlled and science could understand everything by reducing the problem to its smallest component. Nature could be understood, owned and controlled fully and humanity was in charge (Schindler, 1986).

4.6.3 Communication systems and the popularisation of the written word

Although printing was not invented in Europe (China had invented it long before) Johannes Gutenberg invented the movable metal type independently of the Chinese in 1453 (Headrick: 2009:85). Slowly information, the Bible and literature became more readily available. Moran (2010:109-192) defines various phases of human communication but during his phase of human evolution he says that humans first became typographic and then hypergraphic. In the typographic phase, writing, books, printed books and newspapers formed the basis of communication. With the advent of photography and motion pictures in the late 19th early 20th centuries, humans started to view the world in ever increasing graphic terms and became hypergraphic. By the early 20th century radio and television were invented, all made possible by electricity and great engineering feats in broadcasting and setting of electrical and telephone cables (Moran, 2010:193-254). Although humans started painting on cave walls long ago, they started to view the world in much more graphic terms in more recent years.

19th century Europe was buzzing with new inventions in information and communication technology that made it possible for the modern human to communicate more widely than ever before. The newspaper and telephone alone created a world of interconnectedness, news from anywhere in the world could reach you within a few hours or days. The world was starting to become smaller and easier to control. We could go everywhere and reach everyone, or so we thought. The world was shrinking fast.

4.6.4 The “modern” education system, higher education and distance learning

As mentioned in the previous section, education and learning is nothing new. However formal education, in earlier civilisations, was the domain of the privileged few. In certain parts of civilisation such as Sumeria, China, Egypt and Greece, education systems were quite sophisticated but never accessible to the masses, and especially not to women (Seeley, 2009). During the middle ages, schools were mostly established in monasteries or guilds.

Mitra (2013, TED Video: 00: 50-02:44) has an interesting view on our modern education system. He says, and Cubberley (1920) concurs, that learning as we know it today, comes from the large empires who had communication systems and a lot of data to manage across the globe. They needed to create a system, a bureaucratic administrative machine or a kind of “global computer”, consisting of people with exactly the same skills to run it. The system needed people with very specific skills, namely reading, very good handwriting and basic mathematics (adding, subtracting and multiplication done without mechanical aid). These empires needed another system, the schooling system, to create people to work for this global empire that he calls the “global computer”. Even though the empire system no longer exists and today we have totally different education needs, the education system the empires created was so robust and effective that we still have the education system it created today.

A slightly different but complementary view is that of Robinson (2009:13-14; 2010, Video:06:38) who says that our current education system is modelled or designed to meet the needs of the Industrial Revolution which during the 18th and 19th centuries was creating an economic system that required a particular kind of workforce. Formal public education supported and managed by

governments was only introduced in the 19th century during the Industrial Revolution (Payne, 1897:33). Governments started to introduce compulsory and government controlled education to ensure a workforce that could drive the economy.

This workforce had to be rational thinkers with a knowledge of mathematics, science and languages. If we look at schools today, we still group children in a similar way as factories group their employees. Children are organised into “factory lines” where bells ring and they are divided into separate classes based on age, as if age is the most that children have in common. Separate subjects exist of which the sciences, mathematics and languages are the most important ones because they serve industrialism. Most children are removed from their families and must go to school for 12 to 14 years and learn subjects suited for the workplace (Robinson, 2006; TED Video; Robinson, 2010; RSA Video: 06:39-7:15).

Universities, as mentioned earlier, have existed for millennia especially in China, the Middle East and Egypt, but in Europe universities evolved out of the attempts of the churches to educate monks and clerks in the church. Degree granting Universities, as we know them, were started in the 11th to 13th centuries. Universities such as Cambridge and Oxford were started in the 12th and 13th centuries and it was only in the 19th century that states began to fund universities. Today governments are actively involved in funding and in making policy decisions in Universities (Schramm, 1981:96-98).

These formal education systems were built on the basic structure of a hierarchy where the teacher or educator had the knowledge and shared it with the “student” or “learner”. Apple (1993) refers to the “Politics of official knowledge”, which is the domain of the specialist and academic. He explains how the economic, political and cultural powerbases play a role in determining the curricula of the education system. In the development of the education systems, various scientific subjects were separated into departments, colleges or faculties and each of these sciences had their own methods, languages and knowledge systems. Due to this the development of individual sciences had little impact on one another.

Although formal education was now in the public domain and many more people had access to it, not all people could attend a three- or four-year course or degree at a university. Through government interventions in the mid-19th century various correspondence schools were opened to serve the ever-growing demand for higher and vocational education for industrialisation and political gain (Sumner, 2000:273-274). In the beginning these correspondence schools and universities, like Unisa were either simply examining boards or based on paper-based teaching and learning or what was known as correspondence studies. Postal mail and print were the main form of communication and correspondence schools and universities were literally springing up all over the world by the mid-2000s. The nature of correspondence studies remained virtually the same until the late 1960s where print material was produced centrally in mass and distributed to learners through the postal system (Sumner, 2000: 273-276).

Through correspondence study the student no longer had to leave home and work for three to four years or longer to study, but could continue to learn and live in her/his community. However, the university was still serving the needs of industrialisation, knowledge building and the state. As technology changed so did correspondence learning and as we will see in the next section open distance learning evolved with the advent of new information and communication technologies (Sumner, 2000:269).

Even though great economic, social, personal and scientific developments have taken place since the Renaissance, and the ages of reason and enlightenment, something seemed to go out of balance. Man had newfound liberties, slaves were released, colonies were liberated and democratised, and there was a tremendous boom in the economy and technology, but our new wisdom did not make us any wiser on a human social level. Wars were raging globally and by the 1940s the world was in the grip of the Second World War (Hayles, 1999:13-14).

4.7 The cybernetic and planetary age

This section will use slightly different categories from the previous one, although I will still discuss the four main issues of living, communication, technology and learning. Due to the great impact the cybernetic revolution, communication technology and new ways of learning have on our way of living, I will conclude with the impact of all the

other factors on how we live. I will also go into much more depth about the new ways of learning in order to gain deeper understanding of the evolution of learning both in general education and in the distance education environment. This section will then provide the context for the autoethnographic chapter (chapter 6).

By the first half of the 20th century humanity was in crisis and at war with one another. Two world wars followed each another, human society experienced the great depression, and everything was changing. Due to the wars, the role of women was fast changing in the workplace and the pill was invented which gave women, for the first time in many centuries, power over their lives. As we've seen before, when things go badly on one side, there is often a looming revolution. This one was not like the Renaissance or the French Revolution. This one started very quietly in Mexico (Wiener, 1962:19-29; Beer, 1994, Video).

4.7.1 The cybernetic revolution

In a video recording Stafford Beer explains the beginnings of a new revolution that would have a great impact again on humanity (Beer: 2012, Video; Wiener, 1962). He describes how during the Second World War, many of the worlds' greatest scientists were gathering in Mexico City to work on wartime projects. Norbert Wiener, a world-renowned mathematician, started a "sort of club" of scientists from various fields. They met regularly to discuss their projects. Included in the group were Arturo Rosenblueth (neuroscientist and physiologist), Ross Ashby (psychiatrist), Margaret Mead (anthropologist), and many more.

Their discussions were focused on issues relevant to all their various disciplines and they were wondering what all sciences had in common. They asked the question: "Suppose that the things that matter most to science, to philosophy, to the human race, fall between the schools of the established subjects?" (Beer, 1994 Video: 23: 45-24:00). They started talking about what sort of things weren't really accounted for in the university and in established science. What they discovered was that control as a concept was part of all sciences but each viewed it very differently. They specifically looked at the design of control systems for living and non-living systems and what emerged was a new science based on the principles of control (Wiener, 1962:1-29; Beer, 2012 Video: 19:00 – 22:00).

Between 1946 and 1953 this group and many other renowned scientists gathered at a set of annual conferences, called the Macy Conferences in New York City. More and more scientists got involved in these conferences and in addition to Wiener, Rosenbluth, Ashby and Mead, scientists such as Gregory Bateson (anthropologist), Heinz von Foerster (biophysicist), Warren McCulloch (psychiatrist, neurophysiologist), Julian Bigelow (pioneering computer engineer), Lawrence K. Frank (social scientist) and John von Neumann (one of the foremost mathematicians of the 20th century), to name but a few were included (Wiener, 1962:21-23; Hayles, 1999:6-83).

Of these conferences the Principia Cybernetica Website (Principia Cybernetica Website: Macy Conferences) asserts: "In this famous melting pot, ideas boiled. From one research group to another the vocabularies of engineering and physiology were used interchangeably. Little by little the basics of a common language were created: learning, regulation, adaptation, self-organization, perception, memory." But in the end Wiener (1962) defined the term cybernetics as: "The science of control and communication in the animal and the machine." The term "cybernetics" means steersman or governor. These principles of control were applied to the "management" of any system, living or dead (Wiener, 1962). What made cybernetics different from any other science that came before it in the formal academic world was, that it was totally interdisciplinary, and the principles of cybernetics applied to all systems, animate and inanimate (Hayles, 1999:50-51).

In the early years, cybernetics mainly contributed to the world of technology and gave rise to feedback control devices, communication technology, artificial intelligence, information science, cognitive science, automation of production processes and helped in the development of computers. According to Beer, computers were invented in the late 1950s to early 1960s and cybernetics and computers were perfectly suited, because early computer design and programming needed a model for control (Beer, 2012 Video: 40:40 - 44:04).

It was Gregory Bateson and Margaret Mead who first showed an interest in applying the principles of cybernetic to human sciences (Wiener, 1962:28). Soon interest moved to numerous human sciences, applying cybernetics to processes of cognition and to such practical pursuits as psychiatry, family therapy, and the development of information and decision systems, management and

government. It also helped in understanding complex forms of social organisation, including communication and computer networks (Heylighen & Joslin, 2001). The most important aspect of cybernetics is that it became an interdisciplinary field that studied the connections between components rather than the components themselves. Cybernetics as a discipline did not develop like other disciplines. Disciplines such as physics, psychology, engineering and biology developed virtually in isolation from one another, but cybernetics opened up the field and today the evidence of the impact of cybernetics can be seen in virtually every science

By the late 1960s, the paths of those who were more concerned with machines and computers separated from those cyberneticians who were more concerned with living systems. From this emerged a group of scientists who focused not so much on the workings of the non-living systems but specifically on epistemological issues regarding living systems. This meant that they not only explored how systems functioned but also how systems knew the world around them. What became very prominent was the effect of the observer on systems and this form of cybernetics became known as cybernetics of cybernetics or second order cybernetics (Heylighen and Joslin, 2001:4).

Second order cybernetics focused on:

- That the whole is more than the sum of its parts.
- That the focus is more on the interconnectedness between parts than the characteristics of the parts.
- That living systems are autopoietic systems which means they are self-creating and they are self-organising, which means that they are autonomous.
- That interaction in systems are circular and recursive.
- That there is no such thing as an objective observer because the structure of the observer determines how they observe.
- Metaphors of pattern rather than objects are studied.
- Organisation of the whole rather than the parts is explored.
- View the world as a biological organism rather than a machine.
- Study communication and mental process.

(Adapted from Keeney, 1983:61-109).

Today, cybernetics as a field of science has lost ground, but its impact is everywhere, such as the study of artificial intelligence, family therapy, management science, computer science, information science and complexity. In exploring the living world many other theories developed to support the notion of self-organising and complex living systems. (Castellani and Hafferty, 2007:15, 244)

Many writers and scientist started to emerge, bringing a new perspective to science. Some of the most prominent were Fritjoff Capra (1983, 1988, 1992, 1997, 2001), who saw a link between the new sciences that were developing including cybernetics, new physics, systems thinking and eastern philosophy, Gregory Bateson (1988, 1991,2000), who coined the term Ecology of Ideas or Mind and Humberto Maturana (Maturana & Varela, 1980, 1992 and Maturana & Verden-Zöllner, 2008) who is seen by some as the father of the concept of self-organisation and therefore complexity. The late 20th century was therefore ripe for new ideas about life and science.

Castellani and Hafferty (2007:15, 244) explain how complexity science emerged from various sciences including cybernetics and second order cybernetics, general systems theory, chaos theory and fractal geometry and lead to an understanding of important aspects of complex systems. As with cybernetics, complexity as a science is not formally organised like physics and biology, but was born out of the principles of self-organisation.

Complexity and chaos theory are closely related in that the understanding of complex systems could only be understood once chaos is understood. James Gleick (1987:303) said that Chaos theory evolved in the latter part of the 20th century, mainly because of the advent of the computer that could assist in simulating and modelling behaviour in complex systems. He maintains, “Chaos poses problems that defy accepted ways of working in science. It makes strong claims about the universal behaviour of complexity” (Gleick, 1987:5). Gleick (1987:11-24) describes how Edward Lorenz built a weather simulator on his computer and discovered that if a very small numeric error was made at the starting point it could have catastrophic effects. This phenomenon was “given the name “sensitive dependence on initial conditions”, also known as the “butterfly effect”. It is known in contemporary science as “the notion that a butterfly stirring the air today in Peking can transform storm systems next month in New York”

(Gleick: 1987: 8).

Bloom (2000:2) explained the link between chaos theory and complexity: “Formally, the focus of chaos theory is on the manner in which simple systems give rise to very complicated unpredictable behaviour, while complexity theory focuses on how systems consisting of many elements can lead to well-organised and predictable behaviour”.

The interdependence of all these factors and the processing power of computers to map chaos and complexity as well as the opening up between various sciences which created great interdisciplinary co-operation, created a context for a new world view based on complexity science (Van Dijkum, 1997:728-732).

One of the greatest contributions of complexity science to society today is that it shows that reductionism might be useful in terms of creating new technology and development in certain aspects of science, but that it is not an effective model for explaining complex systems, especially biological systems as mentioned by Kauffman in chapter 2 (Kauffman, 2008:17). Various schools of complexity also emerged over the last few decades where complexity was applied to many different fields of study. The scope of this study however does not allow us to go into any detail, but the essence of how these developments impacted on society is clear. Once complexity was understood science was challenged to no longer look at the world in simple ways but to view life as complex, integrated and self-organised and that when we see the world as a whole, everything changes (Van Dijkum, 1997:730). Cybernetics and complexity will be discussed in more detail in chapter 5.

In the last few decades with the advent of the Internet and communications technology our way of living has changed dramatically with communication opening up in every corner of the world. The development of technology will be discussed in more detail in the next section but its impact on our way of living has been profound. According to Morin and Kern (1999:5-25), the globalisation of our economy and ideas, and the Westernisation of society created what he coins the planetary era. In this era, every part of the world is interconnected. We have products around us from all over the world and we have interactions with people all over the world. In this planetary era, the complexity of how society has worked has increased tremendously and the commercialisation of

society has made humans the slaves of the products we desire. He warns us that in our attempt to make sense of this complex world we have consistently employed simplistic thinking (which includes modern science) to address the complex issues of our time. Morin (2008:3-6) a philosopher that emerged from this era, warns us not to fall into the trap of simplification. There is a need for complex thinking. This way of thinking views life both as complex and messy; sees both the small parts and the holistic view. According to Morin (2008), only if we do this, will we as humanity have a future on this planet.

4.7.2 The technology explosion (from computers to chaos)

The 20th century has often been described as the information age and this is thanks to the computer and the Internet that suddenly gave humans access to information and processing power never before possible. The rapid increase in population and new developments in research and technology created more information than humanity has ever seen.

Just a few interesting technological inventions are listed together with their dates to give us an idea of how much and how fast technology has developed. Some of these inventions are:

- The first general-purpose computers built “The ENIAC” was invented by J. Presper Eckert and John Mauchly at the University of Pennsylvania and began construction in 1943 and was not completed until 1946. It occupied about 1,800 square feet and used about 18,000 vacuum tubes, weighing almost 50 tons (Stern & Freeman, 1988:19-20).
- The Soviet Union launched the satellite Sputnik 1 in 1957 (Headrick, 2009:136).
- Ray Tomlinson sent the first email in 1972. The email was sent from one computer to another computer sitting right beside it in Cambridge, Massachusetts (Moses & Katz, 2006:109).
- Vint Cerf and Bob Kahn first used of term “Internet” in a paper on Transmission Control Protocol in 1974 (Coffman & Odlyzko, 2002:30).
- The first personal computer was launched by IBM in 1981 (Chesbrough & Tecce, 2002; Moran, 2010:265).
- The first cell phone conversation took place in 1983 (Farley, 2005)

- The World Wide Web was invented by Tim Berners-Lee in 1991 (Headrick, 2009:143).
- In 1991 the first "modern" network technology on digital 2G (second generation) cellular technology that made SMS possible was launched (Gruber & Koutroumpis, 2010:136).
- Online shopping and Amazon.com appeared in 1995 (Byers, 2007).
- Unisa launches its first webpage and student portal in 1995 (Unisa homepage, 1996; Students Online (SOL), 1996).
- Google was started in 1998 (Vise & Malseed, 2005).
- In 2000 Peter Merholz coined the term blog after announcing he was going to pronounce web logs as "wee-blog". This was then shortened to blog (Riley, 2005).
- In 2001 Wikipedia was launched (Wikipedia: Website).
- In 2002 3G cell phone technology was introduced, which made data transfers via cellular technology possible (Montúfar-Chaveznava, Paisano, Cañas, & de Jódar, 2005).
- In 2003 MySpace was launched (The Brief History of Social Media, Webpage).
- In 2003 Apple launched its first iPod (Levy: 2006).
- In 2003 VOIP Skype was launched (Chapman, 2009).
- In 2004 Facebook was launched (Chapman, 2009).
- Podcasting started on the Internet (The Brief History of Social Media, Webpage).
- In 2005 you Tube was launched (Chapman, 2009).
- Unisa introduces myUnisa in 2006 (myUnisa homepage Web Archives, 2006).
- In 2006 Twitter was launched (The Brief History of Social Media, Webpage).
- In 2007 Apple launched the iPhone (The Brief History of Social Media, Webpage).
- In 2010 Apple launches the iPad (The Brief History of Social Media, Webpage).
- In 2010 Pinterest and Instagram launched (A complete history of social media, Webpage).
- In 2011 Google launches Google+ launched (A complete history of social media, Webpage).

Today we can feel the impact of information technology everywhere and it has an impact on all fields of science. It has created tremendous growth in science, engineering and the economy and these have again had a tremendous impact on human life. Not only are we threatening our own existence through the carbon emissions we pump into the atmosphere every day, but also scientific developments such as genetic modification of plants in agriculture, stem cell and DNA research and genetic modification in human biology that will change our humanity profoundly. Stock (2003: TED Video) states that humans are starting to interfere with our own evolution and will change the future of humanity profoundly. Enriquez (2012: TED Video) contends that as a species we are busy evolving into a new species he calls Homo evolutis because we are starting to, “directly and deliberately control the evolution of its own species”.

4.7.3 Communication and the networked society

Moran (2010:282) declares:

The impacts of the Cybernetic Evolution-Revolution on individual societies and global interactions have been profound. Perhaps no earlier evolution-revolution except language itself, has had such profound consequences for all of peoples and cultures of the world because of the totality of the changes in communication brought by cybernetics and by the rapid spread of the techniques and technologies across the globe in an extremely short period of time.

The Internet forms the most central component of this new society because it is giving humans access to vast amounts of information in all kinds of formats and also allows two-way communication which now gives people the ability to connect across the globe (Moran, 2010:285-286).

Sitting here, writing this, I am 200 km away from the nearest big city, but I have satellite Internet connection, television, a telephone, a cell phone, an iPad and my sister just phoned from New Zealand. Since finishing my Master's degree in 1992, I can see the tremendous changes that the information age and especially the Internet have brought to my life. Not only are new books available online, to buy, to rent or to view, but the classics are mostly free. I recently downloaded Darwin, Newton and Descartes' works and videos of Bateson, Kauffman, Maturana, Beer and Capra all freely available. Communicating with librarians is a breeze. Today I send the request and tomorrow I get the resource. The library, as I knew it during my previous studies, has become almost obsolete and is

replaced by Google books, Amazon.com and many other academic scientific resources. But I miss the library and I still visit it now and again, losing myself amongst the dusty shelves.

One of the outcomes of the Internet revolution is the TED (Technology, Entertainment, and Design) conference. According to their website “TED was born in 1984 out of the observation by Richard Saul Wurman of a powerful convergence between Technology, Entertainment and Design.” Regular conferences were held where influential speakers would have about 20 minutes to explain their new ideas. Due to the great interest they re-launched their website in 2007 and published all the “TED Talks” in video format to be downloaded for free by anyone. Many of the speakers at these conferences are referenced in this thesis which I would not have been able to do were it not for the Internet (History of TED, Website).

Socially the Internet also connects us to loved ones and people that we would never be able to meet and it has opened up vast opportunities in entrepreneurship (despite the Internet bubble of 2000) and wealth creation (Su & Lee, 2010). But the most important aspect is not that my world or your world has changed dramatically, but that most humans globally are experiencing this change. Often in cities I see beggars and newspaper sellers with cell phones and with smartphones becoming the norm, the Internet is everywhere and will become available to everyone.

Like all revolutions this one has its own problems. Many of the TED speakers, mentioned earlier, talk about the Internet and how it impacts on our lives. During some of these talks problems of the impact of the Internet on our lives were identified. Some of these problems are:

- Too many choices leave us unhappier than before (Schwartz, 2005: TED Video).
- Genetic engineering of plants and pesticides might threaten the world’s bee and insect populations, which might threaten humanity’s survival (Wilson-Rich, 2012: TED Video).
- Our use of fossil fuels is heating up the earth and might threaten our survival (Christian, 2011: TED Video).
- Technology can create social isolation, sacrificing connection for

- conversation and caring (Turkle, 2012: TED Video).
- People are feeling that they may lose control over their lives because of technology and algorithms controlling markets and information (Slavin, 2011: TED Video).
- Memory devices take over some of our natural memory and learning abilities (Foer, 2012: TED Video).

Not only are the speakers at TED concerned about the impact of the Internet on our society but many others also refer to issues such as a loss of orality and a lack of people sharing ideas and stories face-to-face. One of the greatest issues identified is a loss of a sense of place, a place where intimate relationships exist where people can look each other in the eye, talk and touch. In these cyberspaces, where people now meet and congregate, much of the richness and depth of our communication is lost. In addition people often prefer to spend time in front of their screens instead of with real people. Some people seem to get totally lost in cyberspace interacting with social media and gaming platforms to the point where many talk about social media addiction.

Cyberspace has also made us lazy both to know things and to communicate because information is everywhere and easily available and accessible so we do not seem to think we need to retain information. It is also difficult for people to deal with the masses of information coming their way every day. Due to the globalised nature of our current society, many scientists believe that the Internet is one of the main reasons why many languages are becoming extinct and why many cultural identities are also lost to globalisation (Meyrowitz, 1985:120; Haythornthwaite, 2005:140; Moran, 2010: 319-328; Castells and Cardoso, 2006:341-342).

However, with information also come great liberties in knowing things that were obscured in the past. Some of the benefits as mentioned by TED speakers are:

- Access to information networks also brings with it the breaking down of hierarchical systems and we are seeing the turmoil in the Middle East at the moment around tyrannies being overthrown by peoples aided by cell phone and Internet technology (Mogahed, 2012:TED Video).
- Interconnectedness of information contributes to more valuable information

which creates open knowledge societies (Shirky, 2010: TED Video).

- Access to new semantic technologies and more control of what information we get might help us to find solutions to humanity's problems (Pariser, 2011: TED Video).
- Information will become more accessible and allow all humans access to vast amounts of information (Kurzweil, 2009: TED Video).
- The Internet and social media may bring greater democracy to the world (Stewart, 2012: TED Video).
- Creating Internet-based support networks during disasters (O'Neill & O'Neill, 2012: TED Video).
- Preventative medicine through pharmacogenomics will extend human lifespan (Stock, 2003: TED Video).
- A loss of loyal relationship to territory and belongings might lead us back to more equal relations without a power base (Meyrowitz, 1985:315).

Castells (2011) describes how the information technology revolution, the globalised economy, commercialism, and a virtual culture has created a new society we call the network society. Castells (2011) explains how the network society gave rise to a number of important impacts:

- Globalisation leads to the breaking down of local cultural and ethnic identities into one global "modern" culture.
- The green movement that creates more awareness about the environment, ecology and environmental justice.
- The end of patriarchies that allows the sexual liberation of women and homosexual people.
- A crisis in democracy and the media due to people's loss of trust even in democratic governments and proposes local democracy as a solution.

And what we thought was science fiction often comes true today, like self-driving cars, 3D printers that "print" houses, spray-on skin, genetically modified silk that is stronger than steel, eye implants, commercial space flight, to name a few (Dickens, 2012). The Internet not only gives us access to information but it brings a new way of living and learning. Web 2.0 brought interactivity and social networking, with the potential to network people and information on a scale never possible before. Web 3.0, the semantic web, will bring together data and

information in such a way that personalisation and “intelligence” or “understanding” of content to the web will see it automatically generate content and will connect content in all formats across various platforms (Naik & Shivalingaiah, 2008: 499-504).

The network society has brought great benefits to society. We have become more open, more democratic; people are better informed and aware of global issues. We could potentially live in greater harmony because on some levels power bases are broken down and knowledge has become more accessible than ever before. For those with access to the Internet, the benefits are great. It however also brings with it many issues that society has to deal with. Often the tools become the means and not the end and our addiction to technology makes us disconnected from each other and the world around us. Social media platforms often structure and control communication that also leads to inequality in communication. The digital nature of online communication might lead to a loss of quality and intimacy and a loss of our sense of place in online relationships.

4.7.4 The evolution of Open Distance Learning and pointers for learning in the network society

Open Distance Learning

In the 19th and 20th century correspondence learning made it possible to gain access to education and knowledge through the postal services and later television. The change from correspondence learning to Open Distance Learning was greatly influenced by the technology that was used in the teaching and learning process. Sumner (2000:271) says that: “Technology has always had an intimate relationship with distance education because it mediates the separation between teacher and learner through the use of print, radio, telephone, television, audio and videotapes, and computers.”

However, the advent of the Internet changed everything. Not only does the Internet break down the boundaries of time and place, but recently it has begun to change people’s perception of education itself: knowledge no longer primarily resides in the university anymore, but is available everywhere. In the late 1990s

the expectation of the Internet was mostly to provide more people with access to formal education. It would provide students with better access to technology and therefore the “knowledge” could be shared in a more effective way. According to Nasseh (1997) technology has always been a driver of education and as technology changes, humans learn in different ways. By the late 1960s universities like the Open University in London started to use more technology to aid distance learning, using telephone, video and television to aid learning. However it was the Internet that changed distance education most profoundly.

Various “generations” of distance education have been defined. Heydenrych and Prinsloo (2010) define five generations of distance education:

- First generation: correspondence learning where printed material and books were delivered through the postal mailing system.
- Second generation: technology plays an important role in the form of film, radio and television although study material is mostly still delivered via postal mail.
- Third generation: computer assisted study starts to play roles such as multimedia; animation, live television and telephony played an important role in communication. Delivery of material is still done through postal mail but some content is delivered by television or batch data.
- Fourth generation: now networked computers facilitate communication and the Internet becomes an important delivery mode. Synchronous and asynchronous communication via the Internet plays an important role in communication.
- Fifth generation: the “The Intelligent Flexible Learning Model” entails using the full spectrum of online technologies including social media, multimedia in all its richness and also includes the use of multiple platforms for communication.

Du Mont (2002:7-15) maintains that although distance education places a greater focus on “self-instruction”, essentially the old industrial university model still applies, where the lecturer shares his or her knowledge with the student and the student is the “receptor”. According to him distance education just uses different media, mostly technology and specifically the Internet to facilitate communication, transfer information and provide more open access.

Heydenrych and Prinsloo (2010:14-19) show how changes not only happened in

the use of technology but also the pedagogy changed from a more behavioural model where information is simply transmitted from the academic to the student to a more constructivist pedagogical connected and social constructivist model. This however is not often applied in practice.

Introduction to new ways of learning

As we have seen, the traditional educational system is based on the principle of control and pure hierarchies where the teacher knows and the student learns. Sterling (2003: 241-243) says we must find new sustainable ways of education where “learning can take place in a way that we view and practice, so that it might become transformative”. In our current education systems, education is given a mandate to impose its views of life on society, instead of a co-evolutionary relationship between society and the education system. Morin (1999:13) states that a new education system not only has to adapt to the planetary era of connectedness but also prepare humans for the new complex world that we are living in. But the question is: What does this new education system look like?

Robinson (2006 TED Video, 2009, 2010 TED Video) declares that our education systems are in trouble. He mentions that all over the world countries are trying to reform their education systems, but one of the biggest dilemmas with trying to reform education is that the world is changing too fast. With the new information age and the speed with which technology is evolving and the increase in knowledge and creativity, we have no idea what the future will look like. He then asks the question: How do you prepare a curriculum if you do not know what the future will look like? What worked in the education systems before is not working anymore. According to Robinson (2010, TED Video), the creativity and passion of students are not considered and they are simply channelled into a direction and often in areas for which they have no natural talent.

Robinson (2010, TED Video) suggests that we must change the way we think about education to map the tremendous changes in technology, way of thinking and way of living. We must disenthral ourselves with the current education system. One of the ideas we must disenthral ourselves with is linearity; where you start at one point and you go through the system and do everything right and you think you will be able to succeed. Life is not like that anymore (as a matter

of fact it never was); we have opportunities to do things never imagined before. One of the greatest problems of education is that it does not feed people's emotions, passion and energy. He suggests that we need to change our model of education from a mechanical process to an organic process, one that is much closer to nature. Robinson (2009:194) asserts: "Human lives are organic and cyclical. Different capacities express themselves in stronger ways in different times in our lives." Therefore we should change the system of education by looking at the individual in a broader context, and focusing on their passions and love in life and customising education to their needs. That is true student centred teaching and learning (Robinson, 2009; Robinson 2010 TED Video).

Robinson, in his 2010, TED (2010, TED Video) talk, quotes a beautiful WB Yates poem:

Had I the heavens' embroidered cloths,
Enwrought with golden and silver light,
The blue and the dim and the dark cloths
Of night and light and the half-light,
I would spread the cloths under your feet:
But I, being poor, have only my dreams;
I have spread my dreams under your feet;
Tread softly because you tread on my dreams.

And every day, everywhere our children spread their dreams beneath our feet and we should tread softly" (Robinson, 2010, video, 00:16:24-00:17:27).

Education and learning needs a context of passion and a place where the passion and love for learning can be explored, one where collaboration and respect and love are the prevailing context and collective culture and ethics to bring us back to our origins.

Self-organised Learning Environments or Minimally Invasive Learning

Controversial work done by Mitra (2012: Kindle) proposes a drastically new approach to learning. Minimally Invasive Education (MIE) or Self-Organised Learning Environments (SOLE) is the creation of a learning environment by simply allowing children to learn computer skills through giving them access to computer technology and encouragement through a mentor. Mitra (2012: Kindle, loc: 153-229) stumbled across a new process of learning when he

participated in a project to see whether teachers are necessary for education. He and his team installed a computer in a wall near his office in New Delhi that bordered a slum and sat back and watched what happened. After replicating the experiment all over India and the world, he discovered that if you leave small groups of children alone with a problem to solve, like how to browse the Internet, they will learn very fast. Self-organisation is at the base of the new model of education that they are proposing. The project was called the “Hole in the Wall” project and they developed the model of Minimally Invasive Education, which consists of leaving children with computers and other forms of technology, giving them a problem to solve and providing them with someone to encourage them. The “someone” or mentor does not have to be a teacher or know anything about the subject, but must just play an encouraging role (Mitra, 2012: Kindle, loc 246-352).

Mitra (2012, Kindle, loc: 506) asserts that “To understand learning we must understand how self-organization happens and what leads to this mysterious process called ‘emergence.’” Mitra (2012, Kindle, loc: 577) proposes that the SOLE system requires teaching the following basic skills:

- a) Reading comprehension.
- b) Information search and analysis.
- c) A rational system of belief to protect the learner against doctrine.

In this environment, small group of learners are brought together and the role of the teacher is to ask questions especially about things he or she does not know. This will encourage the learners to find the answers or see “learning emerge” (Mitra, 2012, Kindle, loc: 118, 577). In this environment encouragement and mentoring plays an important role and then one must trust the process of emergence to allow learning to take place.

MOOCs

MOOCs or Massive Open Online Courses have had such an impact on the distance education landscape that the International Council for Distance Education website has an entire section dedicated to the issue of MOOCs. The Chronicle for Higher Education (Website) says “MOOCs are classes that are taught online to large numbers of students, with minimal involvement by

professors. Typically, students watch short video lectures and complete assignments that are graded either by machines or by other students. That way a lone professor can support a class with hundreds of thousands of participants.” The main benefit of MOOCs is that they are open and scalable, which means that anyone can participate in the course and that they can accommodate massive amounts of students (Yuan & Powell, 2013:6).

Two types of MOOCs have emerged during the last few years. cMOOCs are defined as those that are based on the connectivist theory discussed below, which is based on connected and collaborative learning. xMOOCs are more content based and based on behaviourist approaches. Various organisations offer various types of courses, some for profit and others not, some free and for some you only pay for accreditation. Some see MOOCs as the way to transform education in the future including governments who have to address massive educational backlogs. However others view it as disruptive of the education systems and that it will create a totally new market and that quality in education will be compromised (Yuan & Powell, 2013:7-13).

MOOCs seem to create a lot of discussion in the higher education sector mainly because they seem to pose a threat to conventional learning institutions and methods. They are open, often free, and very scalable and often encourage self-organised and emergent learning. They often do not have a fixed curriculum but rather take the learner on a journey of self-discovery on the one hand but also provide an opportunity to work with others, dealing with the world where information is everywhere and abundant and dealing with this world in a constructive learning environment. In this environment learning emerges and is not created by the educator (Kop, Fournier, & Mak, 2011:75-76). Harvard Professors have recently called for greater oversight of MOOCs offered by the university. Their concern is that Harvard University has become deeply involved in MOOCs without consulting widely with academics regarding the extent to which the university is involved, there are cost implications and other consequences of this involvement in MOOCs (Kolowich, 2013).

MOOCs can indeed change the landscape of education, making learning more accessible to most at a low cost and in a manner that is much more in tune with where society is going, but universities will have to rethink their role with this kind of academic engagement.

Networked learning and connectivism

Adapting our education system dramatically seems an overwhelming endeavour. In 2006 Siemens (2006:3) avers “We are in the early stages of dramatic change—change that will shake the spaces and structures of our society. Knowledge, the building block of tomorrow, is riding a tumultuous sea of change.” The context of this change is the proliferation of technology and especially information technology and how it is changing the learning environment. As described earlier, technology is changing the way we are learning in society. Society is becoming more open and knowledge is freely available.

Through access, not only to technology, but vast amounts of information, we are able to gain access to knowledge whenever we need it and the only condition is access to technology. However, technology is not the only aspect in our living that changes the way we learn. Siemens (2006:69-85) mentions other aspects such as individualism, increased connectedness, socialisation in the new technology as a way of living, the need to have things now, the blurring between the “real” and “virtual” worlds and the abundance of information available through the ease of publishing information online, as societal trends that have an impact on the way we learn.

Openness and connectedness have created a context where what is called “networked learning” is possible. Siemens (2006:29) defines learning as “the process of creating networks” where the learner connects with “nodes”, which are external entities that are useful in the process of providing data or information. This forms the external network. The information then connects with the learner’s internal “neural” network and this is where understanding develops.

According to Siemens (2006:29-30) learning takes place in this context of connections between the internal and external networks. Downes (2005) says that “What we 'know' about the world is irreducibly interpretive. That is to say, we do not through our senses and cognition obtain any sort of *direct* knowledge about the world, but rather, interpret the sensations we receive.” Connectivism is a theory of how learning takes place in the digital age, or how we know

knowledge in a networked society (Siemens, 2006:30). It investigates the student not as a receptacle but as a self-organising system that connects with a network of recursive interconnectedness in their environment. Siemens explains this with the diagram in Figure 4.1. The largest grey circle represents the student as a self-organising system who connects either with other people, who are also self-organising systems or with “nodes” of information.

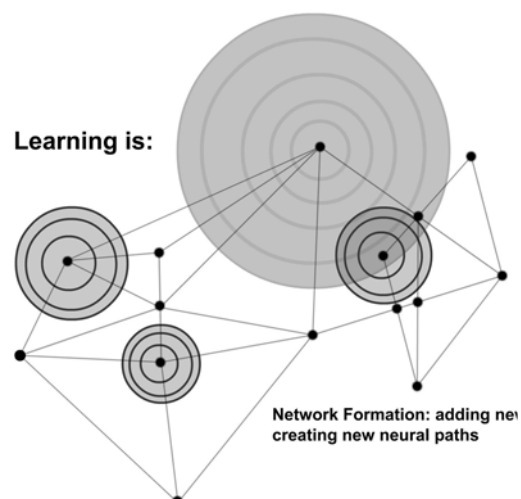


Figure 4.1: Learning as network forming (Siemens, 2006:29)

According to Siemens (2006:31), the basic principles of connectivism are:

- Learning and knowledge require diversity of opinions to present the whole...and to permit selection of best approach.
- Learning is a network formation process of connecting specialised nodes or information sources.
- Knowledge rests in networks.
- Knowledge may reside in non-human appliances, and learning is enabled/facilitated by technology.
- Capacity to know more is more critical than what is currently known.
- Learning and knowing are constant, ongoing processes (not end states or products).
- Ability to see connections and recognise patterns and make sense between fields, ideas, and concepts is the core skill for individuals today.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.

- Decision-making is learning. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

Although connectivism focuses on the online learning environment, it puts the student in a network of interconnectedness and the recursive process of interaction. Learning then becomes a co-evolutionary process and not a one-way top-down approach. The decentralisation of knowledge becomes part of this way of viewing the world and the formal hierarchies in academic institutions will be questioned. The new role of the teacher is rather to be an agent who can bring in new elements into the learning network that could possibly create higher orders of learning (Siemens, 2006:92).

The “traditional” approach to learning, or the industrial model of learning, as we have seen before, is one where the “specialist” builds a core knowledge base and then the information is “transmitted” to the student and evaluated to see whether the student “understood” the “knowledge”. Networked learning is “emergent”. This means that the knowledge does not reside in a specific place or person (the lecturer) but the learner creates a network from where knowledge emerges through the recursive interactions in the network. Learning then becomes exploratory and the role of the teacher changes dramatically (Siemens, 2006:35-36).

Within networked learning the teacher is no longer the expert, the holder of knowledge. Knowledge is changing so fast in our digital age, that the teacher simply becomes the one that helps the student to understand the process of learning, or learning to learn, or how to create their own networks of learning. The teacher becomes the enabler of the new context. Siemens (2006:42-43) also says “the learner is the teacher is the learner” because connections change the content and in the process the teacher learns and the learner teaches recursively.

Siemens (2006:42) says “Conversation is the ultimate personalization experience – we ask questions and offer views based on our own conceptions. We personalize our knowledge when we socialize.” The process according to Siemens (2006:45-47) is:

- Awareness and receptivity.
- Connection forming.
- Contribution and involvement.
- Pattern recognition.
- Meaning-making.
- Praxis (which is the “tweaking” process of what is learnt or thinking about your thinking).

According to Siemens (2006:47), learning is when you are “in synch with life”. The one issue then is how does the lecturer “test” or “accredit” the students’ knowing? Downes, cited in Siemens (2006:50): “To ‘know’ something is to be organized in a certain way, to exhibit patterns of connectivity” and the process therefore becomes more important than the actual content. The process of learning is therefore more important and to understand how you know what you know, but also to create your own knowing through the development of your own network of knowing.”

Accreditation learning is according to Siemens (2006:35)

...the constant activity of our work and life. We gain new insights from conversations, from a workshop, or an article. We gain experience through our reflection on failed (or successful) projects. We connect and bring together numerous elements and activities, constantly shaping and creating our understanding and knowledge.

The “test” is then not the outcome but is a constant process of evaluating both by the lecturer and the teacher the process of knowing and learning.

The tools of technology in the networked or connected learning process are then the enablers of learning and knowing. We cannot know where someone ends up in the process of learning because as complexity theory says, systems are sensitive to initial conditions. “Teachers” cannot exactly know the initial conditions under which students learn therefore it is not possible to know the outcome. Siemens (2006:59) claims “The outcome is not only set in our daily activities, but in the process of selecting a world view.” We all create our own world view through a recursive process of connecting, networking and knowing, a process of co-evolution where new ideas are created through multiplicity.

It is necessary to create a flow in the network that will keep the interactions going. There are certain flow inhibitors and flow accelerators in every network

and awareness of these by both the teacher and the learner is important in order to assist in the process of knowing. Siemens (2006:90) sets down certain requirements for creating an effective learning and knowledge ecology. These are:

- a space for gurus and beginners to connect,
- a space for self-expression,
- a space for debate and dialogue,
- a space to search archived knowledge,
- a space to learn in a structured manner,
- a space to communicate new information and knowledge indicative of changing elements within the field of practice (news, research), and
- a space to nurture ideas, test new approaches, prepare for new competition, pilot processes.

The Learning Ecology is then an open space, which allows nurturing, openness, languaging in various ways and a place to connect. Siemens (2006:103) comments: “We advance humanity’s potential through knowledge. We advance humanity through emotion” and that “We exist in dimensions beyond pure cognition. We are shaped by social interactions. We are influenced by our emotions, our motivations. We require transformative (spiritual) knowledge for novel recombination’s (to rethink and recast information).” It is through the emotive and creative that we transform our society. Siemens makes it clear that pure scientific, rational thinking will not create a space for true learning. Only through bringing in the emotional, spiritual, beauty and even a bit of “magic” together with the scientific thinking will we have “balanced” learning environments. (Siemens, 2006:108)

So how do we create this new environment in our universities that are modelled on industrialism? Siemens suggests that we follow the following principles:

- Transparency.
- Diversity.
- Distribution of decisions.
- Suspend knowledge hardening.

The aim of learning according to this model is to value ideas, to value difference in ideas, to open up all levels of the organisation in order to connect respectfully around ideas and knowing and not only let decisions be taken by the top management structure. These are new ideas that need to be built into our universities, where we let go a little of what we think is precious and in the process we will gain so much more.

Open educational resources and openness

We now live in a world where information is always available at your fingertips and the “expert” is no longer sitting at the university but is in cyberspace. The world of knowledge is opening up. When talking about Open Education, Sir John Daniel (2008:18) claimed that Open Education should be: “Open as to people, open as to places, open as to methods, and open as to ideas. That is a good framework to think about open education. As the virus of open education has spread around the world countries and institutions have naturally emphasized those aspects of openness that were particularly salient for their environments.” Openness is a reality that universities will now have to deal with. In the past knowledge “belonged” to the university and was “given” to the student. Now knowledge is freely available everywhere and we need to find new ways of dealing with knowledge and embrace openness.

In 2001 Massachusetts Institute of Technology (MIT) also embraced openness when they started to publish their lectures online in the form of Open Educational Resources (OER). This means that knowledge and educational resources are becoming freely available without someone registering for a formal course or qualification and now more and more educational institutions are following suit. (Butcher, Kanwar, & Uvalić-Trumbić, 2011:70) Berners-Lee (2010, TED Video) placed a challenge to the TED conference about Open Data. He wants everyone in the world to put up their data on the web so that others can use it. For instance by placing satellite images of Port-au-Prince online, it was possible to very quickly build street maps that could help the rescuers after the earthquake in Haiti.

Heffernan (2012, TED Video) warns however that openness of information is not enough. Openness brings access but it does not mean that we want to use the information or want to change. She says that a truly open society needs

something more than just the physical networks and access to information. It requires a new way of being, one where we are open to conflict and challenges to our established ideas. We must have the willingness to change our minds, be challenged and see conflict and conflicting ideas as a good thing. A kind of courage and love is required to truly open society. Kauffman (2008:273-280) describes this process of collaborative engagement or new ethics based on respect within conflicting situations and ideas as the domain of the sacred.

Within the context of a cybernetic and open world, interdisciplinary studies are becoming more common. However to create true interdisciplinary collaboration requires openness and respect. At universities, single departments can no longer function in isolation, although an article in Nature (2007, Website) claims that: “There is a sense that, notwithstanding years of efforts to adapt to this change by encouraging interdisciplinary collaboration, the department-based structure of the university is essentially at odds with such collaboration. It will take time and commitment.”

The changing university

Anderson, Boyles, & Rainie (2012) say that the following factors will have a great impact on the university of tomorrow:

- More people will require access to education
- MOOCS or massive open online courses
- Collaborative learning and learning “how to learn” rather than simple learning
- Bricks replaced by clicks? Increased use of technology will replace the classroom to a greater extent
- Collaborative and peer learning will become a bigger reality
- Competency credentialing and certification

It is becoming more evident that education and how people will learn is changing by the day and will change even faster in the next few decades. The role of the educator will change and universities will have to let go of their power position and begin to participate in the global network that is accessible and open, creating a society that challenges those aspects of the civilisation we

created that disconnect us from our humanity.

The university and also the distance education university will have to adapt to these new ways of learning that might threaten the very existence of universities. Universities should seriously investigate their epistemological position in terms of how students are connected with the university, with other students and the global network. The university and the student form part of a bigger holistic system, nested in one another and this network of interconnectedness. One of the most important aspects of learning today may be not so much to provide students with so-called knowledge, but to prepare students for the complex changing world that they are living in but also place it in a context of co-operation, trust and love.

An additional factor impacting on today's university is the issue of economics. Universities are no longer viewed as pure centres of learning but as financial investments both on individual, institutional, national and global levels. Universities are now viewed as businesses and scientists are viewed as entrepreneurs. Colleagues become competitors and students become consumers and clients. Academics are put under pressure to perform and administrators and management are mostly concerned about the bottom line (Michaels, 2011:83-91).

This environment encourages competition and alienation of both the teacher and student. This might be one of the most important factors that could lead to the breakdown of our current education system simply because students will have many other more attractive options to pursue. The university of tomorrow will have to understand the balance between economic issues and creating a caring, open and creative learning environment.

Complexity in education

As a leading philosopher and complexity theorist, Edgar Morin 1999:1-62 wrote a report for UNESCO on the state of education globally. He gives seven complex lessons for our education systems for the future. They are

a) Detecting error and illusion

According to Morin (1999:11) education systems should not simply transmit knowledge to the student but also teach what knowledge itself is.

Knowledge about how we know, to prepare the mind of the student to use his or her own mind in order to develop a new kind of rationality that is open and that will engage the student in dialogue with the world around them in all its facets. This will help the student to interrogate new paradigms of knowledge that might be more relevant in today's age. Morin (1999:11) articulates "Learning about learning, which includes integrating the learner into the knowledge, should be recognized by educators as a basic principle and permanent necessity."

b) Principles of pertinent knowledge

Education systems, according to Morin (1999:1) should integrate principles in order to enable learners to "grasp subjects in their context, their complex, their totality". Students must learn how, what they are learning is relevant to their own context and the context of the subject, but also how it fits into the bigger global picture. Morin (1999:14) declares: "Complex unities such as human beings or societies are multidimensional: a human being is a biological, psychological, social, emotional, rational being. Society includes historical, economic, sociological, religious dimensions... Pertinent knowledge must recognize this multidimensionality and insert its data within it." Education should therefore rather encourage a general and natural aptitude in the student to solve life's problems instead of transmitting specific knowledge. Education should rather stimulate general intelligence.

c) Teaching the human condition

The human condition should be the focus of education according to Morin (1999:21) and should contextualise humans in the context of "Who we are?" which is inseparable from 'where we are?' 'Where do we come from?' and 'where are we going?'" Understanding where we come from, how we are embedded in the environment and our biology, how our brain, mind and culture are embedded in one another and what the relationship is between our reason, emotion and impulses. As an individual

we form part of a society and culture and we are also part of a specific species with a particular evolutionary history. All of these aspects help us understand who we are (Morin, 1999:21-30).

d) Earth identity

Our earth identity is vital for the sustainability of our planet and an understanding of how communication technology has connected us all and created a planetary era where everything is connected to everything else should form part of the education system of the future according to Morin (1999:31-34). Understanding the legacy of the 20th century that has created a condition in which we as a human race cannot live sustainably is essential. A new ethics that gives us an earth identity rather than a reductionist and polarising identity can help humans to create ethics that are “earth aware”. This will include an anthropological, ecological, earthling, civic and spiritual conscience (Morin, 1999:35-39). According to Morin (1999:39) “The education of the future should teach an ethics of planetary understanding.”

e) Confronting uncertainties

The science of the 20th century, according to Morin (1999:2) has given us a sense of certainty but has also left us with many uncertainties. These include a history that may lead to our own destruction. Somehow as a species we have become each other’s enemies and we have not yet learnt how to give birth to humanity. There are many uncertainties that we face. These include, the uncertainty of reality where everything is changing and the uncertainty of knowledge where knowledge systems are breaking down and we must learn to navigate them (Morin, 1999:44-45). Instead of simply trying to fix problems, the education system must “teach strategic principles for dealing with chance, the unexpected and uncertain, and ways to modify these strategies in response to continuing acquisition of new information.” (Morin, 1999:3)

f) Understanding each other

Morin (1999:3) declares “Understanding is both a means and an end of human communication. And yet we do not teach understanding. Our planet calls for mutual understanding in all directions.” We often confuse means of communication with understanding and Morin (1999:49) makes it clear that we cannot develop understanding through means of communication such as the Internet. However, communication technology facilitates contact with others who are different and that can create better understanding. According to Morin (1999:49) there are two types of understanding, the intellectual or objective and the human intersubjective understanding and both aspects must be taken into consideration when trying to understand each other. Including this in our education will create a “solid base for education-for-each to which we are attached by foundation and vocation” (Morin, 1999:3).

g) Ethics for the human genre

According to Morin (1999:3) ethics cannot be taught through moral lessons but rather through awareness that we are “at the same time an individual, a member of society, a member of a species”. These include respect for our individual rights, those of our communities and society we live in but also respect for the planetary fate.

Not only universities but also education as a whole therefore needs a new ethics that is closer to our essential humanity.

4.7.5 Humanness reclaimed

In this globally connected, socially networked planetary era we are living in, the way we live, communicate and learn has changed dramatically over the last few decades. I can simply explain how our collective lives have changed by describing my own. I live in a world where I am able to live in two places 200 km apart and I spend most of my time in the city where I earn a living, but all my “free” time I spend in the countryside. In a radius of five km from my house in the city there are about ten shopping malls, some small some very big. I can

buy anything I want from virtually anywhere in the world. The shirt I have on at the moment was made in Nepal, the computer I work on was assembled in China and the components were manufactured all over Asia. The cherries we ate the other day came from Spain, and I talked to a friend of mine in Australia this morning using Skype.

In the world we live in everything is connected, even knowledge and ideas. I am busy doing a free MOOC on The History of Human Evolution, and Jacques, my partner, is having controversial conversations on a regular basis with people on Facebook around social and political issues. I am spending my sabbatical on the farm 200 km from where I work and study and using the Internet I can communicate with various people, often even some of the authors and scientists that I am quoting in this thesis.

My brother lives in Cape Town, about 1,500 km from where I live, but we keep contact though social media. My sister lives in New Zealand, and although she “doesn’t do the Internet” we call on birthdays, and I keep “tabs” of what’s going on in her children’s lives through Facebook. After our parents passed away contact became less. But I have another family that I had to build over the years of close friends who are my support system. However, in the city, when my house gets burgled, I call the police and the insurance company, when I get sick I go to a doctor who might be a stranger and I have medical aid to ensure that if I get really sick I don’t get into financial crisis ... and I can go on and on... About my other life, the one outside the city I will tell you more in chapter 6.

We are living on a planet, where humanity has spread to almost every corner, where almost everyone is connected and where trade and communication connects us in a way that it has never before. This world is very complex, one where control is impossible to sustain. Political regimes are tumbling and large democracies are getting into financial trouble and nobody seems to be in control. Humanity and the individual are standing up and making their voice heard. Democracy is no longer sacred and news of environmental disasters bombards us. Morin and Kern (1999) encourage us to learn to recognise that we no longer live in a world limited by space and time. In this planetary age, we should embrace our collective connectedness and become citizens of the earth and develop earth-centred goals. These goals will ensure that we care and protect the earth, nations, communities and each individual. So maybe there is still

hope if we can work together to once again create a world based on co-operation, closeness, care and love.

4.8 Summary of human co-evolution

For the purpose of summary, I have created a table that categorises human evolution into the sections identified in the beginning of the chapter and discussed in the chapter and then mapped them to the phases of human evolution over time. This shows how they link to the four categories defined in section 4.2 namely, way of living, communication, technology and learning in as shown in the table below.

	Pre-historical era and organic way of living	Agricultural revolution and controlling the environment	Age of conquest and reason	Cybernetic revolution and era of complexity
Way of living	Organic way of living Living in small family groups Intimacy and close family relations with neotany as a way of living The collective is more important than the individual Live in loving relationships	Starting to control the environment Taming of plants and animals Still living in small communities but towns and settlements form Religion plays a role in controlling the minds of people	Control over the environment is established through science and reason individualism grows capitalism and imperialism develop	Planetary age and global connectedness Everything is connected Family life disintegrates in some cases but new families emerge
Communication	Person to person communication Occasional communication with other tribes close by	Communication routes start to develop and people start connecting wider than their own communities	Communication technology enables us to connect globally	Communication and connection is everywhere and global
Technology	Technology functional and basic	Technology starts to serve society and is mainly used for agriculture and architecture	Massive technological innovation industrialisation technology connects us globally	Technology everywhere and connects everyone
Learning	Learning is organic Learning through living	Specialisation emerges but learning still happens in context where you live	Learning context removed from living Formal national education becomes available to almost all universities and DE universities develop based on hierarchies, reductionism and industrialization	Self-organised learning emerges connectivism, MOOCs and OER start to show signs of disrupting formal educational systems

Table 4.2: Phases vs. aspects of human evolution

4.9 Distilling the fundamentals of the human story revealed

In Appendix C, I have listed the fundamental principles derived from this chapter. In the appendix I have indicated the page in the chapter that I wanted to underline. In the text I underlined the selection in order for the reader to easily identify the identified text. I identified these principles based on two of Chang's (2008:131-137) analytical or interpretation strategies, namely searching for recurring topics, themes, and patterns and connecting the present with the past.

Therefore I identified patterns of specifically living, communicating and learning in our distant past and what is evolving now. The way I see it is that we evolved in a very particular way that created a species that needs collaboration, connectedness and interdependency to thrive and learn. In the last 14 000 years we have moved away from this way of living and learning, but it seems that somehow in a network society we have developed new ideas around how we can learn using technology but will in ways that are collaborative, connected and interdependent. I will not carry out further distillation of these principles now, but will combine them with those of the next chapter and will at that point develop further data analysis strategies to derive at basic fundamentals that will be used in the study.

4.10 Chapter summary

In this chapter I told the story of humanness and focused specifically on how we as humans evolved as co-operative, connected collaborate and intimate beings and how through our ability to control the environment around 14 000 we lost some of that sense of community and started to live in hierarchical competitive environments. This led to a society that was controlling, rigid and hierarchical and this in turn created an education system that would serve such a society.

Through new ways of thinking and technological development a new way of living communicating and learning evolved that somehow is closer to our origins and may help us to create systems of learning that will be more effective. It therefore makes sense that an education system that is rigid, closed and hierarchical will be an environment where students are not happy and where they struggle, especially when there is physical distance between them and the university. The marginalised students are the most isolated, especially since they find it even more difficult to connect with

the university but in general, learning is most difficult in an environment of alienation and disconnect.

Effective learning therefore needs interconnectedness, a collaborative and open environment where students can learn about life, the human condition, their place on earth and learn to cope with the uncertainties of the life we lead today. The network society has already created such an environment and if educational institutions can embrace this, a new way of formal learning can emerge.

In the next chapter I will examine in more detail the new epistemology developed after the evolution of cybernetic and the interdisciplinary science of ecology, complexity and systems thinking. It would be impossible to explore all angles, but I will look at specific developments through the eyes of some of the great thinkers of the 20th and 21st centuries such as Bateson, Maturana, Capra and Morin amongst others. I will do this in order to distil further fundamental principles that are applicable to human systems, organisations, and learning systems and specifically applicable to the learning environment of higher education in the distance education sector. This will lead into chapter 6 which will apply these fundamental principles to the context of student communication at Unisa.

Chapter 5: Epistemological vision for the future: towards an ecological view of life

“The major problems in the world are the result of the difference between how nature works and the way people think” — Gregory Bateson (Bateson, 2011, Video)

5.1 Introduction

As with the previous chapter the aim of this chapter is twofold, explained in the research process in chapter 1 section 1.3. The first is to explore systemic and ecological thinking, complexity and the ecology of mind/ideas. My aim is to find a strong epistemological basis on which I could base my study. The second aim is to derive from this chapter basic fundamental principles that apply to living, communication and learning. These fundamental principles will then be distilled together with the principles defined at the end of chapter 4 into 7 fundamentals.

Throughout the chapter I will underline those ideas that will form part of the list of principles and these will then be listed in Annexure D and E and referenced back to the underlined text. At the end of the chapter in section 5.6 I will explain my data analysis strategy. I will provide the reader with a diagram that will explain how I prepared my data analysis and the distillation process throughout the study. This process assisted me with the end result of the 7 fundamentals that will then map the Unisa context in chapter 6.

In this chapter I will explore this systemic complex worldview and this will be discussed in two main sections. In the first section I will explore the general principles of cybernetics and complexity (section 5.4). This will explain how we see the world from these theoretical perspectives. Cybernetics has two distinct areas to explore, first basic cybernetics and second, second order cybernetics. Basic cybernetics is the form of cybernetics that generally applies to machines, whereas second order cybernetics applies to living systems and more particularly human systems because second order cybernetics includes the observer in the process of observing and therefore brings in the epistemology of the observer. I will focus on the basic principles of living and human systems and will focus mostly on the work of Gregory Bateson and Humberto Maturana but will include some other scientists such as Fritjof Capra and others. The second part of the first section will explore the basic principles of Chaos Theory and Complexity.

In the second section I have 5 subsections (See section 5.5). First I will investigate the epistemological issues regarding cybernetics and complexity. This shows how cybernetics and complexity influence our views of knowledge. Here I will focus on Bateson's Ecology of Mind and Maturana's ideas on the Biology of Love. Then I will explore complex epistemology or complexity thinking and will focus on the work of Morin and others such as Cilliers. Finally I will distil some basic fundamentals from cybernetics and complexity and combine them with the fundamental principles derived from the previous chapter. These fundamental principles will then provide me with a theoretical framework from which I can explore and map student communication at Unisa in chapter 6 to the theory in order to find new ways of dealing with students in the distance learning environment.

5.2 Metalogue

It had been raining all night after a long period of drought and it was still drizzling while Jacques and I were having our habitual cup of morning coffee on the farm. The air was filled with moisture and a holy silence veiled the rain. Every now and again when the rain stopped the birds would start singing as if to sing praise for the wonderful gift. I broke the silence. "I don't feel like working today. I have to start a new chapter and I don't know how and where to begin." "You say that every time you start a new chapter," he said.

"Well, it's so nice to sit here and watch the rain, much nicer than to go inside and sit behind my desk and yes, I'm stuck." "So Bokkie," he said, "what is the chapter about?" "Mmm cybernetics and complexity," I replied. "Now that helps a lot, he smiled, you will have to explain a little more, I have no idea what you're talking about except that I think cybernetics has something to do with computers and the internet." "Well, let me start at the beginning. During the Second World War," I said, "scientists were sent to Mexico, to work on projects for the war." "Why Mexico?" Jacques asks. "They needed to have a place where they could work in peace," I replied, "and because Mexico was not involved in the war and was out of the way of the war it was an ideal place. This would give the scientists an opportunity to get the job done of developing new technologies, some very ominous like nerve gas and tracing of military targets and such." "Oh, ok," said Jacques wide-eyed.

"These scientists were from different scientific fields and in the evenings they came together and started to talk, and quite spontaneously they started to talk about what

their different sciences had in common. They discovered that the idea of control was something that all their sciences explored but most sciences saw it differently. So they looked for what was common about control in their sciences and found that all systems manage control through feedback mechanisms. It is like a steer man navigating a ship. On the one hand he constantly makes corrections based on the information or feedback he receives from the environment around him and on the other hand he also has a particular place he's trying to get to which determines the direction he steers the ship. Does this make sense?" I asked.

"Yes," Jacques replied, "I'm not stupid, but what does that have to do with cybernetics, or computers?" "Ok, ok, sorry," I said, "well one of the scientists Wiener coined the term Cybernetics because it means Steer Man, so in the beginning it had nothing to do with computers, but after the war, these scientists kept on meeting annually in New York at what was called the Macy Conferences. Many other scientists joined them, and that is where Bateson and Margaret Mead come into the picture." "Yes, I've heard of them," said Jacques, "you always talk about Bateson, and I know Margaret Mead, she's that well-known anthropologist?" "Yes, and during that time they were married, and worked together closely," I replied. "Ok, I didn't know that," said Jacques, "but what does that have to do with the story?"

"After the war," I said, "these conferences were held and many more scientists joined the discussion from virtually every scientific field. During the next decade or so of conferences two main streams of thought emerged. One was the cybernetics of machines and the other was the cybernetics of living systems and ideas. The cybernetics of machines deal mostly with information systems. It had a big influence on the development of computers and artificial intelligence." "Ok, thank you," Jacques said, "at least now we're getting to computers." "Yes, but that is not the kind of cybernetics I'm interested in," I replied, "I'm interested in living systems, people, how we think, why we do what we do."

"At one of the conferences Gregory Bateson and Margaret Mead wanted to explore cybernetics in living systems rather than machines and this led to various scientists discussing the cybernetics of living systems on the one hand but also cybernetics of ideas. Bateson said that mind is not in the body but that the body was part of mind and that mind is in all living systems." "Ah," Jacques exclaimed, "but that's what I said when we talked about mind the other day with Byron, and you didn't say anything. Why not?" "I don't know," I smiled. "I was interested in what you were thinking."

"Anyway", I continued, "Bateson later defined six basic conditions that a system must comply with for it to be mind or what he often called the ecology of ideas (See section 5.4.1). He said that every living being and system is 'an ecology of ideas' or mind and that the way a tree grows has a similar pattern to a story that a person makes up. He referred to these interactions and connections as the 'pattern that connects'. So Bateson explored on the one side the world of pattern and ecology of ideas, but on the other hand our way of thinking or epistemology."

"Episte what?" says Jacques, "what is epistemology?" "Well, it's a very silly word," I replied, "because it sounds so weird but really all it means is, everything you think, do and decide in life is based on your epistemology. It's like Egbert, our eccentric friend; he lives a very organic life based on stories and traditional beliefs. His epistemology is more integrated and organic. He lives close to nature and the people around him, whereas most city dwellers and modern people have a dualistic epistemology where everything gets chopped up in pieces, like good and bad, beautiful and ugly, rich and poor. So Bateson loved to talk about the Western scientific epistemology that chops life up into pieces like physics, biology, psychology, anthropology. He said that life simply is not like that and that it is our epistemology that makes us see the world this way." "Yes," Jacques said with a big smile on his face, "I agree with Bateson. Here in the countryside, we live close to the earth and our community is very close knit."

"You know," I said, "Bateson came from an academic family, his father, William Bateson, coined the term genetics, and he always saw himself as a scientist, but he rejected the Cartesian mechanistic scientific model and he saw life as an integrated whole. Everything is connected and integrated and he spent his life exploring those connections and ideas." "Yes, just like we do here," said Jacques. "Okay, enough about Bateson," I replied, "I always get stuck with Bateson, but other scientists such as Maturana helped to define other ideas such as self-organisation which is probably the biggest link between cybernetics and complexity. Self-organisation or autopoiesis as Maturana and Varela coined it, means that living systems create themselves in the process of living. Morin, a complexity scientist even coined the term self-eco-organisation that means that living systems don't just self-organise, but they organise themselves within the environment, or eco-system they live in." "That makes sense," Jacques replied.

"But love," Jacques said, "you said we'd get back to computers and cyberspace." "Ah, you see that's what is interesting," I replied. "Without understanding feedback properly

computers and especially digital computers and the Internet would not be possible. The cybernetic principles helped us to understand information systems and lately we can see how these information systems are also starting to self-organise.” “Like what is happening with the Internet, lately,” Jacques replied excitedly. “Like the question my brother Richelieu always asked, when will the Internet start to think?” “Yes,” exactly, “I said, just like that, and it seems that that is what is already happening.” “Yes,” Jacques said, “it’s like when I go onto Google or Gmail, when it gives me information that I’m interested in when I didn’t even ask for it.” “Yes,” I replied, “it is as if the Internet already knows what you want to know.” “Yes,” replied Jacques, “and the way computers are starting to control the economy.” “Just like that,” I replied.

“Okay, I see, but where does complexity come in? You see I don’t forget anything,” Jacques said, sitting forward. “Now that is where it becomes interesting,” I replied, “you know, complexity science would not be possible without computers. Complexity science developed together with the chaos theory. Chaos theory started in the 1960s when a guy by the name of Lorenz developed a computer program to simulate weather patterns. What he discovered was when he made a tiny mistake at the beginning of the simulation it often had a catastrophic effect later on, which he called the butterfly effect.” “Ah, I know about the butterfly effect,” Jacques said, “it’s like when a butterfly flaps its wings in New York it can cause a tsunami in China.” “Yes, that one,” I replied.

“Anyway,” I continued, “Chaos theory explores how a small change in the initial condition can have a huge effect later, whereas complexity rather starts with chaos and explores that order or patterns then emerge.” “Ok,” Jacques says, “so it helps us to simplify life.” “No,” I exclaimed, “not at all, this is what Morin warns us against, he said that we can’t think about life in simplistic terms, as a matter of fact he says that that is the problem with the world. We are trying to fix complex problems with simplistic thinking.” “Ah,” Jacques says, “like trying to fix a tsunami with a screwdriver.” “Just like that,” I sighed.

“Ok, Bokkie,” Jacques said, “but I know that your thesis is about Unisa, so how does this all connect to Unisa?” “Ok, let’s look at that,” I replied. “One of the things Morin is talking about for instance is the holographic effect as one way of viewing life through complex lenses. That is the fact that not only is a system more than the sum of its parts, but the parts are more than the whole and reflect the whole.” “What?” Jacques asked. “I know the first part, but what do you mean by the part is more than the

whole?" "Ok," I said, "let's look at myself within Unisa. I am part of Unisa and if you add up all the bits of Unisa there is more to Unisa than just the bits, the interconnections and interactions between the parts create an enormous amount of complexity that is almost like what Bateson said, a multiplying effect. So that explains the first part, which as the whole is more than the parts. But the parts are also more than the whole, because each part is also unique and each part reflects the whole. If you ask me about Unisa and all its issues, the way I work and deal with issues or that my team is often a reflection of what happens in the bigger organisation. In addition, take me for example, there is a whole life that I lead here on the farm that is totally separate from Unisa and is again part of another system. So if Unisa wants to make new changes and manage the change, they not only have to consider all the components and aspects in Unisa but also many more aspects of all the parts and its interconnections. It just becomes impossible to manage."

"Hell, so what then, how can any organisation manage change," Jacques asks. "That is the big issue here, Morin and others say that we must be prepared to live with uncertainty and messiness and make that part of our living and stop thinking that we can control everything." "Mmm, I like messes," says Jacques. "Yes, I know," I said, "that's why I have to do an annual spring clean so that we can unclutter the house a bit." "Yes, but then I can't find my stuff," he laughed. "Yes, just like that," I replied. "So maybe I must embrace complexity a little more here at home too."

"Yes!" He smiled, "ok, now go back to your desk and write your chapter."

5.3 Why not reductionism?

Ecology of ideas is a way of describing how ideas interconnect and how patterns emerge from them. This perspective was developed by many great minds of the 20th century who proposed a new way of viewing the world and what constitutes a valid and novel way of perceiving knowledge (epistemology) which will ultimately result in a new way of living. These great scientists include Bateson, Maturana, Kauffman, Morin and Capra amongst others, who have been part of a new movement to change the world for the better through rigorous science. These scientists' contributions are leading us to new ways of viewing human living, how we use technology, how we communicate and how we learn. They can help us find a way towards a system that is built on the principles of complexity, co-operation, trust, interconnectedness, networking,

openness and possibly something more.

This way of thinking sees the traditional scientific model of reductionism as no longer valid, so let us explore the obvious question. Is reductionism useful for anything? Sapolsky (2011a: Video: 1:32:00–1:37:20) from Stanford University in his lecture on “Chaos and Reductionism” explains that reductionism is very useful when you want to explore simple mechanical systems. In biological and living systems he says reductionism is useful “if you are not very picky, if you are not very precise”. At certain levels of understanding we can reduce statistics or understanding that can help us explore problems in society. These are often found in statistical analysis of the average, for instance, when a new medicine is developed and it improves the health of 99 % of the population. We can say that the medicine is useful for most and we will not spend too much time understanding the complexity of why the medicine does not work for 1 % of the population. Simple linear reductive reasoning works in the realm of averages but when we want to explore the complexity of why the 1 % of individuals get sicker, reductionism won't do, because finding the complexity of how the medicine is not working for 1% is a very complex and involved process. Many interrelated components of living human beings as well as environmental factors play a role, and therefore reductionism cannot help us when we try to understand living, complex, human systems.

Capra (1992:28-29) in his description of the relation between Eastern philosophy and new science says that the Cartesian division and the mechanistic worldview were successful in helping humanity to develop sciences such as physics and in the development of technology. He however also states that it is ironic that this worldview made it possible to overcome it (the reductionist and mechanistic worldview) and create a new one based on the idea of unity.

On the other hand, according to Charlton (2008:116), Bateson said, “there are deeply rooted cultural errors in our society: reductionism, the mind-body dichotomy (the Cartesian mind-body split), the belief that means can be justified by their end results. Vested interest in art, education, religion, commerce, science, even in sport and international relations, defend these pathologies.” Bateson, who was very passionate about the idea of ecology, felt that there was little usefulness in the mechanistic epistemology especially when looking at living systems. Even Wiener (1962) wrote in 1948 that all living systems should be viewed as complex systems and these systems cannot be understood in mechanistic terms because there are too many components

involved in the system and the interconnectedness between the parts is too complex.

5.4 The nature of systems – cybernetics, general systems theory, complexity and chaos

The sciences of cybernetics and complexity are varied and apply to many fields of study. The aim of this section is not to explore all the components of these fields but to distil some basic principles from these sciences that will be relevant to this study. Some aspects will overlap in some sections such as the concept of self-organisation, but I will attempt to explain these terms specifically in terms of the theory discussed.

5.4.1 Basic cybernetics

The early development of cybernetics (as described in chapter 4 section 4.7.1) initially focused on describing engineering and computational systems and the control mechanisms that exist in them. Most of the early cybernetic reading is very inaccessible for a social scientist because it was written in mathematical and engineering terms explaining how the basic principles of communication, control and feedback work (Umpleby, 1994:14).

Mindell (2000:3) describes first order cybernetics as a science where “everything can be described as a system, broken down into ‘black box’ components with inputs and outputs, and then understood using the ideas of information, flow, noise, feedback, stability, and so on”. The process of understanding this kind of cybernetic system is therefore very technical and is based on the objective observation and study of systems and the observer as separate from the system.

A system according to Bateson (1991:260) is “any unit containing feedback structure and therefore competent to process information”. Such a system, according to Bateson, should be viewed from the cybernetic perspective or using the cybernetic explanation. Bateson (2000:405-406) says “cybernetic explanation is always negative” and that when you use a cybernetic description of the world all events are subject to restraints or limitations and that “all causes can be regarded as factors which determine inequality of probability”. He equates this to building a puzzle or sorting out a muddle, where there are many

more factors that will work against finding the solution and that one has to look specifically for those particular patterns that work in order to sort it out. There are therefore more probabilities of not finding the pattern and it requires a particular way of looking at the world to see patterns rather than objects.

The basic principles of Cybernetics are:

a) Communication based on control, feedback and circular causality

Cybernetics defines the communication of control in terms of circular feedback. Capra (1997:56) argues: "A feedback loop is a circular arrangement of causally connected elements, in which an initial cause propagates around the links of the loop, so that each element has an effect on the next, until the last 'feedback' the effect into the first element of the cycle." This forms self-regulation ensuring that there is balance in the system. This defines circular causality where simple cause and effect no longer work.

Bateson (2000:409) says feedback takes place when "phenomena of the universe are seen as lined together by cause-and-effect and energy transfer, the resulting picture is of complexly branching and interconnecting chains of causation". When these chains of causation form closed circuits, which means that the connections go around back to where they started, then the system has feedback. All living systems function on the principle of feedback and all communication and interaction too.

Bateson (2000:316) explains that "behaviour of the governor is partly determined by its own previous behaviour. Message material must pass around the total circuit, and the time required for the message material to return to the place from which it started is the basic characteristic of the total systems..." The process of circular and recursive feedback therefore determines the nature of the system.

b) Cybernetic systems are open and closed

Once a system functions as a feedback mechanism it has features of both openness and closedness. The circular feedback nature of the system makes it closed because circular circuits form based on the circular chains of

causation. Such systems are closed for information and can only process information if according to Bateson (2000:315) the data is a “difference that makes a difference”. Only when the data is news of difference can it be perceived by the system. Cybernetic systems are however also open in the sense that there is an exchange of energy between the system and its environment. If it receives nourishment and energy from the environment and events outside the circuit this may influence the system (Bateson, 2000: 459, 489).

c) Self-organising or autopoiesis

In early cybernetics, self-organising systems were defined as systems that are open and far from equilibrium, but the term developed and grew over the years (Capra, 1997:81 - 85). Maturana and Varela (1992:43) further developed the concept and called it autopoiesis which they defined as the “continual self-producing” of a system (Maturana & Varela). Self-organisation will be discussed in more detail in section 5.3.2. and section 5.3.3.

d) Holism

Cybernetics embraces the assumption of holism which states that the “whole is more than the sum of its parts”, which is a term coined by Smuts (1927) to explain that there is more to a system than just the pieces that make it. Smuts had already challenged the scientific community in the 1920s to further investigate systems in order to find the gaps left by 19th century science. The principle of holism or the concept of the whole is more than the sum of its parts as defined in the General Systems Theory this means that a system is made up of various building blocks but if you look at the configuration of all the building blocks the system consists of more than just the collection of those building blocks (Heylighen, 1992:3-4). Bateson (2000:267) takes this concept a little further by saying, “The whole is always in a metarelationship with its parts” which means that no part of any system can be viewed as parts because context and relationships always add to the system being a more complex dynamic.

5.4.2 Second order cybernetics

The term, cybernetics of cybernetics or second order cybernetics, was coined by Heinz von Foerster (1979:2-3) to explain the basic concept or “theorem” developed by Humberto Maturana, namely “everything said is said by someone”. The statement seems oversimplified but Von Foerster mentions that the “profundity” of the wisdom behind the statement is great. In addition to Maturana’s theorem, Von Foerster suggested a second one which is “everything said is said to someone”. Combining these two brings forth a whole new way of looking at human systems where language and meaning creates a new level of complexity between the observer and the observed or between people.

This new level or type of cybernetics is the cybernetics of human communication or social cybernetics, a cybernetics where the observer states his purpose and he/she forms a part of the system that is observed. We cannot observe anything unless through the “filters or lenses” of our own organisation (Lettvin, Maturana, McColluch, & Pitts, 1968:245-255). In order to understand the statement “everything said is said by someone”, one has to understand how this process of creating a system that is unable to see the world outside his own “lenses” of perception works.

a) Structure and organisation of systems

Second order cybernetics is mainly concerned with the world of the living, living beings observing living beings, which falls mainly in the domain of human beings. According to Maturana and Varela (1992:95-99), living beings have two basic components, namely structure and organisation.

The organisation of a system is “those relations that must exist among its components ... for it to be a member of a specific class”. On the other hand the structure of a system is “the components and relations that actually constitute a particular unity and makes its organization real. My structure therefore constitutes the fact that I have all the components that makes up a living being, like a head, brain, eyes, skeleton, etc. My organization then is the relations between all those parts that ensure that I am a living being” (Maturana & Varela, 1992:47). These processes create in living systems what

Keeney (1983:82-82) calls “organizational closure”. The system can thus not view the world outside the perspective of its own organisation and all perception is “coloured” by the organism’s own organisation. In cybernetics this is often referred to as the “autonomy” of a system and living systems are viewed as autonomous systems.

Maturana and Varela (1980:9-11) describe living systems as:

- Living systems are units of interaction in an environment.
- They have an energy releasing metabolism, they grow through internal molecular replication, renew themselves and all these processes are closed in a closed causal circular process.
- The circularity that makes the living system is a unit of interaction and therefore gives it its identity.
- The system is self-referring due to the circular nature of the organisation of its living.
- Living systems cannot enter into interactions that are not specified by their organisation.
- The organism can only interact with the medium or environment based on the classes of interaction with which the organism can interact with the environment.
- Units of interactions can participate in more encompassing units of interaction.

Living systems function as a dynamic of circular interconnected processes (or its organisation of living), as an autonomous being through interaction with its environment and it generates a pattern of living or an identity through which it interacts and participates in its environment.

b) Autopoiesis (the organisation of living)/self-organisation

All living beings have a particular organisation of living, one which ensures that they are open enough to interact with their environment for food and energy but closed enough in order to protect their organisation or identity. Maturana defined the concept “autopoiesis” during a period in the late 1960s when he was working with Francisco Varela (a student of his) on ideas relating to the organisation of the living (Maturana, Paucar-Caceres, &

Harnden. 2011:298 - 299). Autopoiesis is the process of continual self-production of living systems within a network of on-going interactions (Maturana and Varela, 1992:43-44). The nature of living systems is therefore that they are networks of interactions in continuous self-production between the organism and its environment and that no organism can be viewed in isolation from its environment. "They form a unity" (Maturana, 2011, Video, 00:06:00). One could say they are one.

Maturana and Varela's (1980:9-11) definition of autopoiesis as having two sides, namely that the system has an identity that is defined in terms of structural determinism and that it interacts with the environment this is called structural coupling. Structural determinism means that every living being starts out with a structure and the nature of the structure determines the interaction that it has with the environment or medium. Because this structure needs to be conserved by the organism it then determines the identity of the organism. Maturana (2011, Video, 00:12:10-00:12:23) describes structural determinism as "... our fundamental unconscious ... and conscious, explicit and/or implicit trust in all that we do." The process of interaction with the medium is called structural coupling (Maturana & Varela, 1992:95-103, 174-176). The image below shows how they view self-organised systems.

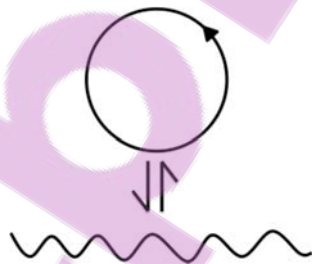


Figure 5.1: Autopoiesis (Maturana & Varela, 1993:175)

The circle represents the circular feedback processes in the organism that determine the structure of the system, or its structural determinism. The line below shows the medium and the arrows in between represent the interaction with the medium or structural coupling. This process is a continuous process of self-creation or self-production of any living system in its medium and represents what Maturana and Varela (1990:9-11) call "Autopoiesis", or the "realization of our living", self-organisation or "we exist in the continuous

production of ourselves” (Maturana, 2011, Video 00:07:40-00:08:10).

If we stop producing ourselves we die and “whatever we do, whatever we think, whatever we imagine... occurs as part of the realization of our living and in the realization of our living” (Maturana, 2011, video, 00:08:50-00:09:30). Any change in a system is determined by the structure of the system. Keeney (1983:68) describes this as the “connections of change and stability”, where the self-organization of the system determines what will change and what will remain stable.

c) Networks the structure of living

Capra (1997:80) declares that, “the understanding of life begins with the understanding of pattern”. All living systemic properties are properties of pattern and it is most clearly seen when a living organism dies, because the pattern disappears. He also mentions that the pattern common to all living systems is networks and that the ordered patterns that “spontaneously emerge” in all living systems is self-organisation. Capra (1997:81-82) says that once we understand these integral patterns of understanding life, we can recognise a common pattern of organisation in living systems and that it is the pattern of networks.

As a result of the connections or structural coupling between the living being, there forms a “network of direct and indirect recursive interactions in the realisation of their living. A biosphere then arises as a closed network of multidimensional reciprocal structural couplings that includes all living systems as well as all the non-living features of the medium that participates in it” (Maturana & Verden-Zöllner, 2008:29).

Not only the living organism but also the networks between organisms have the features of structural determinism and self-organisation (Capra, 1997:85). Capra explains that even the earth can be viewed as a self-organising system as described by Lovelock in his Gaia theory. Lovelock (1988:41) suggests that the earth only differs from other living systems as we as humans differ from our living cells. All living systems therefore consist and form part of patterns of networks.

d) Networks are nested systems

Systems form structures and networks form networks in networks. This notion of systems in systems or networks in networks can be defined as nested systems or nested networks of organisation. Günther and Folke (1993:265) say “They are nested within each other, and from this view inseparable, since they, though clearly individual, consist of each other.” Nested systems are therefore recursive systems or systems of systems of systems.

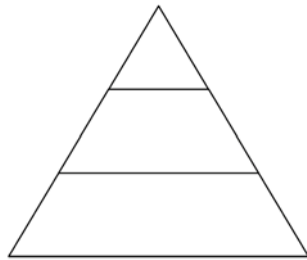


Figure 5.2: Hierarchy

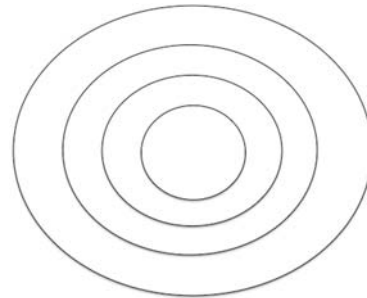


Figure 5.3: Nested system

Nested systems are not like the hierarchies we know although they are sometimes called nested hierarchies. Figure 5.2 diagrammatically shows what a hierarchy would look like whereas Figure 5.3 demonstrates what a nested system would look like. Bateson (2000:96) refers to pure hierarchies as a “serial system in which face-to-face relations do not occur between members when they are separated by some intervening member; in other words, systems in which the only communication between A and C passes through B”. This is a common pattern according to Bateson in rigid societies but he makes it clear that when he talks about hierarchies he refers to systems in systems or contexts of context.

Capra (1997:35) says that in nature only nested systems exist, not the type of hierarchical systems we see in modern society. He says “In nature, there is no ‘above’, or ‘below’, and there are no hierarchies. There are only networks nesting in networks.” In science we should always look for explanations in “ever larger units”, networks nested in networks.

e) Evolution and co-evolution

Maturana and Varela (1980:102-103) explain that evolution is the history of change in living systems embodied in different organisms “sequentially generated through reproductive steps” in which the structural changes of “each unity arises as a modification of the preceding ones”. Therefore he says, “Evolution requires sequential reproduction and change in each reproductive step”. Evolution is therefore the process of reproduction in which the organism changes in relation to its environment and this process itself is a unity.

Evolution cannot take place unless there is a recursive process of living together in the medium. Maturana and Verden-Zöller (2008:142-143) refer to this process where the organism and the medium change together in a congruent manner, or a manner that conserves the organisation of both, “natural drift”. There is therefore no such thing as evolution, only co-evolution. Evolution is what Bateson (1991:275) calls the “interlocking of species”, organisms or systems.

In his Origin Symposium III lecture Maturana (2011, Video, 00:52:40-00:53:00) says “Whenever in a collection of elements, some configuration of relations begins to be conserved, a space is open for all else to change around the relations that are conserved.” As an organism begins new processes to conserve a new way of living the opportunity for new change is opened up not only for that organism, but for all relations that organism is involved in. That is the essence of evolution or rather co-evolution.

f) How to view living and human systems

Capra (2003:61-62) says that to understand living systems one has to view them from three distinct perspectives, form, matter and process. Capra uses the term form to describe the pattern of the organisation of living which is the way that the system is creating itself, and process he views as the circular recursive interactions in the patterns of the system. Matter is the material structure of the system. According to Capra (2003:62) all three of these perspectives must be included in viewing living systems as shown in figure 5.4 below.

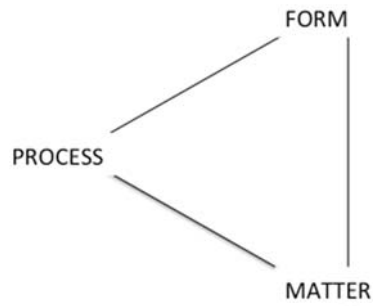


Figure 5.4: Three perspectives of living systems (Capra, 2003:62)

In addition to viewing systems in this way, we also must understand the relationship between the system and its environment or context. Bateson says “to explain the observed phenomena, we always have to consider the wider context”. The wider context gives meaning to understanding any system. Nachmanovitch (1981:9-11) explains that this awareness of context is a way of viewing the world as a network of relationships and once that is done you must look at the wider perspective or the context of that context and each context gives meaning to the next level of perspective.

Capra (2003:64) says that the main factor that distinguishes living systems from human systems is in the concept of meaning. Human systems have an additional component, namely meaning through language as shown in figure 5.5.

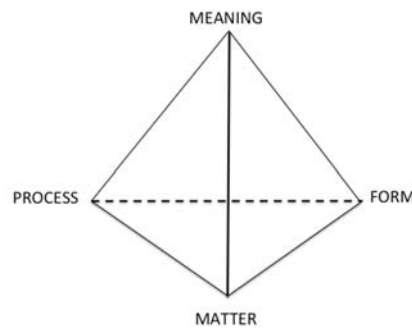


Figure 5.5: Four perspectives of human systems (Capra, 2003:64)

Meaning is therefore according to Capra (2003:64) those aspects of humanness that add the “inner world of reflective consciousness, which contains a multitude of interrelated characteristics”. That is the part of us

that interprets the world and creates various levels of interpretation and understanding. Bunnell, cited in Maturana and Verden-Zöller (2008: xviii) explains that the fact that we have language as humans gives us the ability to step outside of our own beliefs or thoughts and reflect back, which creates recursive reflections and meaning.

5.4.3 The science of change (complexity and chaos theory)

Chaos and complexity have a lot in common with cybernetics; especially self-organisation, which is at its core. Many basic concepts from complexity theory can be derived from chaos theory so I will discuss chaos theory first and then give a summary of complexity theory.

a) Chaos theory

McMillan (2009, Kindle, loc:1296) says “The work of chaos scientists demonstrated that much of the world is made up of nonlinear dynamical systems and that although these systems may appear to be unpredictable and seemingly erratic in behaviour, they have their own kind of internal order.” They therefore started investigating this kind of order and developed a number of concepts that further helped to understand complex systems. The basic concepts I will discuss are the butterfly effect, strange attractors and fractals.

The butterfly effect

Chaos theory was developed in the late 1960s, after the advent of computers, which made it possible to understand weather systems through simulation programmes which discovered that small numerical errors made at the starting point can have catastrophic effects. This phenomenon was given the name “sensitive dependence on initial conditions”, also known as the “butterfly effect” in contemporary science “the notion that a butterfly stirring the air today in Peking can transform storm systems next month in New York” (Gleick, 1987:8).

McMillan (2009:48) explains this clearly when she says, “The butterfly effect tells us that:

- all complex dynamical systems are exceptionally sensitive to their initial or starting conditions;
- small variations over time can lead to major changes in a non-linear system;
- complex dynamical systems are highly responsive and interconnected webs of feedback loops.”

The implication of this is that complex systems cannot be understood in terms of simple cause and effect because any small change in the starting condition of a system can lead to much greater changes later on in the process.

Strange attractors

Sapolsky (2011, Video: 00:46:00- 01:04:00) explains that when you look at simple deterministic systems and look at them from a reductive model you should be able to predict the system’s behaviour and if it behaves differently that means that there is noise in the system. Simple systems have periodicity because when you know what the rule is and knowing where you are you can make predictions. For instance with the numbers 1, 2, 3, 4, 5, if you know what the rule is, namely, just add one, you can make predictions about the rest. They are therefore deterministic systems and have periodicity. When you try to track the behaviour of a simple system such as a clock or a water wheel, and you track that behaviour on a graph, you will see that the system is constantly attracted back to the same pattern of behaviour. For instance a pendulum will be attracted to a steady state as shown in figure 5.6 below (Byrne, 1998:26-29).

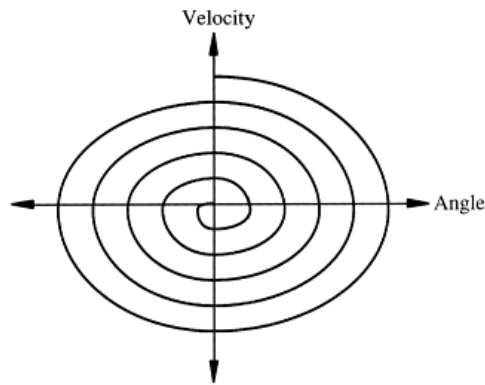


Figure 5.6: Phase space trajectory of a pendulum with friction (Capra & Luisi, 2014:133)

In complex systems, however, behaviour will always have variability, not because it is noise that the system produces, but because it is the nature of complex systems. Even if the system is deterministic, meaning that it has rules, if the system has no periodicity, which is the tendency to occur at particular intervals, at some point it creates patterns that are similar but never repeats itself. In the attempt to understand complex systems scientists analysed turbulence and behaviour in complex systems. They discovered that complex systems behaved in a very peculiar manner when they modelled behaviour in the system on computers and they came across strange attractors. Complex systems behave in patterns of behaviour but they seem not to ever behave exactly the same as shown in the strange attractor in figure 5.7 (Gleick, 1987:119-152; Sapolsky, 2011, Video: 01:04:10–01:16:07; Byrne, 1998:26-29).

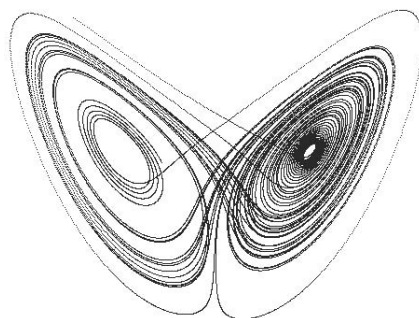


Figure 5.7: Strange attractor (Fichter, Pyle & Witmeyer, 2010)

The implication of this is that one cannot predict the behaviour of a complex system although patterns will emerge. If you look at a system you can neither

know what the starting state is, nor predict exactly where the system is going. To know the system's behaviour you have to track it from beginning to end.

Fractals

Fractals are self-similar shapes found in nature that do not comply with conventional Euclidian geometry. Measuring clouds and leaves; coastlines and rivers are much more complex than basic shapes such as squares and triangles. Gleick (1987:98) states "In the mind's eye, a fractal is a way of seeing into infinity." In the 1970s Mandelbrot discovered fractals while analysing the cotton prices using his IBM computer and discovered an interesting symmetry that applies when you look at scales that are small and large. After working on many different aspects of fractals he developed sets of fractals that are graphically very beautiful. Self-similarity not only creates beauty but also indicates high levels of complexity and gives the picture of wholeness (Gleick, 1987:108-221). According to Eglash (2007, TED Video, 1:30 - 2:28) fractals have the property of self-similarity where the part looks like the whole at many different scales and he mentions that Mandelbrot, "realized that if you use computer graphics and use these shapes you call fractals, you get the shapes of nature. You get the human lungs, you get acacia trees, you get ferns, and you get these beautiful natural forms."

McMillan (2009:53) argues that, "The main features of fractals are...:

- they are irregular patterns or shapes repeating themselves up and down a scale of size;
- this scaling is about the relationships between things – colour, shape, texture, and dimension;
- they are ubiquitous in nature;
- they provide the basic design principles of many natural structures;
- fractal geometry is concerned with qualitative not quantitative measurement."

Self-similar shapes are inherent to complex systems and are found in nature and organic communities. Fractals were often used in African architecture in order to create ways of living that are more organic and create community (Eglash, 2007, TED Video). McMillan (2009:120) explains how "Thinking in

fractal terms can give managers fresh insights into how an organization is structured and how it operates and 'behaves' at every level." Understanding fractals can assist in creating forms in complex systems that are more conducive and natural to living systems.

b) Complexity

According to Hendrick (2009:5) there is no single unified theory of complexity "but rather several theories, or elements of theories, that have emerged from natural sciences, particularly biology, computer simulation, mathematics, physics and chemistry". As with cybernetics, complexity theorists are challenging the notion of the Newtonian reductionist paradigm. It was therefore difficult to decide which punctuation to use to define complexity. Morin (2008:2-3) defines two types of complexity, namely restricted complexity and general complexity. Restricted complexity according to him evolved mainly in relation to cybernetics and the second law of thermodynamics and still describes systems as complex outside the domain of epistemology. To attempt to include all aspects of complexity in this thesis will be very difficult and I have therefore decided to only define the most basic principles of the nature of complex systems.

Ashby (1956:61-62) who was one of the pioneers of cybernetics, defined complex systems as systems that are "very large". By very large, he however did not mean big in size but too large for one observer to have the resources and techniques to understand all the components. Siemens (2011, Video, 1:35-2:55) gives a much clearer definition of a complex system by explaining the difference between complex and complicated systems. He says that "a complex system is one where you have a range of different or diverse actors that are involved in how they connect with one another but they're driven by feedback, which means that no agent stands on its own or acts on its own." Relatedness and interaction between parts therefore form the core of complex systems, and no part of a system remains the same while interaction takes place. Siemens (2011, Video, 3:00-3:30) defines a complicated system as "one that you can reduce". He explains that a complicated system is something like a car which you can take apart and once you have found the problem and put it back together, the problem is

fixed. Essentially complex systems can therefore not be understood by simply taking them apart and examining one single part.

Hendrick (2009:7-8) further defines the characteristics of complex systems below. Each of the aspects will be discussed using Hendrick's characteristics but they are defined more broadly using other references and perspectives as well. The characteristics are:

Self-organisation (and self-eco organisation)

The concept of self-organisation was greatly influenced by the concept of "autopoiesis", defined by Maturana and Varela (Hendrick: 2009:7). "Our proposition is that living beings are characterized in that, literally, they are continually self-producing" (Maturana & Varela, 1992:43). According to the complexity theory, self-organisation is the creation of a new order through the interacting agents of a system without an external governing agency. All living systems are self-organising systems because they do not have an external governing agency (Hendrick, 2009:7). MacMillan (2009:59) defines self-organisation in the complexity theory as "the ability that complex systems have to self-organize spontaneously into even greater states of complexity."

Prigogine, cited in Doll (1986:14) says that "Disturbed order will not necessarily lead to chaos; higher levels of reorganization are possible." This means that the transition from disorder to order is possible at a critical point in chaos, when patterns start to emerge, sometimes spontaneous self-organisation appears that leads a system to higher orders of reorganisation.

McMillan (2009:58), states "the key attributes of self-organizing systems are:

- they need energy in order to renew themselves;
- they are open to their environments in order to exchange energy and matter;
- they are spontaneous, exhibiting spontaneous behaviours which lead to the emergence of new structures and new forms of behaviour;
- they are non-linear systems with internal feedback loops;
- they have no centralized control."

Morin (2008:61-62) helps us understand the concept of self-organisation better by using the concept of self-eco-organisation. He says that no living system exists in isolation and that we live in the world and interact with the world and that “cosmic order, in a way, integrated in the interior of the organization of living species”. We cannot be separated from our environment and the environment coupled with our self-organisation creates an integrated whole and clearer picture of how any being self-organises.

Emergence

Emergence according to McMillan (2009:63) “is a phenomenon of the process of adapting and transforming spontaneously to changes in circumstances. This process leads to the development of something else, something more complex, usually much richer, than the original.”

Mittleton-Kelly, cited in Hendrick (2009:7) suggests that “Emergent properties, qualities, patterns, or structures, arise from the interaction of individual elements; they are greater than the sum of the parts and may be difficult to predict by studying the individual elements. Emergence is the process that creates new order together with self-organisation.”

Morowitz (2002, Kindle, loc: 300) declares “Emergence leads to novelties: the whole is somehow different from the sum of the parts and the outcome cannot be known without running the computer program.” These emergent processes, according to Kauffman (2008:59), are what creates everything new in the universe, “it is a natural emergent expression of the routine creativity of the universe”. Without emergence, life is therefore not possible and emergence is the process of patterns, structure and organisation that have become an important aspect of looking more clearly at how evolution works.

Evolution: Order at the edge of chaos

According to Kauffman, evolution takes place in a rich complex environment of creativity. He goes further to say that “Organisms which are internally constructed such that they are in the solid regime but near the edge of chaos appear to be able to perform complex tasks and adapt” (Kauffman, 1993,

Kindle, loc: 6630). According to Whitehead, cited in Goodwin (1994:182) evolution or change is therefore the process of the “creative advance into novelty” and that “life exists at the edge of chaos, moving from chaos into order and back again in a perpetual exploration of emergent order” (Goodwin, 1994:181-187). Change therefore emerges in very particular circumstances where chaos creates order, but we cannot know in advance exactly how evolution will take place (Kauffman, 2008:138).

Non-linear causation

Hendrick (2009:7) says that the causal connections in non-linear systems are not proportional. That means that the same input would not lead to the same output. “This proportionality is broken in complex, non-linear systems where feedback plays a key role in the emergence of new order.” Normal cause and effect therefore does not work in living complex systems, because there are too many factors to consider and any causality that exists breaks down.

Negative feedback

Positive feedback is when the feedback process of a system creates stability in the system. Most mechanistic simple systems that are cybernetic or have control mechanisms therefore work with positive feedback. Negative feedback on the other hand is a characteristic of complex systems, which are far from equilibrium and therefore they are very sensitive to perturbations (Hendrick, 2009:7).

Complex Adaptive System

Complex Adaptive Systems (CAS) is a school of thought formed in the mid-1980s with the formation of the Santa Fe Institute, in New Mexico. According to Kauffman (2008:85-87), who is part of the Santa Fe Institute, in CAS there are no happenings, but only doings. Agents, which include biological entities including humans, act and do and “With agency, at whatever level of evolution we are willing to recognize it, meaning, values, doing and purpose emerge in the universe” (Kauffman, 2008:85).

Dodder and Dare (2000:3) define the characteristics of complex adaptive systems:

- Balanced between order and anarchy, at the edge of chaos.
- Composed of a network of many agents gathering information, learning and acting in parallel in an environment produced by the interactions of these agents.
- Co-evolved with their environment.
- Part of an emergent, instead of pre-determined, order.
- Inclined to exist in many levels of organisation in the sense that agents at one level are the building blocks for agents at the next level.
- Part of a future that is hard to predict

Co-evolution is the outcome of Complex Adaptive Systems due to the interaction between the agent and the environment and the responding change effects they have on one another (Hendrick, 2009:8).

According to Cilliers (2000: 23-24) complex systems can be defined as:

- Consisting of a large number of elements that can be simple.
- Containing elements that interact dynamically by exchanging energy or information. These interactions are rich. The interactions are non-linear.
- Consisting of many direct and indirect feedback loops.
- Open systems – they exchange energy or information with their environment – and operate at conditions far from equilibrium.
- Have memory, not located at a specific place, but distributed throughout the system. Any complex system thus has a history, and the history is of cardinal importance for the behaviour of the system.
- Are adaptive. They can (re)organise their internal structure without the intervention of an external agent.

(Adapted from Cilliers, 2000: 23-24).

In the next section I discuss the impact that many of these principles have on the way we know the world and essentially how we create meaning in the world we live in.

5.4.4 Fundamental principles of cybernetics, second order cybernetics and complexity

The basic principles of cybernetics, second order cybernetics and complexity are underpinned by principles that are not reductionist but rather focus on the whole or a holistic principle which is a way of looking that essentially views relationships and patterns of relationships between parts as the point of focus rather than the parts.

The principles of circular feedback and causation create patterns of self-organisation or autopoiesis that describes how living systems create themselves in their living. The self-organisation of the system is created through the interplay between the structure and organisation of the system together in the context or medium. This forms a unity in the system and this process is called co-evolution. In the process of living the pattern of living systems are networks and all networks are nested in networks. Human systems have meaning and through meaning create complex networks of reflections of meaning.

Complex systems are unpredictable and are very sensitive to starting conditions and small changes in the starting state may have unpredictable effects later in the system. Any change introduced into a system must therefore be made right at the beginning. Whereas simple systems have periodicity, complex systems have variability from which patterns can emerge and these patterns create new order through self-organisation. What makes living systems unique is that they create patterns and often these patterns are self-similar (fractal) and this creates the beauty of the living world. In addition, complex systems have no central control mechanism and the higher levels of self-organisation determine the nature of the system.

Complex systems are also unable to view the world from outside their own perspective due to their own organisation that constantly co-evolves into more complex or higher states of complexity. In the process of co-evolution memories form that create the identity of the system. Due to the self-organising nature of systems it is not possible to predict how they will change and what input will create change in the system.

A more complete list of the fundamental principles that I have derived from this section on the basic nature of systems can be viewed in Appendix D.

5.5 Epistemological issues

In the process of creating meaning we develop a pattern of meanings that creates a view of the world. As both cybernetics and complexity have shown, ontology and epistemology are inseparable. By viewing the world from the second order cybernetics and constructivism viewpoint the concept epistemology gets a new meaning. Bateson (1988, 1991, 2000) gave various definitions of epistemology.

Here are some:

- “A branch of science combined with a branch of philosophy. As science, epistemology is the study of how particular organisms or aggregates of organisms know, think, and decide. As philosophy epistemology is the study of the necessary limits other characteristics of the processes of knowing, thinking and deciding” (Bateson, 1988:246)
- “there are the problems of how we know anything, or more specifically, how we know what sort of world it is and what sort of creatures we are that can know something (or perhaps nothing) of this matter” (Bateson, 2000:313)
- “Epistemology is the science whose subject matter is itself. It is the name of a species of scientific study and talk. We set out to study the nature of study itself, the process of acquisition of information and its storage” (Bateson, 1991:231).

Epistemology is the process of understanding the underlying principles on which our knowing of the world is based and in the process on which all thinking and deciding and therefore also our behaviour is based. The essence therefore of cybernetic epistemology is a move away from observing matter, events or objects but the information that is carried by and between matter, events or objects and to focus on “the pattern that connects” (Bateson, 2000:407). From the perspective of cybernetic thinking and especially second order cybernetic thinking, there cannot be an objective observer, because the structure of the system determines what he or she observes. Second order cybernetics is constructivism at its core.

Maturana took his process of autopoiesis further and included the observer into the picture shown here.

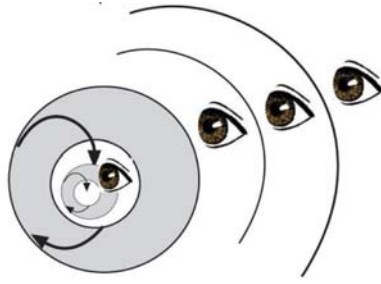


Figure 5.8: An endless process of reflection, as enabled by recursion of reflection (Maturana & Verden-Zoller, 2008: xvii-xix)

Every person observes him- and herself and most often others also observe the autopoietic system. These observations can also be referred to as reflections of reflections or recursive reflections and the figure above shows the many levels of reflection. Epistemology is therefore essentially the pattern of recursive reflections that creates a conceptual framework for all ideas, decisions and doings.

Morin (2008:27) says that “Epistemology needs to find a point of view that can consider our own knowledge as an object of knowledge.”

5.5.1 Ecology of Mind / Ideas

Bateson created an epistemological framework that he called the “Ecology of Mind”, which is a way of knowing the world that is in line with how living systems work (Bateson, 1991:xii).

Bateson (1991: xii) says

Ecology of mind which can be defined as a new way of thinking about the nature of order and organization in living systems, (is) a unified body of theory so encompassing that it illuminates all particular areas of study of biology and behaviour. It is interdisciplinary, not in the usual and simple sense of exchanging information across lines of disciplines but in discovering patterns common to many disciplines.

The ecology of mind is a way of understanding how life works in a new way, one in which information and the patterns of life are explored rather than the components of the system.

Information, the difference that makes a difference

In the process of interaction and feedback, Bateson (2000:315-318) defines a “bit” of information as “a difference that makes a difference”. He (Bateson, 2000:315) says “what is transmitted around the circuit (of feedback) is transforms of difference” and as it travels and undergoes recursive changes in the circuit it forms an elementary idea.

So in essence information is that kind of bits of data that the system is able to see as a difference or news. In Maturana’s terms, difference is the information that the self-organisation of the system can absorb.

The pattern that connects

Bateson (1988:13) saw the world in patterns, and specifically in terms of patterns that connect and he thought of it as “a dance of interconnecting parts only secondarily pegged down by various sorts of physical limits and by those limits which organisms characteristically impose”. This pattern or dance of which he speaks he calls “Mind”. This is a radical idea, because from the conventional mechanistic perspective we see mind as the product of the brain. He saw mind as the process of the combined characteristics of the living world. Bateson, however, felt strongly that mind “is empty; it is no-thing. It exists only in its ideas, and these again are no-things”.

The map is not the territory

Bateson (1988:30-31) often quoted Alfred Korzybski who said: “The map is not the territory and the name is not the thing named” asserting that in all communication, perception and thought there is a process of coding between the report of the thing reported and the thing itself in mental process and that all information in the system is therefore a code or an interpretation of the external world. In Bateson’s terms the Ecology of Mind and the Ecology of Ideas and the Ecology of Life are the same. It is a way of coding the world in terms of patterns that connect.

Mind and mental process

Bateson (1988:98) developed a set of criteria for the mental process or mind that he said was “the beginning of a study of how to think about thinking”.

These criteria as defined by Bateson (1988:98-137) are:

1. A mind is an aggregate of interacting parts or components.
2. The interaction between parts of mind is triggered by difference.
3. Mental process requires collateral energy.
4. Mental process requires circular (or more complex) chains of determination.
5. In mental process, the effects of difference are to be regarded as transforms (i.e., coded versions) of events, which precedes them.
6. The description and classification of these processes of transformation disclose a hierarchy of logical types immanent in the phenomenon.

Anything that therefore conforms to these criteria can be viewed as mind. Mind is basically then any complex living system (criteria 1-4 comply with these) and a process of coding and a hierarchy of logical levels.

Life is made of meaning and stories

The coding process in humans is complex and in this Bateson (2000:130-131) finds meaning, which to him was synonymous with the ideas of pattern and information, and therefore a pattern is a difference that makes a difference. As these patterns connect stories develop. Bateson (1988:13) defines a story as “a little knot or complex of that species of connectedness which we call relevance” and he explains how context and relevance are characteristic of the behaviour and the internal process of all living beings. He says that even the embryology of an anemone is “made of the stuff of stories”. As we live we create the stories of ourselves and that is relevance and meaning. Bateson (1988:106) saw meaning as the world of ideas and ideas as patterns or stories about events, never the event itself.

Bateson’s view was that all living systems have ideas and live in stories and therefore meaning exists in all living systems. The process of evolution takes place in patterns over time and changes slightly so that the pattern (or story) can evolve further in a similar way, but not exactly the same. This process is defined

by Keeney, cited in Pretorius (1993:20) as recursiveness or the recursive way of knowing. This is the evolutionary process, which is networked, and various levels are nested in each other. It is this process that creates the complexity where the thing is more than the sum of its parts. Where evolution is not just about adding things up but a kind of multiplication, which creates something new (Bateson, 1988:91).

Logical typing

In the description of the meaning in living systems, Bateson (1988:73-74) describes the issue of logical typing. He equates it to binocular vision. We have two eyes, so that we can see the world from two perspectives and therefore we can see depth. Seeing depth then is of a different logical type as looking with one eye. Bateson (2000:280) defines the theory of logical types as “that no class can ... be a member of itself; that a class of classes cannot be one of the classes which are its members; that a name is not the thing named”. Seeing with both eyes is a sort of meta view of the world, of a new logical level and one eye cannot view the world of depth. Logical types help us classify the world through perceiving, communication, acting and knowing and through levels or orders of recursion to help us navigate our way through life, for instance so that we don't eat the apple and not the word apple.

Logical levels of learning

Logical typing also helps not only to define levels or as Bateson sometimes calls them hierarchies of levels, but also recursive levels of systems nested in each other. Bateson also applies this principle of logical types to the process of learning. Charlton (2008:52) said that “he sees learning processes as conforming to a hierarchy of nested scales or levels of sophistication”. In this process, he defines various levels of learning, each at a different recursive or logical level than the other.

- a) Zero learning is where there is a specificity of response the content of learning, but the response is not subject to correction. This is typical of learning where there is simply a yes or no, or right or wrong answer.
- b) Learning I, is when there is a change in the specific response to error by choices given within a set of alternatives. Here you learn something and then try it out and if it doesn't work, you fix it by trying other alternatives

- presented to you.
- c) Learning II, takes place when there is change or learning regarding Learning I, therefore Learning II is of a higher logical type than Learning I. You learn from the experience of Learning I to improve the way you learn in Learning II. So in Learning II there is learning regarding the context of learning. Learning how the process of learning works.
 - d) Learning III, is a way of learning that does not often happen, it is Learning how the Learning II process worked and learning from that. According to Bateson this only happens in limited contexts such as psychotherapy where the person is confronted with his/her process of leaning to learn deep-rooted patterns. It is a process of learning about the process of how you are learning. Bateson defines this question as often leading to paradox or double bind, where the person is facing two alternatives of which none is plausible and no way out. Change on this level requires substantial change in belief and even view of oneself in order to achieve.
 - e) Learning IV of course then is learning about learning in Learning III, and according to Bateson, this is not possible for humans or living systems on the earth (Adapted from Bateson: 2000:283-306).

Formal learning, as we know it, seldom constitutes more than Learning I, because in general the education system simply requires the students to learn what is presented to them. Learning about learning and learning from learning and especially about how we learn in life is not generally part of our curriculum in western education systems or education systems built on the model of industrialisation (Sterling, 2003:209-220).

Analogue and digital communication

Bateson (2000:128-138, 280-308; 365-399) refers to further aspects of learning and knowing in terms of various methods of coding. He refers to the digital, analogic, iconic and metaphoric as some of the methods of coding. Language is a typical form of digital coding where a thing is represented by something else, such as the word "walk". Analogue coding is the manner of behaviour unhindered by digital coding such as the actual act of walking. Iconic coding is that form of coding where something else represents the thing, such as an image of someone walking representing actual walking. Metaphoric coding is also represented by something else, however the metaphoric code is not directly

linked to the original code but has similarity and is substituted by it such as saying that walking is like life, it moves you forward (Bateson, 2000:128-138, 280-308; 365-399).

Humans are unique in the way they use digital communication and we often feel uncomfortable when people refer directly to our behaviour and feelings, or the analogue part of our communication. These four methods of coding are also not totally exclusive of one another. Verbal language for instance has aspects of all four methods of coding. We say words, but we might say it in different ways through our behaviour and most words are iconic in nature and words are used to create metaphors. In the world of ideas, it is therefore virtually impossible, for us humans to understand other animals and the way they perceive the world because we do not live primarily in analogue communications as most non-human animals do (Bateson, 2000:371). On the other hand as human digital communication enables us to create new abstractions and ideas, art and music, even mathematics, to represent our ideas and leads to greater forms of abstract complexity of ideas.

Our verbal communication might seem to be mostly digital communication, but as we communicate in words we are saying much more than the actual words, they are enriched in meaning through analogue and other forms of coding. It this way we colour the world with richness of meaning and patterns of behaviour.

Ecology of ideas

It was this way of looking at the world, through the eyes of patterns and levels of complexity that made Bateson unique. He refused to be obvious because he felt that the living world is not obvious therefore he often spoke in riddles and stories, meaningfully explaining the beauty of the living. Bateson focused on patterns that connect and refused to view only one side of a relationship. He once said that a name is a “half-assed relationship” because the name teacher only tells you about one side of the student/teacher relationship and that in life and science you cannot only study one end of a relationship. “What you will make is disaster” (Bateson, 2011, video, 00:15:30-00:16:30). In life and in dealing with the living world, we must therefore attend to the whole system or as large a part of the system as possible in order to make any difference.

For Bateson (2011, Video, 00:24:30-00:25:37) wholeness was critical, the horse and the grass are interlocked, the student and teacher are interlocked, they cannot be separated. We are all interdependent in life and each one of us, and the world around us, is interlocked in a network of relationships and ideas. His view of the “Ecology of Mind” is truly holistic, one that sees all sides of the story. (Bateson, 2011: Video: 15:30; Bateson, 2000-:315-321). Nora Bateson defined her father’s view of the Ecology of Mind as asking questions: “What is important was how he approached everything. How does it work? What works with it? What are its relationships? How does it interact? How does it learn? And of course, how does it think? ... an ecology of mind is a slippery and rigorous friend” (Bateson, 2011: video: 09:44-10:14).

Catherine Bateson, Bateson’s oldest daughter, warns that this is not an easy endeavour. She (Bateson, 2011, Video, 00:08:15-00:16:30) maintained “Gregory discovered as all of us have observed by now that human beings frequently behave in ways that are destructive of natural ecological systems, and he asked the question: What is there about our way of perceiving that makes us not see the delicate interdependencies in an ecological system that give it its integrity. We don’t see them therefore we break them.” Viewing life in an ecological way can help us to see how everything we do is interconnected and that if we do not respect the interconnections between us, we will continue not only to destroy our social and educational environments but also our planet (Bateson, 2000; 1988).

5.5.2 Humanness and the biology of love

As indicated in chapter 4, Maturana asked the question about how we became humans “What manner of living began to be conserved in our ancestors so that we live now as we live now?” As explained in section 4.2 of this thesis a lineage developed in the evolutionary process as a manner of living which is conserved as part of natural drift (evolution) so that the “members of that lineage live now as they live now” (Maturana & Verden-Zöller, 2008:2).

Languaging and emotioning

Humanness evolved as a complex process of living based on intimacy and the extended neotany that created a society or manner of living in which language

could arise. Maturana and Verden-Zöller (2008:56) suggest that “we exist in conversations that are the braiding of languaging and emotioning”. Languaging, according to Maturana and Verden-Zöller (2008:30-33) is the recursive co-ordination of our living, which is the co-ordination of co-ordination of living in a context of intimacy and co-operation. The sounds and gestures are nodes in a network of consensual recursive co-ordinations of behaviour and in this we live as languaging beings. Language is conserved because it was necessary in our new manner of living, which is one of co-operation and trust. Once a part of that manner of living is not conserved it will change or die. Maturana uses the term languaging as a verb and does not speak of language as a noun, because it is a domain of doing and living.

Meaning arises when particular configurations appear in languaging and these can be defined as conversations. These conversations then become networks of conversation and these networks of conversations resulted in the evolution of various cultures, which can be scientific cultures, national cultures or social cultures (Maturana & Verden-Zöller, 2008:35-43).

According to Maturana and Verden-Zöller (2008:38), although we live in a world seemingly ruled by intellectual discourse, we think we are rational beings but in fact we are essentially emotional beings. Even our rationality and reason change as our emotions change. He also speaks of emotioning as part of our doing and our living and does not see it as a state of being. Our emotioning changes our living and can even change our body experiences. Maturana and Verden-Zöller (2008:13) claim that “We are love-dependent animals at all ages” and that many of our physical and emotional ailments are rooted in the negation of love. Through our doings, interactions, talking, reflecting, thinking, acting our emotions will change, even “as we emotion our emotions may change” (Maturana & Verden-Zöller, 2008:37-38).

Domains of inter objectivity

So we explain the world, especially scientist using explanations so that we can reflect on the world and therefore form our understanding. As we explain the world through the recursive process of co-ordinations we create amongst ourselves as humans in our network of conversations “domains of inter-objectivity”. We can then distinguish not only different objects or entities but also

agree amongst ourselves about them and language and emotioning aids this process in a common domain. This does not mean that all that we are is objective, but only that we share and agree regarding how we explain the world.

As humans we are languaging, conversational, emotional beings who live our lives in a context of meaning created by context and culture and we achieve this through our living and our doing. But we share this world with others who also create their own meaning and in the process of living and languaging we create networks of conversations and create collective meaning that we all agree upon, so that we can live together as humans in a co-operative, interdependent and loving way.

5.5.3 Complex thinking

Morin (2008) made it clear that it is not enough to understand complex systems, but if we do not start to think in complex ways we will remain in the trap of the paradigm of simplicity. This paradigm of simplicity imposes order on the universe in order to “chase out disorder”. Most scientific endeavours in the western scientific community and even the more conventional complexity theories fall into this trap. We want to give order to the universe so that we can understand but in the process so much is lost.

According to Morin (2008:84) “One could say that there is complexity wherever one finds a tangle of actions, interactions and feedback. And this tangle is such that, even with the aid of a computer, it would be impossible to grasp all the processes involved”. In essence the fact that nothing in the universe is isolated and that everything is in some way interconnected plays out the complexity and we have created a society that is now so interconnected in what Morin calls the planetary age, that we need a new way of looking at issues in order to more clearly see the bigger picture.

Trying to write this section of the thesis was extremely difficult because most of the concepts derived from complex thinking are so interconnected that you cannot decide where to start. In order to assist in the process I have chosen only seven concepts that will each be discussed briefly to explain how Morin views complex thinking.

The Subject

In complex thinking, the subject becomes central, as only subjects can think, do and decide. It is in the self-eco-organisation of the system that identity emerges, however the identity or individual cannot be viewed separately from its environment but is an integrated whole. According to Morin (2008:70-78) it is only I who can refer to myself as I, because through the principle of complex identity I can refer to myself, "because I need a minimum of self objectification though I remain an I-subject". This is a process of reflecting on myself and in this process of reflection the identity develops.

In this process of self-organisation and reflection the autonomy of the system emerges and contributes to a sense of the world that defines the principles of exclusion and inclusion. What is part of me and what is not then emerges. According to Morin (2008:78-79), in humans the emergence of affectivity (emotional communication) brings forth properties such as language and culture. Our sense as humans that we have a soul and spirit reflects on a deep sense of incompleteness, which can only be healed by another subject. Our ability to reflect and think about ourselves enables us to hold or reject complex thinking, through conscious reflection.

We can therefore not "isolate the world from our structures of knowing" and as observers, and according to Morin (2008:91) especially as scientists we must analyse ourselves while we are observing others. As the I-subject, we must understand we are observing other subjects in relation to others and the world around them. This is what Morin calls a co-constructivist point of view. About sciences and our epistemological stances, Morin (2008:92) then asks: "But how to find a meta-point of view from within a given society? Obviously by knowing something about other societies: by studying past societies, by imagining possible or future societies, and contrasting them with the present one in order to decentre ourselves. And the point of view of complexity tells us precisely that it is crazy to believe we can know things from an omniscient point of view, from some supreme throne, looking down upon the universe. There is no omniscient vantage point."

Dialogic thinking

Morin (2008:33, 49) says that the idea of a complex unity is essential in complex thinking. We need to think beyond our current analytical-reductionist thinking and see the world as an integrated whole. We should not reject looking at the specific but complement it with more holistic and global thinking. In order to do this we can often take opposing ideas, such as order and disorder and see them as opposing forces that are necessary to create each other. Without disorder, no order can be created, and without order, disorder would not exist. Therefore from the point of view of complexity nothing is isolated from anything else and everything is interrelated (Morin, 2008:84).

Organisational recursion and self-eco-organisation

Morin (2008:49) asserts that “A recursive process is a process where the products and the effects are that the same time causes and producers of what produces them... We, as individuals, are products of a process of reproduction and precedes us”. This is the one feature that artificial machines do not possess; they cannot reproduce themselves. Artificial machines have according to Morin, very dependable parts, but if one part breaks, the system starts to break down. Living systems however have quite unreliable parts but they have the ability to recreate and regenerate themselves all the time through the process of organisational recursion. This process is however always in context and in relation to the context of the living system that Morin then calls self-eco-organisation; constant self-creation in the ecology (Morin, 2008:49).

Holographic principle – on wholes and parts

In systems thinking and even cybernetics holism is a commonly accepted idea. Systems thinkers view the whole as more than the sum of its parts, as seen in section 5.4.1. Morin (2008:88-89) however takes this principle further using the dialogic principle. He says that parts and wholes are complementary in that the whole is also reflected in the parts, much like the DNA of an organism contains all the information about the whole. This he calls the holographic principle. However, it is Morin’s (2008:84) view that the part is not a simple reflection of the whole that “Each part preserves its uniqueness and individuality as it contains, in a sense, the whole.” Therefore the whole is more than the sum of its parts but

also that the whole is less than the sum of its parts.

Uncertainty

Morin (2008) says that complex thinking aids us in a strategy that can help us resolve some problems, but its main aim is to help us not to forget that everything around us is constantly changing and that “something new can (and will) spring up”. We cannot therefore know everything or as Morin (2008) calls it have “complete thinking”, but we should know that there will always be uncertainty because certainty will lead us to arrogant dogmatism. This should also not lead to scepticism, but rather, complex thinking “throws itself courageously into the adventure of uncertain thinking and participates in the uncertain adventure upon which from its birth, humanity has been embarked” (Morin, 2008:97).

Ecology of action programmes vs. strategies

How then, can we ask, do we deal with complexity and uncertainty in a living system or even an organisation, when nothing is certain and we cannot predict the future? Morin (2008:96-97) states that in complex systems, as soon as you take action for instance to facilitate change, that action “begins to escape from its intentions” and “enters into the universe of interactions and in the end, it is the environment that seizes it in the sense that it can become the opposite of the initial intention” (Morin: 2008:55). How do we effect change? Morin (2008:55, 96-97) proposes what he calls the “ecology of action” which says that we follow a strategic approach rather than develop a programme of action.

The ecology of action has two corollaries or propositions that follow from it, namely first that “the maximum efficacy of the action is always at the beginning”, and second that “the ultimate consequences of an action are not foreseeable” (Morin, 2008:96). A programme according to Morin (2008:96-97) is a plan with a specific set of actions that must be implemented one after the other. Most project plans in our modern society are programmes with for instance Gantt charts, timelines and interdependencies. A strategy on the other hand is “an action scenario which can be modified in the light of new information or chance events as they arise” (Morin, 2008:96). In complex thinking or the ecology of action we can have a strategy, but it should rather be a scenario with many

questions leading from it from which we can continuously change our plans and actions.

Slowness and stability

Paul Cilliers, (2007) proposes that often both in complex thinking and in our modern society, the way we interact and the way technology impacts on our lives, we tend to neglect stability. We seem to forget that in living systems, the complexity of interactions create the structure and organisation of systems. These interactions also help to create the link between the past, the present and the future in the system, and this link Cilliers (2007:106-107) calls the memory of the system. Memory is therefore part of the system and takes time to develop and evolve. Cilliers (2007:108) states that “Memory is information from the environment that has been filtered, it is that which has been interpreted – by the memory already sedimented in the system – as significant. The identity of the system is, in some sense, its collection of dynamic memories.” To this effect all complex systems therefore have a particular time that they need to reflect and assimilate new information. If it is not given adequate time it will not be able to reflect and Cilliers (2007:108) claims that “A viable system has to be able to resist some of the dynamics in its environment.” The system should be given enough time to “play itself out in interaction with the present.”

Creativity

Cilliers (2000:32) says: “Faced with the complexities of life, we all have to be artists in some sense of the word.” Evolution and all change is based on innovation and creativity and if we recognise this and accept it we can see life as art in the process of a better understanding of how this complex life works (Morin, 2008:32). This includes understanding our organisations, institutions and us as humanity. That, says Cilliers (2000:32) “will also make us better human beings”.

5.5.4 Towards the sacred space between us

An interesting pattern that connects Maturana and Verden-Zöller's (2008), Bateson (1987, 2000), Cilliers (2005), Morin and Kern (1999) and Kauffman

(2008) is that they somehow all reached one point in their scientific experience where they drew fundamental principles that appear to not fit into conventional science. These ideas almost belong in the religious domain but definitely in the spiritual. It is Maturana and Verden-Zöller's (2008:111) view that as humans developed in language, spirituality became a form of living. The problem, they say, of modern society is that we are busy losing natural spirituality as a way of living our daily lives. As humans when we start to live in a world of science and logic, we stop seeing ourselves as a part of nature, but rather as a superior being who must dominate everything around us. In the process even sex has often lost its spiritual meaning. Children are often distanced from it and sex is even used for political and financial gain. We are mostly living in a patriarchal, linear thinking, rational society and Maturana and Verden-Zöller (2008:138) challenge us to find our way back to a way of living based in that spiritual place of co-operation, trust and love, that place that makes us fulfilled through loving humanness in our daily lives.

Bateson (2000:129) saw beauty in everything and considered that in the aesthetic, art, music, stories and relationships, the pattern that connects us is grace. He said "I argue that art is a part of man's quest for grace; sometimes his ecstasy in partial success, sometimes his range and agony at failure." Bateson referred to his "ecology of mind" as the sacred unity and called it the Sacred. His daughter Catherine Bateson (Bateson and Bateson, 1987:148) wrote in the last book Bateson and she co-wrote: "There seem to be two meanings of 'sacred' for you: one is 'that with which thou shalt not tinker', and the other is a sense of the whole, which can only be met with awe – and not tinkered with." Bateson saw the sacred in the beauty of the natural (including the human) and to connect with this beauty through the aesthetic and art. To "walk in beauty" then we may be enabled to receive a grace that would permit the discovery of a sense of the world as sacred (Charlton, 2008).

Morin and Kern (1999:137) talk about the "Call for Fellowship" where in our planetary age, we need to come together as a humanity, not just small groups here and there, but a humanity enthused by a sense that we are all brothers and sisters and that we need to extend the us and we of our society not just to those we know but to humanity as a whole. Cilliers (2005:261) contends that "We only have limited access to a complex world and when we are dealing with the limits of our understanding, we are dealing with ethics."

Stuart Kauffman (2008), in his latest book called “Reinventing the Sacred”, explores the origin of life, evolution, mind, the economy and religion, and he describes how as humanity we have become lost through understanding and logic and that we must learn from complexity and evolution how life and change happens. He urges us all to look at ourselves, whether we are religious or not to find a new way of doing and being, a new ethic born out of the sacred creativity in nature. The basic premise is that we must find a new ethic based on the fundamental principle of finding a sacred space between you and me, one where, even though we do not agree, we can find one another. Kauffman (2008:288) suggests “Let us go forth and find a global ethic and reinvent the sacred for our planet, for all life, and for ourselves.”

Cybernetics and complexity give us a framework to think about life in a new way. This includes not only to view life in all its beauty and complexity but to find ways to navigate the complexity we live in. Most modern sciences are based on simplistic thinking and therefore we cannot see the impact we have on the greater system. As humanity we do not see the impact that all these wonderful new inventions we have created have on our planet, and as individuals working in organisations we often do not see how our simplistic thinking is just creating greater problems. In the next section I will distil the fundamental principles from the epistemological stance of ecology and complexity to use in the next chapter as fundamentals for human learning systems.

5.5.5 Fundamental principles of ecological and complex epistemology or thinking

According to the ecological and complex view of life we cannot know the world out there objectively, but through our co-evolving self-organising nature, which is closed to information, we develop an epistemology of how we know, think and decide in our living. Ecological thinking requires a focus and respect for the interconnectedness between us.

The way information reaches the system is when information is a “difference that makes a difference”. Life and mind are then the patterns that connect, triggered by difference, containing collateral energy, through circular chains of determination in which information is transformed or coded in logical levels.

Therefore the map we have of the world is not the same as the territory, but we create meaning and pattern through stories in the process of living.

Learning from this point of view is a recursive process of knowing and there are various levels of learning such as learning about learning. Communication also happens on various levels and direct communication such as non-verbal communication is viewed as analogue communication whereas language is a coded version of communication seen as digital communication. In the process of recursive interaction memory is created which requires a certain amount of time for the memories to form and for the reflections of reflections to create further memories.

Humans are languaging and emotioning beings and cultures form through recursive languaging, or conversations, emotioning and meaning creation. Through this process an inter-objective or inter-subjective perspective is created which helps us to agree on how the world is. As humans, through recursive languaging we have created a unique culture where we are love dependent and we do not function optimally in competitive and aggressive environments. From a complexity point of view, humans cannot be objectified but are subjects with complex patterns of language and culture that we co-create.

In complex thinking we need to see the world from a holistic perspective as well as a holographic view. This introduces a dialogic viewpoint that connects the parts and the whole as one and we see them as reflections of one another; they form a unity. Complex systems are unpredictable and therefore in complex thinking we must embrace uncertainty in our thinking and see creativity as part of the process of co-evolution that should be expected and welcomed. In the process we can see that life is sacred and as humans we need to find our essential core that respects life, co-operation, intimacy and the wholeness of the universe, all of which are found in love.

A more complete list of the fundamental principles that I have derived from this section on the epistemological issues in ecological, systems and complex thinking can be viewed in Appendix E.

5.6 Data analysis and distilling of fundamentals

As explained in the research process in section 1.3 of chapter 1 this chapter and the preceding chapter consisted of literature reviews and it was explained that basic fundamentals would be derived from the content of the literature review. Also as explained in the introductions of each of the 2 literature review chapters I underlined sections of the text (section 4.1 and 5.1) that I considered important that would then become part of the list of principles as listed in Annexures C, D and E.

5.6.1 Data analysis

In each of the Annexures (C, D and E) I again referenced each principle back to the text in brackets next to the principle mentioned as well as the page number that the reference is on, such as:

Epistemology is the way we know, think and decide in the process of our living determined by our organisation. (5.5. page 184)

Once I had the list of principles from the chapters I started the categorisation process using some of Chang's (2008:131-137) analytical or interpretation strategies. I specifically searched for recurring topics, themes, and patterns as the most important strategy, but also connected the present with the past. To find the patterns that connect therefore was a critical process in identifying the final fundamentals. In the Annexures I created an additional table on the right in which I categorised each principle.

I eventually ended up with 10 fundamentals namely:

1. New epistemological vision: from reductionism to an ecology of ideas
2. Holistic and holographic perspective
3. The nature of living systems
4. Self-organisation and autonomy
5. Structure of living systems
6. Co-evolution and change
7. Essence of humanness
8. Human communication

9. Learning in a complex world
10. Complex thinking and the ecology of action

I then realised that I could group 3, 4 and 5 under the heading Living systems and 7 and 8 under Humanness. Therefore I ended up with the following 7 categories:

1. New epistemological vision: from reductionism to an ecology of ideas
2. Holistic and holographic perspective
3. Living systems
4. Co-evolution and change
5. Humanness
6. Learning in a complex world
7. Complex thinking and the ecology of action

Below see a complete list of the fundamentals with the principles listed below them. I numbered each principle in order to reference back to them later.

5.6.2 Grouping the fundamental principles into logical sections

- A. New epistemological vision: from reductionism to an ecology of ideas
 - (1) Reductionist thinking is not very useful in dealing with complex systems.
 - (2) All cybernetic explanations are negative, which means that it requires a particular way of viewing the world in order to see patterns.
 - (3) Epistemology is the way we know, think and decide in the process of our living determined by our organisation
 - (4) The map is not the territory and life is rather made of meaning and stories in the process of living.
 - (5) Ecological thinking or the ecology of ideas requires that we respect the interconnections between us in order to create unity and respect and to prevent further destruction of our societies and planet.
- B. Holistic and holographic perspective
 - (6) A holistic view is required to effectively deal with living systems because the whole is more than the sum of its parts.
 - (7) All life is interdependent and interconnected and all sciences should be in

order to get a more holistic and complete view of life.

- (8) In complex thinking not only is the whole more than the sum of its parts but also the whole is reflected in the part as well as the part is more than the whole which is called the holographic principle.

C. Unisa a living organism

The nature of living systems

- (9) Complex systems have circular feedback and causation that implies that they have a complex branching of interconnected chains of causation.
- (10) The closedness of the system is determined by the self-organisation of the system. This means that for change to happen there must be a fit to the organisation of the system.
- (11) In complex systems there are no happenings, but only doings. Agents, which include biological entities included.
- (12) Life and all mind is the pattern that connects, which needs interaction between its components, triggered by difference, containing collateral energy, requiring circular chains of determination in which information is transformed or coded in logical levels.
- (13) Living systems need energy to renew themselves.

Self-organisation and autonomy

- (14) Cybernetic systems are open to exchange of energy but closed to information unless that information is “a difference that makes a difference” and perception is coloured by the organisms own organisation.
- (15) Living systems are self-organising or self-creating and new patterns emerge spontaneously into more complex patterns.
- (16) The self-organisation of the system consists of two components, the structure of the system and its organisation. Structure is the way the parts of the system are constituted and organisation is the relations between the parts that give it its identity.
- (17) Complex systems have a memory and history that forms part of its identity.
- (18) Complex systems are adaptive and it is not possible to predict what

will create a change in the system, whether the stimulus would be internal or external.

- (19) Organisational recursion and self-eco-organisation are the processes where complex systems are the products of a process of reproduction and precedes us.

Structure of living systems

- (20) The pattern of all living systems is networks.
- (21) Living networks are nested in other networks and pure hierarchies do not exist in nature.
- (22) Complex systems create irregular shapes that are often self-similar, or fractals, where the part looks like the whole at many different scales. These patterns create a more organic and complex view of life that is closer to nature.
- (23) Complex systems have no central control mechanisms

D. Co-evolution and change

- (24) Co-evolution or change is the recursive process where the organism and the medium change together in a congruent manner, or a manner that conserves the organisation of both. There is no such thing as evolution, only co-evolution.
- (25) There is a balance between stability and change in a system and the organisation of the system determines what will change and what not.
- (26) Complex systems are sensitive to initial or starting conditions and small variations over time can lead to major changes in a non-linear system.
- (27) The behaviour of complex systems are unpredictable and we neither know what the starting state is or predict exactly where the system is going to, you have to track its behaviour from beginning to end to know anything about the system.
- (28) Whereas simple systems have periodicity, complex systems have variability from which patterns can emerge.
- (29) Emergence is the process where new order or change is created from chaotic systems through self-organisation. Patterns emerge from variability that exist in the system

- (30) Complex systems have the ability to self-organise into greater states of complexity.
- (31) Change happens where chaos creates order but we cannot know exactly beforehand how this process will take place.

E. Reclaiming humanness

Essence of humanness

- (32) Humans evolved in a deep ecological way living in small communities where everyone knew each other in an environment with the ethical context of co-operation, interdependence and love.
- (33) Humans are love dependent animals and will get sick or unhappy if they function in a context of aggression and competition.
- (34) In organic communities all facets of our lives formed an interconnected unity created by a web of interconnected living and story-telling.
- (35) We derive pleasure from doing things together in groups and in these groups or communities everyone is valued with joint and complementary goals.
- (36) Living in hierarchies and environments of aggression and control is not natural for humans and learning in a structured environment focusing on issues disconnected from our environment is foreign to our being.
- (37) Human systems are unable to view the world from outside their own "lenses". There is therefore no objective observation.
- (38) Human systems have meaning that gives it the ability to reflect recursively and creates more complex levels of meaning. This gives us the ability to reflect on our own selves and the world around us.
- (39) Humans are languaging and emoting beings and all behaviour including rationalising is grounded in emotioning.
- (40) Complexity sees humans as subjects and not objects. These subjects have affectivity and we co-create complex patterns of language and culture.
- (41) We should respect the sacredness of life, which is found in love, cooperation, intimacy and the wholeness of the universe.

Human communication

- (42) Life is made of meaning and patterns that connect and stories that happen in the process of living.
- (43) Most human verbal communication is digital, and in modern society we often negate the analogue part of how we communicate.
- (44) Meaning arises when network configurations appear in languaging and this process forms "cultures" or ways of living.
- (45) In our networks of conversations we create domains of inter-objectivity where we agree about how the world is.

F. Learning in a complex world

- (46) Technology and learning in organic communities happened in the course of living and learning and was about knowing what is necessary for living now.
- (47) Learning happens best in context where there is a sense of place and intimate relationships exist.
- (48) Learning happens best when it is about learning what is necessary for living.
- (49) Education systems should be based on a thinking that is based on organic human living that are cyclical and dynamic.
- (50) Education systems should be sensitive to the uniqueness of the student and respect and treasure their passions and life circumstances.
- (51) Self-organised learning should be encouraged through the opening up of communication channels using technology and encouraging human communication and mutual encouragement.
- (52) Knowledge not only resides in networks and living systems but also in non-living appliances
- (53) Learning is a co-evolutionary process and the learner is the teacher is the learner. It is a conversation to create meaning.
- (54) The process of learning requires the ability to see pattern and meaning making, an awareness of process and connection forming and an openness to be involved in networks and now their changing nature.
- (55) Testing of knowledge is not only an outcome but also a co-evolutionary process of selecting a worldview through constant activity of work and life.

- (56) Learning and knowing is a process of recombining or multiplying ideas to form new novel ideal and requires both rigorous scientific and creative, emotive "thinking".
- (57) A new way of thinking in education requires new academic thinking about openness that requires respect and understanding.
- (58) We need a complex perspective on education which includes understanding knowing, integrating subjects in a holistic context, understanding the human condition and an earth identity as well as confronting uncertainties through a process of learning to understand each other and new planetary ethics.
- (59) Learning is a recursive process including basic learning and learning about learning and learning about your process of learning of learning.

G. Complex thinking and the ecology of action

- (60) Complex thinking requires dialogic thinking in order to unify the world.
- (61) Living complex systems are unpredictable and in complex thinking we should embrace uncertainty.
- (62) Any change proposed, tends to be more effective right at the beginning.
- (63) Complex systems and especially human systems have memory. A certain amount of time is required for the memory to form and for the reflections of reflections to create memory. Complex systems need enough reflective time to assimilate changes from its environment.
- (64) Creativity is an essential feature for change to emerge.
- (65) The ecology of action or strategic complex thinking embraces uncertainty and only proposes scenarios that can be modified as needs be.

5.7 Chapter summary

This chapter explored the basic principles of cybernetics, second order cybernetics and complexity on the one hand but also the epistemologies that underlie them in Bateson's ecology of mind, Maturana's biology of love and Morin's complex thinking. The basic principles of cybernetics, second order cybernetics and complexity are underpinned by ideas that are not reductionist but rather focus on the relationships and

patterns of relationships which lead to a holistic view of life. Ecological thinking therefore requires a focus on and respect for the interconnectedness between us.

The next step was to reference the principles I identified in the text and group them until I had 7 fundamentals that I can now further use to then serve as new lenses through which I could tell the second story of Unisa which follows in chapter 6.

Chapter 6: Mapping the Unisa context of student communication with fundamental principles

6.1 Introduction

The purpose of this chapter is to take the fundamental principles derived from chapters 4 and 5 as distilled in section 5.6.2 and map them to my lived experience at Unisa. I will do so by discussing each of the fundamentals in the following way.

- a. Introduction to the fundamental principle where I will just give a brief summary of what the fundamentals mean.
- b. The story of Unisa in relation to the fundamental principles the context of Unisa where I will use my memory, but also reference documents and videos to complement my autoethnographic description.
- c. Reflection is where I will analytically and philosophically discuss and reflect and map the lived experience with the fundamental.
- d. Conclusion where I will then come to a conclusion about the mapping reflection.

This process can then be described as a mapping process and revisiting the Unisa story for a second time, this time through the lenses of the fundamentals as described in the research process in section 1.3 of chapter 1. This is the story of Unisa, where I will reflect using the principles of cybernetics and complexity using analytical autoethnography and philosophical reflection. At the end of the chapter, I will then again reflect on the conclusions and summarise my conclusions.

In order to leave an audit trail in this chapter I have indicated in the text wherever I discussed a principle by indicating its number in brackets in the text. This has left a clear conceptual trail back to the fundamental principles.

6.2 Preamble

In this thesis I have alluded to some aspects of my personal life and the process of writing this thesis. I think it is time that I tell you where I am and why. I am currently on a beautiful little farm next to the banks of the Groot Marico River. As a matter of fact, the pristine river runs through the farm and the water is so clean that you can

drink straight from it. The river itself starts only about 30 km away at a number of fountains. The farm is a guest farm owned by my partner Jacques and is my second home.

It is here I spend my time writing this thesis and here I live a very different kind of life from the one in the city where I normally live and work at Unisa. Here the sun and the moon measure time and nobody wears watches. We live about six km out of town and form part of a very small close knit sub-community. In town everyone greets each other and when we meet our friends we always hug and chat for a while. Going to town is usually not something you can do quickly because you inevitably bump into someone or have a cup of coffee somewhere and only get home hours later. Every Thursday the close knit group of friends meet at the local restaurant which is normally only open over weekends or friends gather at our place on a Saturday night. We spend time catching up on the latest gossip, talk about the state of the weather, but mostly we make music together on traditional musical instruments, communicating on a deep level.

You know that you live in an authentic little town when the green grocer knows your name and says that she will only get the baby marrows in tomorrow or when the butcher says, no, the droë wors (dry sausage) is not dry enough for your liking yet, when you enter the shop. People here don't worry too much about insurance and money although everyone struggles financially because the town does not have a strong economy. However, for me there is a sense that people will always be there to help one another. If someone's car breaks there is always someone to help fix it and if someone goes to a big town or the city they call to find out if you need anything. There is often a barter-type of system where people help one another to get things done.

In the small sub-community we belong to, we feel total acceptance and love and you do not have to dress up for one another or to pretend to be anything you are not. People feel free to pop into each other's homes anytime of the day for coffee. Belonging to this community really makes me feel safe, as if I know that there will always be someone to catch me when I fall.

On the farm we have a satellite Internet connection which helps us to keep in touch with family and friends through social media, e-mail and Skype. The guest farm is normally quiet during the week but quite busy over weekends with guests and friends popping over to visit and there is a nice balance between solitude and connection with

others. There is always time to sit down and talk.

On contrast, in the city, where I live most of the time, I own a house in a secure area and the properties are very small and therefore the houses are very close to one another. Even though we are physically very close to one another and I try my best to communicate with my neighbours, we never visit each other's houses. If something breaks you call the plumber or electrician. If you have a break-in, which happened to me recently, and you call the neighbours they don't come over, they just say "oh" so you call the police and the insurance company. The last time I spoke to a neighbour was when one called me to ask whose dog was barking all night.

I drive fifteen km to work every morning and have to leave at about 6:15 am if I want to avoid traffic. If I don't leave work before 4 pm in the afternoon, I often just stay until 6 to avoid traffic and to get a little more work done. When people ask me what I do, I often say, I attend meetings as a joke, although it sometimes feels that way. There are days when I have seven or eight meetings and I often don't have time to have breakfast or lunch and when I do have time the food in the cafeteria doesn't suit my sensitive stomach. When I leave work late, I often get searched by the security personnel, which makes me feel like a stranger in the place where I have worked for 20 years.

On my way home I usually grab some food from a supermarket and when I get home I eat and often just want to watch TV because I'm too exhausted to do anything else. When I'm not too tired I work on my studies but mostly I go to bed early in order to go to work again the next day.

I have to say that Unisa has been very good to me and I am very proud to work for an organisation that makes such an impact. I feel that it is a privilege to spend so much of my life at Unisa. This month it will be 20 years since I started working at Unisa. As I mentioned earlier, when I started at Unisa I was located in the Social Work Department. This department was very close knit and people became friends while working together. When I joined CCM, a colleague of mine said to me that I must keep my personal and private lives separate because the organisational politics will eat me up as a person. So I listened and for many years I consciously kept at a distance, only selecting individuals here and there to have coffee with or be friends with off campus.

Over the years I have tried to get along with colleagues as much as possible, but after every year I sit back and wonder why it was so difficult to work together. Why do we find it so difficult to see each other's perspectives? Maybe it is because people are artificially grouped in departments with very specific goals and targets, everyone just busy with his or her own piece of work. Maybe the hierarchical structure encourages competition amongst different sectors in the university and that prevents close collaboration. Maybe it is because the university has neglected to create a social context where people can get to know each other on other levels, not just professionally. In the past we used to have staff days where colleagues could eat and play together, but that hasn't happened in many years. We have many functions and meetings but they are mostly very formal affairs. There is no space for people on all levels to engage about the bigger picture, but more importantly seeing each other as humans.

So if you ask me where the core of my community is, it is definitely not located at Unisa, neither the little complex I live in, but my community consists of a group of people living in little town 200 km away, my daughter and my friends. Some of my friends and family live in the same city as I do and others are further away, from Sidney to Auckland to Cape Town and Springs. I often communicate with them online or on Skype and we connect about the important things in life. My community is the people I care about, the people I love, the people I want to spend time with.

So how does this relate to student communication at Unisa? Let us look at my own experience as a Unisa student. Since I started the process enrolling for this doctorate, I have had many administrative struggles with registration, and applications for M and D leave. I was however able to resolve them quickly because I know people in the organisation that can assist me. Other people I know battle more. Part of the problem especially with M and D studies is that there are very vague guidelines about the process to follow and the process is very different for each department. There is no singular path a student must follow; so I had to discover my own journey for myself. Others battle because they often have to wait for processes happening at the university that are not transparent to them and they have no-one to call or struggle to find the right person to communicate with.

My relationship with my supervisor has been one of the most enriching experiences of my life. It is not often that someone understands how to get me excited about what I do. She gives just the right amount of criticism to make me improve my work but most

importantly she encourages me to remain motivated because she is so excited about my studies. She respects my journey and when I feel insecure she confirms for me that this is my journey and I must discover it as I go along. After every conversation with her I feel energised and excited again about my study. In addition I have friends who have either already gone through the process of writing a thesis, or have a similar theoretical background as I do who engage with me in my study. Others are simply interested and I can call on them to discuss issues especially when I get stuck. Through the Internet I have also made contact with a few people that I have referenced and they make me feel connected. Videos of Bateson and Maturana and others give me a sense that I am personally in contact with them and I have Bateson's daughter Nora on Facebook and I'm following her tours all over the world promoting the film she made of her father. I have created a small community of ideas around the thesis that carries me through the tough times and it keeps me going.

I however doubt that most Unisa students feel this way. So many of our students have to almost shout on social media and other platforms for us to listen to them, to recognise them, to hug them, to value their lives and struggles in understanding the learning journey. At residential universities, although often very formal and rigidly organised, people can look each other in the eye, talk, argue, engage and even fall in love. At a distance education university the social dynamic of the student is often lacking and even if there is a digital social platform it does not leave students with a sense of place and a community. And then we wonder why our alumni do not want to remain involved with the university after they completed their studies. Over the last year or so Unisa has decided to allocate an e-tutor to new students in order for the tutor to support the student, but this is a very costly exercise because the relationship between the student and tutor is one on one and always in a written digital format and there is not really a sense of a supportive community. Students also complain that many academics do not respond when they post questions or issues on the myUnisa discussion forum for their module.

Is the bigger problem not that our students do not have a sense of community? Someone they know personally with whom they connect and whom they can call when they are down, or a network of friends, family, fellow students and others who can keep them excited and motivated in their studies? Maybe some of our students find it difficult to create a practical physical or online community by themselves because they are not normally exposed to the network society and technology or maybe they just think that studying by distance learning is supposed to be a lonely affair? If so, maybe

the question is: How do we create a community where people feel safe, cared for and loved where humanness is the most important thing and where learning is part of a loving here and now experience?

In the next 7 sessions from 6.3 to 6.9 I will explore the 7 fundamentals and map them to the Unisa context.

6.3 New epistemological vision: from reductionism to an ecology of ideas

6.3.1 Introduction to a new epistemological vision

Reductionist thinking is not very useful (1) if one wants to explore complex systems, and I think it is easy to assume that Unisa is a complex system. Looking at complex systems then requires us to have a different lens, giving explanations that are not positive (simply looking at the parts) but (negative (2)) meaning that we must look at the rich interactive processes and interconnections (5) between all aspects of the system.

In this section I would however like to explore not only my epistemology about Unisa's student communication context but to specifically explore what Unisa's epistemology is and especially what it says about its relationship with students. So if epistemology (3) is the way we know think and decide, where do we find a view of Unisa's epistemology? Since the map is not the territory (4) we will try to look in this section at both. The map is what Unisa says about itself in documents and the territory will then be an exploration of some of my own lived experience in the vignette in this section.

6.3.2 Unisa in relation to the fundamental principles in terms of epistemology

To look at Unisa's epistemology and as described as the map of Unisa one can view what the organisation says about itself in its operational documents. I will essentially discuss five documents:

- Institutional Statute of the University of South Africa
- Unisa 2015 strategy

- Transformation charter
- Unisa Open Distance Learning Policy
- Organisational Architecture for Unisa

The reason for selecting these documents were discussed in section 2.8.1 (4) of chapter 2.

The Unisa website refers to “The Institutional Statute of the University of South Africa”. However, the document itself is the Higher Education Act, 1997 (ACT No. 101 of 1997). It is a 24-page document setting out not so much what the university is there for or to do or how people relate to one another, but rather how it should be structured from the Chancellor to Senate, the institutional forum and the Student Representative Council and even management and employees. Regarding the students the document writes less than a page and it only refers to admission and registration of students and student discipline. Nothing is mentioned about learning and the relationship between the university and its students, apart from administrative issues. It describes Unisa as a highly hierarchical organisation and what functions each of the parts of the hierarchy play.

The following components of the hierarchy are mentioned in the statute:

- The chancellor is the titular head of the organisation.
- Council is the body that governs the organisation through the approval of policies and rules.
- Senate is the body consisting of members of management, academic community, SRC and is accountable to Council for all teaching, learning, research and academic functions.
- Faculty or college boards are appointed by Senate to regulate the activities of the colleges or facilities.
- The institutional forum is the body that mediates dispute and must foster an institutional culture and consist of members of council, senate, management, employees, unions, SRC and others co-opted.
- The student representative body addresses issues that may affect students.
- Convocation consists of the Principal, Vice-Principal, registrar, academic

employees and alumni. The statute says nothing about the function of the Convocation.

- Management is responsible for the management and administration of the institution.
- In terms of employees the document mentions issues around the appointment, conditions of employment, evaluation, discipline and unions.
- With reference to students, the statute refers only to admission, registration and student discipline.
- In terms of donors it simply mentions that the university may receive money from donors and may register some donors determined by certain rules.

The statute therefore makes no provision with regard to how the university should develop a relationship with students.

The Unisa 2015 Strategy, however, refers much more comprehensively to the student and specifically also talks about the role of the university in society. This document also discusses issues regarding students such as throughput, quality of applicants and the fact that the university should create a flexible environment for learning for the student and an environment of support. The strategy mentions that Unisa will provide “Multiple modes of delivery and learner support based primarily on open and distance education methodologies, underpinned by learner-centeredness; making use of cost effective and appropriate information and communication technologies to enhance learning, and direct contact with students where practicable and necessary” (Unisa 2015 Strategy:5).

In the Open Distance Learning Policy the university does refer to the engagement of the university with the student and refers to issues such as:

- Increase participation of students in support services.
- The student is placed at the centre of the learning process
- Effective counselling and guidance.
- Effective and responsible admissions procedures and assessment of student preparedness for ODL studies.
- Encourage independent study and work-integrated learning.
- Accessible study material.
- Delivery channels that will provide for multiple platforms such as print,

technological and interactive media.

- Effective student support that will take the form of tuition, peer and administrative support and designed to bridge the gap between the students' higher school experience and the demands of higher education.
- Tutors will form a central role in the undergraduate level guiding students through the learning process.
- Assessment both summative and formative that will develop effective cognitive, reflective, self-management and practical skills.
- Regional infrastructure that will provide a range of student support services.
- Management, administration and ICT systems that will enable teaching and learning as well as support services.
- And human resource provisioning and development to raise awareness and skills in ODL.

In 2011, after the appointment of the new Vice-Chancellor, Unisa approved the Transformation Charter. The focus of this charter is more on the values that the university aspires to. It states "WE COMMIT TO constructing together a new DNA for Unisa, characterized by openness, scholarly tradition, critical thinking, self-reflection and the values of African cultures – openness, warmth, compassion, inclusiveness and community." It proposed what the VC called the 11Cs namely communication, conversation, conservation, community, connection, care, collegiality, commitment, co-operation, creativity, consultation. In addition courage was added in order to act and make choices with conviction. My question is, has this new DNA permeated Unisa?

In March 2013, Council approved the new Business Model or Organisational Architecture for Unisa document that basically states that:

- All transactions with students will be captured digitally whether the student communicates digitally, via telephone or in person.
- All teaching and learning materials will be delivered to students in digital format.
- Unisa will move to an open licensing regime in order to deliver all learning material in digital format to students.
- Unisa will adopt, as a default licence for all products produced through its various activities and engagements, a Creative Commons Attribution (BY) licence.

- Place strong emphasis on student support and effective assessment as key mechanisms to help students studying at a distance which includes providing every student with an e-tutor and an e-mentor to support them in their studies and all assessment will take place online.
- Access to all student support services will be co-ordinated, at a course and programme level, through myUnisa, with a central co-ordinating Student Relationship Management (SRM) System tracking all student requests for support.
- All students will require access to some form of digital device that enables them to read, view, listen to, or interact with Unisa's teaching and learning material, as well as sufficiently good quality, broadband Internet access to enable them to access and use myUnisa and associated online Unisa services regularly and frequently.
- To support the changes above, priority will be given to procurement/development and deployment of an integrated, efficient student system that meets the specific requirements of the above operational model.
- Requirement to operate more flexibly especially in terms of human resources, quality assurance and procurement processes.
- Unisa's new operational model introduces a clear imperative to phase out certain job functions and to introduce new ones, as well as to review and refine all job descriptions so that employee productivity is aligned with new operational requirements.

Council however made it clear that the implementation of the new business model must be looked at carefully and that adequate preparation must be made before implementation. Council proposed a business model that is more flexible with blended modes and phasing in of the new business model (Unisa's ODL Business Model, 2013). There has, however been opposition to the new organisational architecture both from students and staff, arguing that the pace at which the change is introduced is much too fast and that students should be assisted with digital devices and training to empower them to use them effectively. This will be discussed in more detail in point 6.4.

So what does this say about Unisa's epistemology? It is clear that Unisa is a highly hierarchical structure ruled by not only policies but also governed by South African Law. Unisa is currently in a process of great change and the

institution is battling to find a common view of what the future organisation must look like and how to get to that future vision. From the documents Unisa tells us a lot about the components that make up Unisa and how Unisa wishes to move some of the components around in the future. It however says very little about how these components interact with one another or little about what is actually happening in the university. It indicates an epistemological position that explains what Unisa will do for students and what not but not how Unisa wants to relate to students. It does not relate at all to the communication and emotional needs of staff or students which is in my mind supposed to be empowerment through education.

Vignette

As I walked into the Unisa Durban regional office I remembered the first time I saw it. It must have been more than ten years ago. The building was very impressive, sitting on various levels with an open atrium at the centre. It bustled with students and a little cafeteria at the bottom centre where students congregated. My memory was overpowered by a sense of beauty, efficiency and interaction as we were taken on a tour through the facility.

This time however, the building had a very different vibe. It was quiet and dark. As we walked through the building there was a strange smell, that old building smell. There were still students, but they seemed to be aimlessly hanging around here and there and the cafeteria was no more. I asked to go to the toilet and I was directed to where it was. In front of the toilet was an open space, filled with examination desks and behind every desk sat a student facing an empty wall focused on the books lying open on the desk, studying. No-one talked, there was an eerie silence and in front of the ladies' toilets was a long line of women waiting to enter.

A colleague and I came to the regional office to talk to students about whether the student brochures and websites work for them and how to improve them. We asked the regional communications officer what was going on, and she informed us that the learning centre has moved to another building in the city centre and that this centre was now only used for administration, but that they give students space to study because they simply have run out of space.

We were led to the room where we would meet the students. The room looked run down, with dirty and dilapidated chairs and tables and we had to scuttle around to find someone to help us set up the projector. Slowly the students started to enter, organised for us by the friendly communications and marketing officer who went out of her way to assist. We showed the students the brochures and websites and most of them had seen them but had little to say about them. They liked the designs and the content was adequate. But it was as if they had something else to say.

At one point they started to talk when I asked them who had a cellular phone. They pulled out their phones. About a third didn't have phones and the ones who had, had very old ones. We cannot use our phones to go onto myUnisa, someone said, we need to come to the regional office to go onto myUnisa and there are very few computers here and we often have to wait a long time for only half an hour use of it.

"We also don't really use the brochures," they said. "Why?" I asked, surprised, "don't you get them?" "Yes," was the reply, "we know them, but we would rather ask someone here at the regional centre if we have a question, it's easier. We spend most of our time here, because it is quiet and we can study here." Now I thought I was clever and asked the students how much it cost them to come to the regional centre? Between R20 and R50 a day was the reply. "Now why don't you take that money," I said, "it is around R600 a month and go to a cell phone company and get a laptop or tablet with Internet connection?" There was a long pause, as if they were in deep thought. "Well," said one of the students, "Mam, you don't understand. It does not help telling us to get a computer and the Internet. We don't understand this thing. We need to be here to talk to someone when we get stuck."

Later in conversation with some staff members it was confirmed that many of the staff members feel very overwhelmed because of the sheer numbers of students coming to them with enquiries. I asked them why they are answering enquiries about issues that are readily available in the brochures and websites and they informed us that they are scared that if they stop answering these enquires people will lose their jobs.

We were also informed that Unisa is planning to put up a new very modern building in the region with a lot of modern facilities and apparently a lot of computers with Internet connections for students to use. This reminded me of the previous day, when we visited the Cape Town regional office. The offices had just been renovated and I had a very different sense when I walked in there. Previously the Cape Town offices were old and dirty but this time they were brand new with staff telling us how they are trying to empower students with preadmission workshops and many other services. The students in Cape Town also seemed happier, and had better access to the Internet but, they had similar issues such as not having regular access to the Internet and not knowing how to study online. Some were also concerned about the way Unisa is going to curtail personal contact and moving online.

Coming back from the trip I had a sense that Unisa is a very complex place, where a lot is happening, like a machine with many pieces, cogs and bolts, but the machine is getting old. We have almost 400 000 students and the systems and buildings and staff simply cannot cope with them all. We have students who are either frustrated or lost and in the process. The relationship between Unisa and our students is deteriorating. But maybe it is not useful to view Unisa as a machine; maybe I should see Unisa as a living organism, one that is a little sick, or maybe just a teenager with growing pains. But maybe it is more serious, more like cancer, where a part of the organism is growing too fast or other parts are growing too slow, much like atrophy.

There is however always the other side of the story. Many students, those who love distance learning and can cope with little support, are often okay. A few years ago, I was at a conference when someone stood up and said that Unisa is just like online banking. You don't have to ever go to Unisa, you can do everything online, register, pay, get your study material and hand in assignments and more. She said that the only time she engages with Unisa in person is when she goes to write examinations. And many of our students feel that way. But since the closing of the call centre, there has been a constant flow of complaints much more marked than before.

One morning I switched on the radio and the word Unisa caught my attention. A student had called in to complain about the closing of the call centre and that Unisa is not responding quickly enough to enquiries. Within minutes other

students called in to complain but some also said that even though the call centre is closed most of their lecturers provide their own telephone numbers to students and that they are mostly assisted by lecturers. But as I have described in chapter 3, I am also lately inundated by students both at work and in my private life with enquiries that simply do not get resolved.

Incidents such as these often leave me with a sense of despair and confusion. What changed at Unisa? How can the documents talk about excellent service and putting the student at the centre of the teaching and learning process, but still students are so unhappy? So what is the prevailing pattern in terms of connectedness at Unisa at the moment? What is the pattern that may define Unisa's epistemology? To me, it seems that one of the prevailing patterns is disconnect. Unisa has a hierarchical structure and system that keeps the academics and administrative staff apart, that keeps the regions isolated from the main campus and that keeps the students at a distance.

Students feeling disconnected from the university and staff feeling overwhelmed by all the students' attempts to connect. A great part of that is the huge increase in student numbers. So is this how distance education should be, disconnected, or is there a difference between distance and disconnect. Maybe instead of a distance learning university Unisa has become a distant learning university.

6.3.3 Reflection on Unisa's epistemological conflict

Unisa is an organisation, with the main aim to provide higher education to around a third of the South African population through distance learning. Distance learning means that there is much less personal interaction between the university and the student in general and the lecturer and the student in particular. In the case of Unisa, the student body is very heterogeneous and it is almost impossible to define who the Unisa student is, but one thing that almost all of them have in common is that they want to create a better future for themselves.

Over a few decades, both Unisa and the world have changed a lot. The world has become networked and open and knowledge is no longer the sole domain of universities. Online universities and colleges, MOOCs and OERs have opened

up opportunities for people to have more choices to gain knowledge and information. The Internet in general has created a network of not only information but also interconnection between people that enables and empowers people with information and knowledge. This has created a new way of living and knowing. Both information and connections with others are almost literally at people's fingertips. This change in society has created new expectations amongst most students for a more responsive and interactive environment in the distance learning environment.

The South African context has a great impact on Unisa. The high demand in the country for higher education and the reasonable study fees at Unisa have seen a massive increase in the Unisa student population. In addition, government policy limits the increase in staff population for distance education institutions. This has contributed to a pattern of disconnect. The pattern can be seen by a number of decisions taken such as the closing of the call centre that cut off a channel of communication with students that provided them with some personal contact with the university as well as the decision to mainly communicate with students through digital media. This might have been an attempt to be more efficient and become part of the network society but students felt that the university no longer cared and that they no longer had a space to vent their frustrations. This has pushed Unisa to respond further by developing a new business model.

In addition there is a section of society, and specifically in South Africa, who has no access to the network society or who has not been induced into the network society. These students feel not only disconnected from a large part of the global network society but also from Unisa, their mostly likely source of higher education. They often form part of the student political arena and they are pushing against too much change towards Unisa being part of the global, digital society. They are demanding that Unisa assists them to become part of this society before it makes online learning compulsory.

Internally, this pattern of disconnect is also prevalent. The uncontrolled growth in student population has left both administrative and academic staff with a sense that they cannot cope. In addition, many changes in systems and processes have been very difficult for many in the organisation who traditionally were not part of a fast-changing culture. Other pressures on the university such

as to be financially sustainable and global pressure to be an efficient institution as a way of being a good university also have a great impact on Unisa.

New terminology such as organisational architecture and business model give an indication of both design and economic models of managing the organisation. These models are founded on the principles of economic and mechanistic efficiency that if something is wrong you redesign it and it will fix the problem. This model of business has the aim of placing efficiency and therefore economic sustainability before anything else. Additionally there is a move towards the university becoming more digitised, to create an e-university, providing online teaching and learning and providing e-tutors and e-support to students by optimising IT systems. All of these principles are founded on the basis that Unisa must be economically viable and efficient.

Unisa often refers in its documents (4) to a new value system and culture; one that is based on values such as caring, communication, conversation, conservation, community, connection, collegiality, commitment, co-operation, creativity and consultation. Unisa aspires to be learner-centred and even talks about a management style of servant leadership. Strategically Unisa wants to be an organisation that is student centred, flexible and efficient in terms of providing student support on multiple platforms based on the needs of students.

These two positions however seem to be in conflict with one another. A previous lecturer of mine while doing my Master's degree talked about your epistemological underwear showing, when one moves from one epistemology to another. While trying to adhere to the one, the other one tends to show itself still. Maybe this is Unisa's epistemological underwear showing, trying to be two things, which are in direct opposition to one another.

Is it possible to have two very opposing epistemological views? The one is based on mechanistic modelling and architecture with the aim of being efficient in order to remain economically sustainable. The student is seen as either a client or a product that must be produced and the main aim is to increase the throughput rate of students. Systems and IT software are usually implemented to improve efficiency. This will make the university successful both financially and in terms of reputation.

6.3.4 Conclusion regarding Unisa's epistemology

It seems to me that Unisa is stuck between two world-views (3) that are in direct opposition to one another. On the one hand we want to be efficient, high performing and economically sustainable where the student is the client and where systems and software must be implemented to improve efficiency. On the other hand Unisa wants to be caring, provide flexible support to every student based on his or her needs, helping them to create better futures for themselves. This split leaves both the student and staff with a sense of confusion and disconnect. Although management expects staff to be caring, connected, communicating and creative, they also expect them to be efficient and adhere to rules and decisions taken that they do not understand or agree with.

It seems that Unisa must make an epistemological choice. Not between either efficiency or caring, but the choice of which one to put first. Which one to make part of its DNA? If we make the choice to view Unisa first from an ecological epistemology and focus on being and creating a caring, empowering and connected culture. Such a culture will allow both staff and students to be creative and connected (5) and this in turn will enhance our efficiency.

As humans we are emotioning beings first and it is our emotions that drive all our behaviour, therefore our passion to be a caring institution can drive efficiency and high performance. However, values of efficiency and sustainability cannot drive passion and caring. If we continue to do that we will lose the space of learning where caring and collaborative learning will be lost.

Viewing Unisa as a complex ecology (1) of distance learning brings with it a very different set of priorities. In an ecology, every part is equally important and valued and the relationship between the parts (2) form the essential focus of the organisation. The focus is on building relationships (5) and culture and in a system like Unisa learning is then centred on an ecology of learning and not on the knowledge transferred from the lecturer to the student. In such an ecology system IT software is developed or purchased as part of the co-evolutionary process in creating a better learning ecology. Efficiency and financial sustainability will then be an outcome of the system and will not have to be imposed on the system.

Such an ecology can be a caring institution providing flexible support to every student based on his or her needs, helping them create their futures. The question is though; is this practically possible? Can we be both a caring and a massively complex university?

At the moment this epistemological (3) split leaves the student in isolation, feeling distant in the distance learning space.

6.4 Holistic and holographic perspective

6.4.1 Introduction to the fundamental principle of holism and the holographic perspective

One of the basic ways in which one can get a cybernetic and complex view of life, is to have a holistic perspective. The idea that the whole is more than the sum of its parts (6) implies that one gets a meta-view, or steps back to see the bigger picture. But in cybernetic and complexity thinking this idea seems to be more complex than that. As mentioned previously, Bateson (2000:267) says that “The whole is always in a meta-relationship with its parts” which means that no part of any system can be viewed as parts alone and that one has to look at the context and relationships between the parts which adds a more complex dynamic to the system. This includes interdependencies and interconnections between all parts of the system (7).

Morin (2008:84-89) however, not only looks at context and relationships but also adds the holographic aspect. This means that the whole and the parts are complementary on the one side but also reflect each other much like a hologram where the small images reflect the image of the big whole (8). In addition, it is not simply that the whole and the parts reflect one another but that each part also retains its uniqueness. Therefore, each part of Unisa, meaning each individual, section, and aspect is a reflection of the whole, but each part is also more than that reflection.

The answer is inevitably more complex. From a complexity point of view it is not possible to control all the components of a system and the more you try to

control it, the less you will achieve it and the more unpredictable it becomes. How then can we approach this issue? Morin (2008:84) proposes that we stop denying to ourselves that the institution is very complex. We should acknowledge it and confront it, embrace it and learn to live with the uncertainties that it brings. But it requires a new perspective on life; one where one can live with the obvious contradictions that life presents to us. To see the opposing forces is often necessary and often forms an essential whole.

So many of our problems in life, especially those that seem unsolvable, can be viewed in a different light, in a way that helps us to understand that the solutions are often hidden in the problems and that the so-called opposition or even enemy is often the one with the secret solution and that often includes oneself. What we need is a new perspective that unveils the larger pattern that connects the relation between things and to embrace obvious contradictions.

But this is not an easy task. We have been schooled to think in terms of things, problems and solutions. But to recap what Bateson said “What is there about our way of perceiving that makes us not see the delicate interdependencies in an ecological system that give it its integrity. We don’t see them therefore we break them” (Bateson, 2011, video, 00:08:15-00:16:30).

6.4.2 Unisa in relation to the fundamental principles in terms of holism and the holographic principle

Vignette

I have told you about the story when I confronted a Vice-Principal about the issue of student enquiries and why management was not doing something about it and the response was: “We know that it’s a problem, we just don’t know how to fix it.” What I didn’t say was why I asked the question and my own reaction.

To illustrate let me tell you something that Bateson (2011, Video, 00:08:15-00:16:30) said about roles. He said that a role is a “half-assed relationship”. He said that “you can’t study one half of a relationship, it doesn’t make any sense. What you will make is disaster.” I want to apply the same principle that Bateson applied to the issue of problems. Using words like student dissatisfaction is only

one half of a relationship. It tells us something although very little about the student but absolutely nothing about the university and the context in which the issue is experienced.

Therefore my question to the Vice-Principal about student enquiries was also a “half-assed” question. However, the answer seemed to say a lot about the relationship of the university to the issue, which was: “We know that it’s a problem, we just don’t know how to fix it.” It says a lot about how we, Unisa, as a living system, deal with issues. If we have a problem, we must fix it; that simple, and if the problem is too big, we just don’t know how to fix it. And that included me, abdicating my role in finding ways to improve the situation.

In ecological, complex, holistic thinking a problem and a solution are just two sides of the same coin. In the first place, when I asked the question about student enquiries, I viewed it as management’s problem, they must fix it and I wanted to know what they were doing about it. I did not see myself at that moment in time as part of the whole, neither did I see my statement reflected in the whole and that I, as a whole being, forming part of the bigger whole of Unisa, was also part of the solution, part of the ecology of ideas. If I did not participate in making a difference, I was also just part of the problem, because I am also a reflection of the bigger whole.

It is so easy, being part of Unisa, for me to dissociate myself from the experiences of students or colleagues who struggle to make the system work. When I get inundated with telephone calls every day, and I don’t know how to resolve them, I often feel that this is not my problem and I push them away or just refer them to someone else, who might also feel the same way I do.

In September 2013, Carte Blanche, a television programme, reported on leakages of examination papers of the university and that there was inconsistency in the way examination papers were marked. At the same time there were a lot of rumblings in the university about the new business model and how Unisa was implementing it as mentioned in chapter 3. The Principal took a very bold step and called an extraordinary staff assembly in that same month, calling all staff and a group of students together to discuss the new business model and the examination paper leaks that appeared in the media.

The assembly (Unisa Staff Assembly 2013, Transcript and Video)

The ZK Matthews Hall that can take more than 1000 people was full when the Principal, Prof Makhanya, walked into the hall. After brief introductions he walked to the podium and started to talk. He greeted everyone and then said "I've always known, that we share the love for our institution. That we have professional pride which we want to uphold and maintain and that we have a genuine desire to provide our students with the kind of quality and service excellence that will ensure that they graduate in large numbers as well qualified, competent and responsible citizens."

To define the purpose of the assembly he said "So Colleagues, we all know that as a university community we have a common goal, this goal is that we all want to be a high performance university. We want Unisa and our students to succeed and that's the ethical purpose of this morning's assembly." He invited everyone present to participate in the event "because each has a very specific voice and role to play and we will only succeed in our goal of a high performance university when all of the voices join? together and sing the same song in harmony."

He described Unisa as a complex organisation and said that we do not realise how complex the organisation is with many interconnectedness's and interdependencies. He said that Unisa has overcome many hurdles in the past and will do so again if we take action and come up with extraordinary measures to make the organisation work in order to protect the reputation of the institution.

In detail, the Principal described the problems that Unisa is experiencing with the examination issue and how the police service is called in to assist with criminal elements amongst both staff and students to resolve the issues.

In terms of the new business model, the Principal mentioned that Unisa has no intention of excluding those students who do not have access to computers, but that an implementation plan is in the process of being developed in order to create an IT infrastructure that will provide excellent service to students. It will take about two years to do so and he asked the university community to be patient with the ICT department and give them space to implement the new systems.

He also mentioned the following in terms of implementation: "It has become prudent to regroup and revisit our operations with the aim of ensuring that existing systems are fully functional and operational and upgraded where necessary so that we avoid as much as possible the intermittent downtimes that militate against efficiency and that are frustrating staff and students alike to no end. You have heard the expression 'Slow and steady wins the race.' Well I honestly believe that a prudent review of some of our actions will result in some relief and we should see a clear improvement in service levels. I am not a proponent of action at any cost and the fact that a target is in our institutional operational plan does not automatically cast it in stone. Such intransigence and an obvious lack of flexibility when reality tells us otherwise, is simply short-sighted and that's what gets us into trouble." He also mentioned that we needed to create convergence amongst all initiatives in order to meet the demands of students.

In addition he mentioned that it is not the intention of the university to dismiss any staff but for everyone to work together towards the common goal. In closing he said: "This University has a history of success and I'm confident that as a team we will build on that success from here on. Thank you very much. I hope the engagements are going to be as exciting as I expect them."

During a very vocal and more than three-hour discussion some issues were raised by the Unisa community. Some of the general issues raised were that the staff assembly could not be a talk shop or ritual and that the session must lead to action. Staff felt that they were not consulted about the business model and the implementation of technology and people were adamant that they wanted their feelings and voices heard. The assembly mentioned that they want management to properly listen to their concerns and not just pretend to listen and continue to do what they want.

The unions expressed the fear that technology will erode jobs at Unisa and people fear that they will lose their jobs and that they were not consulted about how the process was to be implemented. They demanded that implementation must be stopped immediately and negotiations must start from scratch. They also insisted that Unisa must stop using labour brokers and employ the cleaners and security guards on a permanent basis.

Some students said that students were not consulted about the ODeL business model and claimed that management are “intoxicated with power”. Students felt that management undermined them and they have lost confidence in the management. They expressed their frustration that Unisa is commoditising education, which means that the poorest and disadvantaged students cannot apply or study at Unisa and that prisoners cannot apply because they do not have access to computers. Their frustration with myUnisa constantly being down is badly affecting student performance. They insisted that a dual mode must be accepted which will allow students to decide how they want to get material and support and in what format. They mentioned that even when banks go online they still provide walk-in services. Finally they also alluded to the perception that corruption and discrimination is rife at Unisa and we need proper transformation.

The Academics said they felt that their voices are not heard in the institution, that there are serious communication problems between management and the academics. They said that there are many conflicting messages about the introduction of technology and in the process they are confused and students are suffering. They mentioned that there is a lack of institutional readiness for ODeL both in terms of political buy in, financial readiness, institutional readiness and e-readiness. Not only are academics not properly informed about policy decisions but academics are not properly trained to use new IT systems and are left to cope on their own.

One of the biggest problems for academics is that the student-academic ratio is much too high and academics cannot cope with all the students. Again, in the process students are suffering. Academics are now trapped between online mode where they have developed online courses and the scrapping of the model and they don't know what the short-term implications of this will be for delivering study material to students.

The administrators said that there is great fear amongst staff in the printing and dispatch functions that they will lose their jobs due to the ODeL business model especially because the model was not properly consulted upon and they do not understand how it will be implemented also in terms of time frames. They said that students are being used as guinea pigs to see if new initiatives are working. They said that management must communicate and consult properly with care and understand that if they create conditions where people are overburdened

and unhappy they cannot function properly. The lack of IT support in the university makes it very difficult for staff to function properly and HR processes are cumbersome and HR policy changes are not properly consulted.

Students and unions requested that the business model be parked and that consultation must start from scratch. At most in the interim a dual mode of delivery must be implemented and consultation and proper research may take up to fifteen years.

Management's response to some of the issues was that most of the decisions taken around Unisa moving towards an online environment was collectively decided at forums such as the Senate Teaching and Learning Committee or Senate. The Principal urged staff and students not to isolate individuals to blame because most decisions were taken collectively.

What I did not realise at that moment was that so many of the problems and solutions were right in one place. Everyone shouting at one another either out of frustration or just an attempt to make their voices heard was telling us about their relationship with Unisa. Every person was a holographic reflection of the whole or one could even say that the whole was reflecting in each of us.

The assembly was pretty chaotic and at times antagonistic to the point where the assembly insisted on the resignation of some management members. The facilitator tried his best to "control" the situation, but instead of just listening and allowing people to express their emotions, continually asked for solutions long before people were ready to think or talk about solutions. And where was I in this situation? During most of the session I was deeply frustrated with the conflict and at one point walked out because I simply could not stand it anymore. Did I say anything? Did I attempt even to say anything? No, I was like the 4 000 members of staff that did not attend and dare I say hundreds of thousands of students who did not even know that the event was happening.

The outcome of the assembly was the formation of a committee constituted of individuals from each department. The committee met twice in late 2013 and has still not made any decisions or suggestions by end of January 2014.

After the assembly we tried to get an online discussion going through a blog on the intranet. Initially 46 members of staff reacted with very good comments and I convinced the VC to respond which he did quickly and after that the issue was left for the committee to resolve. The online discussion also stopped after CCM received no further response from management. CCM was told that any further discussion had to be facilitated by us at CCM.

Sitting here now 200 km away trying to see the picture from a holistic/holographic perspective, trying to see patterns, context and how the whole and the parts interact I see the following:

- Most of the groupings in the university community support the basic notion that Unisa must move with the times in terms of technology and in principle support a new business model but would like a dual model to continue until more consultation and research has taken place. This may take up to fifteen years.*
- The university community is reacting strongly against the new business model, partly due to the fear of people losing their jobs, fear of not knowing how their jobs will change due to the new model and partly because of uncertainty about the pace that the change will take. They are also concerned about marginalised and poor students and prisoners who will be excluded from studying at Unisa.*
- Management has a sincere desire to resolve the issue but seems to either want simple solutions or delegate it to a small group of individuals who are slow in reacting to the issues.*
- There has been no passionate, active engagement in the university with students and staff on how to resolve the issues apart from the one staff assembly.*
- The SRC is involved in the issue but no attempt has been made to engage in discussions with the bigger Unisa student body.*

If the different parts of the organisation have very different views on how the future vision should be implemented, then that is a reflection on the whole. That reflection suggests to me the pattern of disconnect and distantness. Everyone has an opposing view and they do not seem to be able to come together and find common ground. At this point each group sees each other as the opposition.

What is it then that we do not see? We do not see the key to resolving the issue is reflected in the issues as such, the issues that the people who form the ecology of distance education have. There are approximately 400 000 members, staff and students who could collaborate, co-operate, consult, connect and communicate, through conversation as part of a culture and community through caring collegiality in order to conserve the essential aims of the university. We, the Unisa community, can through courage and commitment and generate new creative ways to reach the ultimate goal. What we need is a context and a culture of collaboration and trust before this can happen.

6.4.3 Reflection on the holographic Unisa

Viewing either the parts of Unisa and how they fit together and/or the problems and models set up for solutions on the other hand is not useful when one wants to create an ecology of distance learning (1). It is clear that Unisa is currently focusing on issues of efficiency and high performance as a priority in order to protect the reputation of the university and keep the university financially sustainable.

The Principal admitted that Unisa has become so complex that it is very difficult to manage. Creating business models, implementation plans and systems such as business processes and IT systems before one understands the complexity is disastrous because most interventions will simply create a co-evolutionary reaction in the system. This does not provide a holistic view of Unisa (6). In a system where there is little trust and confidence in new initiatives from management the chances of new initiatives being rejected is substantially increased.

In order to understand the ecology one must view the interactions, interconnections and patterns, also consider the context and prevailing culture. (7) At the moment the prevailing culture at Unisa is one of competition and resistance to too many initiatives and a desperate attempt just to cope with the chaos of the massive increase in student numbers. Trying to introduce further initiatives and business efficiencies will not be helpful until the whole system understands and participates in the conceptualisation of changes and new innovations.

One must look at the parts and whole and see how they reflect issues onto one another (8) but also respect the wholeness of all parts, understanding that they have their own ideas, connections, patterns and wholeness.

Such a new perspective requires first the creation of a culture of understanding, care and collaboration through which we can create a new ecology of distance learning that focuses on building an ecology where everyone participates in creating a future for Unisa that is no longer distant. Once the parts and the whole reflect that same culture, the system will co-evolve into more complex and innovative patterns.

6.4.4 Conclusion regarding relation to the fundamental principles in terms of holism and the holographic principle

Viewing Unisa from a holistic (6) and holographic perspective (8) and helping others to do the same can create a new culture where the parts don't blame each other for mistakes, but where we embrace each other with our abilities and shortcomings and where the whole is in synergy and reflects the same values of respect for the wholeness and all its parts. Such a new perspective requires first the creation of a culture of where the focus is on interdependence and interconnectedness (7) as well as understanding, care and collaboration through which we can create a new ecology of distance learning that focuses on building a learning ecology where everyone participates and that is no longer distant.

This cannot just be a culture defined on paper. It must be a way of living created first by a small group and then spreading to the entire organisation because we cannot wait for management or others to do it, we are all Unisa, each a holographic reflection of the organisation. Once the parts and the whole reflect that same culture, the system will co-evolve into more complex and innovative patterns (8).

6.5 Unisa a living organism

6.5.1 Introduction to nature of living organisms

Life and all mind is the pattern that connects, which needs interaction between its components, triggered by difference, containing collateral energy, requiring circular chains of determination in which information is transformed or coded in logical levels (12). It is a complex dance of circular feedback (9) and causation that evolves patterns or self-organisation but requires energy, otherwise it dies. This recursive (19) self-organisation, which is made up of the structure and the organisation of the system, creates the system and determines the autonomy (16) of the system and makes the system closed to information (10). Therefore the system can only perceive “news of a difference or difference that makes a difference.” (14) That means that every being views the world through the lenses of her/his own self-organisation (13). It also means that systems create themselves in their living into more complex patterns (15).

So in living systems there are no happenings, only doings (13), which means that everything is part of the dance of life, created somehow between the patterns that connect it. We can however, due to the complex nature of the system no longer predict (18) what changes in the system will happen or what interventions will work in changing the system. Living systems however have a memory (17) that determines how it assimilates change and therefore change can only happen at the pace a system itself can determine.

The natural pattern of living systems is networks (20) and networks are not hierarchical but systems nested in systems (21). It therefore cannot have either a hierarchy or a central control mechanism (23) that determines the way it lives or behaves. Rigid structures and shapes in the organisation therefore hinder creativity and life and find its own creative irregular but self-similar shapes (22) that fit and work for the system.

6.5.2 Unisa as a living system

Vignette

Stan and I were having our regular morning coffee on the veranda outside the Theo van Wijk building at Unisa. He looked up and said, "You know, this place looks just like a cruise ship, with little portholes where everyone has his little cabin." "Yes," I said, "that's what many people call the Unisa main campus; the big ship on the hill." Looking up we saw the rows of windows stretching in front of us, seven floors up and about 100 metres to our right. He was quiet for a while in deep thought.

"You know," he said, "I have been working at Unisa for a few decades now, and I think, it is just like a big machine and the way it looks is symbolic of the way many people view the place." "That is very sad," I replied, "because Unisa has so many people who are dynamic and creative." Stan smiled and said "Yes, but only some, and many do not view us as dynamic and creative people. As an academic, I now have to clock in every morning and clock out every afternoon, for heaven's sake, I'm a professor and have been for many years. Don't they think that I am a responsible person?"

"I suppose it is because some people, including some professors, are not very responsible so they have to make the rules to keep everyone in line," I replied. "You know that is only part of the problem," Stan said, "We are not treated as individuals, everyone must be treated the same, or at least treat everyone with respect and take on the individuals who are not doing their jobs." "Yes, I suppose you're right," I said.

We sat in silence for another while and Stan broke the silence. "I don't like working here anymore," he said. "Unisa used to be a place that I loved working at but lately, we are so ruled by policies and procedures that I cannot find any joy and creativity in my work, except of course when I engage with students. That is what I live for. When I'm with my students, especially when we used to go to the community in Mamelodi, I came alive, there I am not the professor, I'm just Stan and we were all learning from one another."

"Isn't that what a university is all about?" I asked, "To learn, both lecturers and students together." "Yes, that is what makes us all come alive," said Stan "but the Mamelodi centre closed down and what joy will be left for me now?" "That is so sad," I replied. "Yes," he said, "but you know, Unisa is continuing, I'm just worried about the way things are going; to get back to the big ship. It feels as if we are all just parts of a big machine, and if a part breaks, then we all get disassembled, fixed and reassembled and the extra parts get discarded. But we are not parts of a big machine, we are people and we are all part of what makes up Unisa and we have to be viewed with some respect and dignity."

"So how do we change it Stan?" I asked. "Well, I'm not very optimistic that it can change, you know. The hierarchy of the organisation will not easily change. Hierarchies come with power and money and how do people change when they benefit through power and money?" "Yes," I replied, "but isn't there another way to do it, how will we survive here if we hold on to such negative ideas." "I don't know," Stan said, "I'm not too bothered because I'm retiring soon, but I have a colleague who thinks totally differently about Unisa. He is a head of an academic department and he and his department have decided to think differently about Unisa. They have decided that their department is their university where learning and engagement between staff and students takes place. They view the bigger Unisa as their environment. So inside the department they have created a culture of caring and collaboration. They talk a lot to each other, they have a lot of informal sessions, they make decisions together as a team and they are passionate about learning and teaching. They try their best to ensure that every student is attended to and focus all their emotional energy on being teachers. They know that the institutional politics is there which constrains them but they see that as external factors that they must deal with."

"Wow, that's an interesting way to do things," I replied. "Yes," said Stan, "and in the process they have created a manageable closely related team that works together and live in much better harmony." "I wish we could all work this way," I said, "but I work in CCM and we have to deal with all the students and staff." "Yes, that's more difficult," Stan said, "and the task might seem daunting, but maybe one must think more creatively, where an environment can be created that is more alive, where people connect, where creativity is allowed, where our individuality is not only respected but treasured. Maybe the only way to do that

is to structure ourselves differently, in a more natural way, you know, allowing more natural networks to develop and encouraging different ways of doing.”

“Yes!” I replied, “you know, I had the opportunity to visit the Google Campus a few years ago, and their offices are not fancy at all, but they really treasure their staff. They have a lot of open plan and closed office, depending on the job and the needs of staff and every floor has a little cafeteria, with no till, because Google feeds their staff for free. There are gyms, volleyball courts, cycle tracks and even laundries on the campus. Their philosophy is that if they have happy staff they will be productive.” “Yes, I like that,” said Stan, “I even heard that they allow their staff to work on projects that are not related to their formal work for 20 % of their work time.” “Yes, that’s true, and they are considered one of the best employers in the world.”

“On the other hand,” I said, “you know, they don’t really talk to their clients in the conventional sense of the word. You cannot call Google and ask them to change something on their systems, but they are really good at listening and looking at the behaviour of their clients and very quick to adapt their systems to the needs of their clients.” Yes,” said Stan, “I suppose people don’t really have to talk to them, and that makes them very different from Unisa. We are a university, the nature of what we do is learning and learning without interaction isn’t really learning.”

“Are you serious?” I asked, “does that mean correspondence study is not really learning?” “Well, I think you’re taking it too far now. Correspondence study developed in the days before the Internet when communication was something that could be very slow. People still wrote letters and posted them and by the way the postal service was also more efficient. In addition we had a whole year to communicate back and forth to students and we didn’t have so many students, so time was on our side. We had time to think, contemplate, communicate and engage with students. Now, with the massive increase in student numbers and a postal service that is not so efficient anymore the systems get clogged. In addition we now have semester modules and the Internet, so everything doubled in terms of work and we have to work faster and communicate faster because there is an expectation from our students to respond to them quickly.”

“As you know,” Stan added, “I don’t like computers so I suppose I am not keeping up with the times, because I feel that I cannot connect with students properly through the Internet. For me communication is about looking each other in the eye, but I know that with Open Distance Learning that cannot always work, so maybe we need to think of more creative ways to communicate that are not just dependent on e-mail and the written word. Think of ways to look each other in the eye without actually physically looking each other in the eye.”

“I think,” I said, “that I understand why management don’t know how to fix the problems. The problems are just too big, you cannot respect everyone, talk to everyone, listen to every one of the staff members, and even more so with the students, you cannot give everyone what they want, that is just too much. In such a big complex context structured in a rigid way, it is then very human to see each other as the enemy.” “Well,” Stan said, “maybe the problem is not that we have too many students, maybe the problem is that we just want to treat everyone the same. Maybe we need to think in terms of networks and fractals, where we allow students and tutors to self-organise into groups where they can support one another and learn together. Where the online tutorial group and face-to-face tutorial groups are similar, but still different.”

“On the other hand,” I replied, “we also need to show students that they can create their own academic networks, parts of which are in Unisa and other parts outside Unisa, because learning is not just about receiving knowledge, it is also about new experiences, interactions and learning to live in a different way.”

“Hey, we’re dreaming up big dreams now,” Stan said, “but I always think that if you can imagine something, you can make it happen. But,” said Stan, “I have to go back to my little 3x3 meter office now and clock back in. I can’t wait to hear what you can possibly imagine or dream up for Unisa and our students.”

6.5.3 Reflection on the living Unisa

Although there are large parts of Unisa, including some people and documents that define Unisa in a mechanistic hierarchical manner, Unisa is also a living organism, and the real structure resides in networks (20) nested in networks (21), with its own autonomy and self-organisation (16). The staff assembly, described in section 6.4.2, showed that the institution can self-organise into

groups and express in very definite terms their own autonomy. There are also many symbols in the organisation that confirm the mechanistic and hierarchical nature of the organisation.

One of these is the way in which buildings and offices reflect the very rigid structure of the organisation. I have been working for Unisa long enough to have occupied at least nine offices in various buildings. Up to about three years ago, most offices that I have worked in looked virtually the same. You get office furniture allocated to you as a staff member based on your post level and there is little room for creativity, except of course if you bring your own stuff and if your manager is flexible. Most academics still function based on this system, except of course the professors who work from home. They in turn experience a sense of alienation where they often do not have any space in the organisation to sit and work when they come to campus.

In recent years there has been a new tendency for support staff to be placed in open plan offices. In most of these departments the open plan system has created much unhappiness, where people are feeling that they have no personal space and are exposed to immense discomfort. Some of it relates to the air conditioning systems that are too cold for some and too hot for others and noise levels and disturbances that distract them from focusing on their work. There seems to be a lack of dignity and people are feeling that they are all treated the same without respect for individuality. (9) The pattern emerging is therefore one size must fit all.

This pattern is also prevalent amongst students, who expressed not only in the staff assembly but also in the social media that their individual personal needs in the distance learning arena are not respected. This is of course proliferated by the increase in student numbers and Unisa's response to this by standardising processes. Many staff members then feel overburdened and develop negative emotions and an unwillingness to work hard. As mentioned in the staff assembly by one person "you cannot expect quality service from an unhappy employee".

And the same applies to our students. It seems that Unisa wants to standardise services and processes to students in order to simplify the process. All new students will get an e-tutor. Face-to-face tutorials will be phased out and discussion classes and satellite broadcasts have been discontinued. I suspect

that this is done in order to ensure a balance in the economies of scale and the solution is to implement better IT systems so that we do not have to employ more staff or drastically curtail student numbers. One simple solution might be to simply further drastically curtail student numbers through a stricter admissions policy, but this may create havoc and potential student riots as we have seen with other universities.

So living complex systems like Unisa must be respected for their autonomy, creativity and energy that they bring into the (12) organisation and in the process be allowed to participate in processes in order to allow natural self-organisation (15) which will benefit the university tremendously. In the process thousands of people can participate in solving the problems and not just a handful. Everyone brings their own energy (14) to deal with internal and external aspects of the issues at hand (18). This however means that Unisa will have to view its hierarchical structure very differently. At the moment decisions are made on many levels, council, management, senate and all its subcommittees. Many others and often the same people sit in these meetings, but the discussions and decisions are not well communicated throughout the organisation and there is very little space for reflective debate.

Formally most decisions are communicated, but staff members complain that there is simply too much information and decisions being communicated by the university via the intranet and the daily e-news and newsletters. In the process people can no longer distinguish between important and unimportant messages. Messages are also communicated inconsistently and the process of getting messages out is very cumbersome and often after the fact. Maybe a new organisational ethos based on respect must be considered, respect for the complexity of Unisa and all its staff and students, being flexible in order to accommodate the uniqueness of everyone and an openness that allows people to freely participate in decision-making, solution creation and development of this new culture. Maybe this new culture must be based on many sizes fits the diverse unique many.

But that would also imply that we create a new culture of openness and open up communication and interaction to flow more freely and allow the system to self-organise. (19) In natural ecologies, pure hierarchies do not exist where members of the system are separated by other members of the system. Formally, I can for

instance not have direct access to the university Principal except through my superiors (Bateson, 2000:96). Natural hierarchies are nested systems where the systems are within systems or one system is the context for another system and there is no one above or below.

Would it be possible to create such a new structure? Maybe not, because the South African legal context prescribes that Unisa must consist of various structures, and imposes some form of hierarchy on the institution. However, would it be possible to create a structure that is less hierarchical and more networked, where networks are nested in networks (20, 21) allow for more openness and self-organisation, where spontaneous initiatives are welcomed, where contexts are created to find common solutions? Could we create a structure that allows openness and flexibility to explore new ways in distance learning? Would management be able to let go of central control (23) and allow everyone in the ecology to actively and passionately participate?

6.5.4 Conclusion regarding Unisa as a living system

Unisa is a living system, with patterns that connect (9), with interaction between its parts and containing energy allowing complex interactions. The parts and the whole can only receive (10) information that is news of difference (14) and makes sense of the world in its own unique way. (12). When the system encounters problems it recursively self-organises (15, 19) and is autonomous (16). Every individual at Unisa views the world through the lenses of their own self-organisation (13).

Trying to impose patterns of living on autonomous beings brings with it its own dilemmas and often an unintended culture, because Unisa as an organisation can only co-evolve based on its organisation where things do not just happen but people act and do (13) and are unpredictable (18). Placing people in an environment where they cannot be creative in itself then contributes to a culture of disconnect and unhappiness and this becomes part of the memory of the organisation and has a huge impact on the pace and way people do things (17).

Although Unisa is by law a hierarchical institution, a new cultural ethos can view that structure (20) rather as nested systems (21) where the systems are within

systems or one system is the context for another system and there is no one above or below (23); a system that has a sense of place and a caring and collaborative community. This will create an ethos that will guide us to more openness and self-organisation, where spontaneous initiatives are welcomed, where new contexts are created to find common solutions and find new innovative way to create an ecology of distance learning. (22)

If we view Unisa as a vibrant living ecology then we place people first and see the efficiency as an outcome where we can build an organisational ethos based on respect, openness, flexibility and caring. We will respect the complexity of Unisa and all its staff and students, being flexible in order to accommodate the uniqueness of everyone and an openness that allows people to freely participate in decision-making (22) solution creation and development of this new culture. There can be no rigidity in finding ways to deal with complex issues and a culture of openness and flexibility is proposed. This new culture must be based on many sizes fit the diverse unique many. Where openness is the norm and conflict is seen as an opportunity to co-evolve into more complex patterns.

Openness in ODL then might get a new meaning; openness for new ideas, openness for everyone's opinion and an openness that will allow everyone at Unisa to thrive.

6.6 Co-evolution and change

6.6.1 Introduction to co-evolution and change

Change in most organisations today is seen as problematic. When changes are conceptualised in organisations, many organisations view the management of change in the institution as something that must simply happen in order to ensure that the institutional community accepts the change introduced. Change however in complex systems cannot be introduced but is co-evolutionary where the organism and the medium change together (24). Change then is a delicate balance between change and stability based on the organisation of the system (25).

Since the behaviour of the complex are unpredictable (27) facilitating change is difficult, however patterns (28) do emerge (29) and often create greater states of complexity (30). Chaos and change are often be related and change often happens at the edge of chaos (31). Because complex systems are sensitive to initial conditions (26) the timing when change is introduced is also very important.

6.6.2 Co-evolution and change in the Unisa context

Vignette

We were sitting in the meeting room of the Kgorong Building at Unisa. The group consisted of two of us from Unisa and two external consultants that had to help us with the copy and design of the new campaign. With us we had a document that had gone through many changes in the past few months and approved at various levels in the organisation. At that point however I had not realised or thought that management had never approved of it or that large parts of the organisation had serious problems with it. This I only realised a month or two later.

Our task was to develop a communication strategy for the new changes that Unisa was introducing to applicants and students mostly based on new technology initiatives. These included compulsory online signature courses for new students, the e-tutor system where all new students will be allocated an e-tutor instead of attending tutorial classes, all applications and registration will now be done online only, either at the regional centres or on the student's own computer as well as full online studies for postgraduate students. In addition new admission and readmission policies were also communicated to prospective and current students, which meant that Unisa was imposing stricter rules on admission but also that if new students do not pass three modules in their first year or four modules in their second year and after that, they will not be readmitted.

I understood intuitively that these were many changes coming, but most of the changes applied only to new applicants and therefore I felt that they had a choice whether they would like to accept these new changes or not. Most of the

changes were not applicable to current students and therefore Unisa would not break its agreements with current students. We brainstormed many ideas, but I felt that most of these ideas were very vague. At one point I said, "You know, the simple message is that Unisa is changing, why don't we just say it straight." The group looked at me a little strangely and then agreed that the straightforward approach was maybe the best and we proceeded with the content and design work.

A few days later, the advertisement was done and I sent it off for approval and within a few weeks we had designed newspaper advertisements, web marketing banners, social media and website banners and made some changes to the applications video which was posted on youTube. We were ready! Everything was done in record time and the messages went out. There was almost no reaction to the posts on social media. Students continued to talk to each other about examinations and complaining about Unisa's bad service. Here and there, in the midst of the chatter were posts like:

"Not everyone has access to computer so how will UNISA address this challenge as we also like to study with you"

"How about, before you change, you first excel in registration issues..."

"This is pathetic, just because we will be forced to change qualifications because you are phasing out the old curriculum you require us to apply just to milk us of the R100. Sies UNISA..... what's the reason for me to send the same papers I sent applying 2 years ago? This is a disgrace...."

"Thinking of 2014, but UNISA can't even adequately service its current students, or bother to sort out the problems caused by their unavailability, dead contact numbers, and unanswered emails and attempts at online registration."

I was quite surprised at the lack of reaction; some students even welcomed the initiatives. But these students were Facebook students; they had access to the Internet. Who was thinking of those prospective and current students who do not have access to the Internet? The campaign only had advertisements in three newspapers over three weekends and the rest was online.

When I got called in to explain why the campaign went out without the Management Committee's approval I was dumbfounded. I can point fingers

now, many others also approved the campaign including Vice-Principals who were on the management committee, but I realised at that moment, that from an ecological point of view, Unisa was not unified.

The period after that for me personally was a haze, so many things happening. News broke in the media about examination papers leaking, the campaign in the newspapers was withdrawn, we made slight changes to the online banners and webpages to imply that online is not exclusive but we kept going and I felt that we were keeping our eyes closed to see if the storm subsides, until at the extraordinary staff assembly students and staff made their voices heard.

I felt that I had failed, that I missed something so important and that I did not make my voice heard, just like most other people. The unions and students and a few academics at the assembly were extremely vocal and they were the people with the guts to say what we all felt.

6.6.3 Reflection on change and co-evolution

If change is a co-evolutionary process and one cannot predict how small changes will impact on a system, are we then all just shooting in the dark? How can we implement change in the university? This question in itself is problematic. The question implies that changes will be decided on in one place, usually by management and imposed onto others, usually staff. What this experience has taught me, and I felt it in a very real way, was that if you impose change on a system or institution, you can never predict exactly how the system will react.

However, one should understand some basic principles of change or what cybernetics and complexity calls co-evolution. If we co-evolve we need enough time to express our concerns in terms of aspects where change is too much, such as imposing the use of technology on all students vs. not developing adequate technology. I mentioned earlier that it is Cilliers' (2007) view that systems need a particular kind of slowness to allow the structure and organisation of the system to deal with change. The system must have time to reflect on the memories of the past, the present and its future. As he said, the system should be given enough time to "play itself out in interaction with the

present" (Cilliers, 2007:108).

This process is played out at Unisa where internally, many academics are pushing for better technology that will enable them to teach online, while others are saying that they don't know how to use the current systems. These are all part of the same system, the two sides of the same coin, the push for both stability and faster change. At the moment, Unisa decides what the systems will be and present or dare I say impose them on both the academics and students.

What would happen if the Unisa community opened up discussion and debate and open communication amongst academics and give them time to experiment together and teach each other how to use technology best in the teaching and learning environment? What would happen if Unisa allowed students to openly communicate with one another physically at our regions and in social media and as a university invest in actively communicating back to them, finding common ways that will be both empowering to them and efficient for the university? Would small sub-communities co-evolve where students and staff can learn together?

I know the first question from the university would be, but how much would that cost? But how much is the e-tutor system costing that mostly allows one-to-one communication between tutors and students? Is there no way in which we can see Unisa as an ecology that can co-evolve towards a future vision that we can all share and will allow us to be a caring, living learning university?

6.6.4 Conclusion regarding co-evolution and change at Unisa

Many institutions often see change, and that also includes Unisa as a simple matter where proposed changes are imposed on the system with little respect for the autonomy and self-organisation of the system. The balance between stability and change must also be maintained (25). This often leads to resistance that can sometimes be overt and visible but often is covert and difficult to pinpoint. Testing ideas through smaller pilot projects or opening up conversations using broader platforms rather than the formal ones, including social media, might give an indication of how the organisation will react to proposed changes and prevent resistance to change.

In a new culture of openness and respect, change will not be imposed on the organisation but is co-evolved in the system. A new culture based on ecology will have a sense of tolerance for each other and patience and openness to allow the emergence of new ways of being. Co-evolution (24) requires adequate time and space to recursively reflect on the issues at hand. To have an understanding that change cannot happen either too slowly or too fast and that we cannot exactly predict how these changes will play themselves out.

This new culture will embrace differing opinions because these ideas can be combined into more complex, creative and innovative ways of doing and living in the learning ecology. The boundaries between student and lecturer will be less distinct, but the university will also not be the only node of learning, because learning and change from outside the organisation is welcomed. Technology will not be the main focus in finding solutions but will be viewed as the facilitator of communication with a very specific role in aiding communication. In the process, self-organised learning will be encouraged, because if you do not see yourself as the sole supplier of learning, all forms of learning are welcomed (29).

Many more solutions will then be welcomed as long as they aid the learning process, whether it is face-to-face contact, multimedia, broadcast technology, web and social media technology, or any other new technologies that will emerge in the future. In such a context communication would not have central control mechanisms but we will encourage self-organised groups amongst students, the public, lectures, administrators, alumni, and anyone who wants to be part of the ecology. In a co-evolutionary process the students can participate in creating such contexts for learning that allow open collaboration and co-evolution of learning.

If the ecology of Unisa is allowed to spontaneously self-organise and co-evolves its own structures and solutions (24), these will fit much better in the system and this will lead to greater efficiency and better sustainability for the organisation. Paying for one-to-one communication systems like the e-tutor system is not sustainable compared to a self-organised ecology. Unisa can become an ecology that can co-evolve towards a future vision that we can all share and will allow us to be a caring, living learning university.

Since the behaviour of complex is unpredictable (27) we cannot plan projects and think that they will simply be successful. We should rather allow new solutions to emerge (29) through recursive interaction (28) and trust the process to lead to greater states of complexity (30). Real change often happens in times of trouble, such as Unisa has been experiencing close to the edge of chaos (31). Timing is however important. because complex systems are sensitive to initial conditions (26) and when we must introduce change respect for the autonomy of the system must be respected but we must also understand that we must act decisively and quickly in order to win the trust of the organisation.

6.7 Reclaiming humanness

6.7.1 Introduction to humanness

Humans evolved in small intimate communities within a context of cooperation, interdependence and love (32) where story telling (34) and doing things together towards a common goal (35) was the prevailing culture. We thrive and need loving communities to be happy (33) and structured hierarchies where control and aggression (36) rule is not natural for us.

Humans are self-organised systems and we cannot be objective, we can only view the world through our own organisational “lenses” (37). Through recursive reflection (38) by means of languaging and emotioning (39) we create meaning in life and create domains of inter-objectivity (45). We live a life of patterns and stories (42) using both digital and analogue communication to (43) create rich communication and culture (44)

Humans therefore function optimally in a context of care, love, respect where we are not viewed as objects but subjects (40). Creating a context of respect, cooperation and intimacy and the sacredness of life will provide us with an optimal space to be to live and learn.

6.7.2 Humanness at Unisa

Vignette

Over the last 20 years I have witnessed a process where Unisa has attempted to bridge the gap between the student and the university. Looking back it seemed that the formation of the regional offices has been an attempt to bring the student closer and provide more face-to-face student support services. In recent years, the move is towards more online and digital support and less physical support. I have heard rumours that Unisa will be curtailing services at regional centres and even fears by regional staff of the possibility regional offices will be closed in the future.

I have mentioned other things previously, such as the closing of the call centre, the moving of students off the main campus to the Sunnyside regional office where most administrative and learner support services are provided. Although the intention of the university has been to be a more efficient university and to provide excellent service, it seems that this has created greater dissatisfaction among students, maybe because of the pattern of disconnect I have mentioned earlier. This has of course been exacerbated by the fact that many of our systems, which had to replace the face-to-face contact either failed and that our myUnisa system is often not stable.

Much of the pressure of student communication over the past few decades has been transferred to the colleges and the regions. Although regions have to deal with most face-to-face enquiries and student services, colleges are also expected to communicate with students directly, but this happens mostly through digital and mass media. Over the last ten to twelve years, each college and regional office appointed communications and marketing officers (CMOs) to look after the communication and marketing needs of students in their college or region.

In the process these communication and marketing practitioners have become accountable to both either their Dean or regional director on the one hand and the Department of CCM on the other hand, but they report directly to the Dean or regional director. This has created great confusion and differences of opinion

between colleges and regions on the one hand and CCM on the other hand. A Communication and Marketing Forum, (CMF) which met quarterly was set up to resolve differences. The problem was however that the CMOs would regularly attend the CMF meetings but not the Deans or regional directors, so a gap developed between the communications and marketing strategies of CCM and those of the colleges and regions.

Part of the gap was that the communication and marketing strategy that the CCM has developed focuses on stakeholder relationship management which means that our attention gets fragmented between all the various stakeholders. I personally have pushed for a greater focus on student communication. After consultation with an external consulting company it was confirmed that Unisa is not placing its central focus on students and advised us to change our focus back to the student, but after the new strategy was developed we moved back to general stakeholder management. In my own opinion, our attention both at CCM and the way we project it to the regions are fragmented.

A while ago, a few communications and marketing officers were standing in a small group in deep discussion during a coffee break at the CMF. When I approached, one of them called me. She said, Could I ask you a big favour? Can CCM please invite us to your year-end function? I was very surprised at the question, because CCM consists of about 50 staff members and our year-end functions are already quite big, but I probed a little. But why do you want to attend our functions, don't you report to the Deans and don't you attend their year-end functions? No, she replied, the Deans think we belong to CCM and CCM thinks we belong to the colleges, so we feel like step children, we don't belong anywhere.

This left me with a deep sense of sadness. Here were people, that we always felt were fighting against the CCM strategies, but they were not fighting us, they were trapped between two structures in the hierarchy that made them feel isolated from all the structures in the organisation that they belong to. In the past, our biggest problems at CCM with the CMOs were that we felt that they were doing their own thing, not collaborating with us, but maybe the problem was on another level.

Maybe we must see them and listen to them and see that they are trapped in a hierarchical structure that made them feel uncared for. Including them in close relationships with us, even just inviting them to our year-end function would make them feel included. So in the second half of 2013, CCM had a strategic planning session, where we invited all the CMO's and we spent some time together talking about important strategic issues and I could already see a change in perspective.

During the session we focused on priorities, or what was called the "Elephant in the room" and again I wanted us to focus on the student but because of personal concerns, staff had our attention but was fragmented between issues in regions, colleges as well as all other stakeholders. In the end, however, the CMO's felt closer to CCM and understood better what CCM was doing, but still, they had to go back to their regions and colleges and work directly under the Deans and regional directors who did not share our vision.

And in the process the student also gets a fragmented view of the university. As a Unisa student, I have now been exposed to the way Unisa communicates with students. I receive e-mails or SMSs from the university when myUnisa is down or when there is an SRC election, but mostly I receive communications from the College. Much of it is invitations for M and D workshops, but every now and again I get a newsletter form the College of Education with which I am registered. I find these very confusing, and I almost always delete them, because they contain information that is not relevant to me. I am a student, interested in doing my doctorate and I'm not interested in what the college is up to. But when my supervisor sends me an email, I always notice it and if she recommends that I attend a workshop, I always go.

The basic principle is that if you have an intimate relationship with someone, you feel emotionally drawn to information they give you because of that emotional connection but also the information sent to you is always relevant to your particular context.

To further illustrate the point, a few years ago, a friend of mine was living in China and registered at Unisa. Due to administrative difficulties she experienced with registering from China, she gave my postal and cellular phone details in order to overcome the difficulties. During that semester I received numerous

packages and SMSs from Unisa. Some of the packages simply contained stationery from the university which she did not need or want and some were letters, but the most disturbing was the amount of SMSs I received. Some were for student support events at places often more than a thousand km from where I live, or for invitations to workshops that had nothing to do with the modules my friend was doing. In other cases I received more than one invitation to the same event. I felt that Unisa was sending me a lot of spam and that those unnecessary SMSs diverted the student's view from the important.

Personal and relevant networks of communication therefore do not exist and the student must sift through the mass of information sent to him or her in order to understand what is relevant. A semester is a very short period and students tend to only focus on what they think is important and often miss the messages that the university considers important. Social media sites, seem to work for those students with Internet connections and they respond much more to posts that they consider relevant, especially when we encourage them during examination time or give them tips on how to study or write assignments. But when we post messages about a wonderful function at Unisa or a new collaboration agreement their reaction is very poor. Maybe it is time that we stop shying away from creating small personalised and relevant communication groups with students where they can feel heard and cared for. Where there is a sense of community and a sense of place where they can receive encouragement and collective co-operation in the learning process.

6.7.3 Reflecting on humanness at Unisa

Distance education seems to be in direct opposition to the close intimate communities that we as humans crave and are best suited to learn in. It seems that the university is viewing the size of the student population as a stumbling block in creating small networks of intimate creative learning. Just consider how many people we would need to create such a network? What would we need to do to create such caring and co-operative networks, where collaborative learning can take place?

But maybe the question should rather be, how can we develop self-organised networks or small collaborative communities at Unisa, where students, lecturers

and tutors can support one another and learn from one another; where they can share stories of past or present experiences where the actual content of learning is less important but rather helping each other to learn how to learn.

As we all know and I have experienced, such communities do not have to be physically close to one another. As I have mentioned before distance education does not have to be distant. The Internet and social media have made this possible. I think that part of the problem is that we think that by simply implementing new technologies, the problem of disconnect will resolve itself. But human systems are autonomous and self-organising, which means that their self-organisation determines what works and what not, not the decisions of the university. Take Facebook as an example. Who would have guessed in 2000 that a little social media platform created on a university campus would penetrate personal communication on a global level? But not everyone likes Facebook, others prefer Google + and others Skype or LinkedIn and every individual with access to the Internet will make their own choices.

If Unisa could acknowledge the autonomous nature of students and provide platforms where students, lecturers and learner support staff such as tutors can self-organise small intimate groups around issues that are relevant to them, the nature of distance learning will change dramatically. Then everyone can find a space and format that will work for him or her. Some of these networks might be based on social media, others in the physical context or others might be a combination of the two, but it will create a community of learning that will expand Unisa's reach not only to the regional centres but to every remote space in South Africa and beyond. A space where everyone is valued and a culture of collaboration, learning, respect and caring can co-evolve.

This will however not be as simple as saying it. It will require a concerted effort to break down the hierarchical barriers in our own minds, to think in terms of community and see students as part of a bigger multi-layered community and ecology of learning. This ecology must be based on a new ethics that is grounded in what Kauffman (2008) calls the sacred and Maturana and Verden-Zöllner (2008) calls the biology of love. This ecology cannot have its foundations in competition and aggression where individuals are viewed as objects, but by viewing each other as subjects and based on collaboration, respect, intimacy and wholeness and where creativity and openness to have differing points of

view are welcome. Only then can we co-evolve an ethic and culture from which a new strategy can emerge.

6.7.4 Conclusion about humanness at Unisa

Unisa's attempts to create institutional efficiencies have caused it to implement new ways of doing that are focused on efficient digital communication systems which makes students and staff members feel alienated and distant in the distance learning space. As humans we need caring, collaborative and intimate spaces (32) where we can do things together with a common goal (35) and in our case for effective learning to take place where we respect one another and where self-organised learning creates passion and creativity. As emotioning and languaging (39) beings we need such spaces to learn through passionate interaction, sharing and collaboration. Creating business efficiencies in a learning context with the main aim of financial sustainability will not create such an ecology of learning.

As humans we respond to both analogue and digital communication, and therefore we need to act caring, not just say it (43). Everyone must see each other as part of the same community with structures that separate us, but these structures are not rigid, we are all still part of the same organisation.

We need to allow self-organised networks (44) or small collaborative communities to co-evolve where students, lecturers and tutors can support one another and learn from one another. One where they can share stories (34) of past or present experiences and where the actual content of learning is less important but rather helping each other to learn how to learn. Such communities do not have to be physically close to one another since the network society has proved that technology can bring us closer together if we use it to aid open communication. The network society has created a context where distance learning does not have to be distant. The Internet and social media have made this possible.

In terms of communication we need reflective spaces (38) where we can talk freely (39) and create a common understanding by sharing our stories (42) in order to create a culture that is rich in ideas, creativity and ethos. (44) This

ecology must be based on a new ethic that is grounded in what Kauffman (2008) calls the sacred, Maturana and Verden-Zöller (2008) call the biology of love, Bateson (1980) calls the ecology of ideas and Morin (2008) calls fellowship. Here, collaboration, respect, intimacy and wholeness evolve and creativity and openness to have differing or even opposing points of view is welcome. Only then can we co-evolve an ethic and culture at Unisa from which a new strategy can emerge.

6.8 Learning in a complex world

6.8.1 Introduction to learning in a complex world

As humans we learn best in an organic context where there is a sense of place with a culture based on respect and close intimate relationships and where the uniqueness of the student is treasured and passion is encouraged (46, 47, 48). In such a context learning should be relevant to the needs, passion and life circumstances of the student. (50)

Learning is a co-evolutionary process (53) that happens in self-organised networks (51) of connectedness between various levels of networks and logical levels and where learning to learn creates deeper learning. This happens through conversation to create meaning (54) and where the teacher is the learner and the learner is the teacher. Technology can form part of such a process (52) of self-organised learning by opening channels of human communication and mutual encouragement. (51)

Learning does not only happen in the context of intellectual thinking but needs the ability to see pattern, meaning making, an awareness of process and connection forming and an openness to be involved in networks and their changing nature (54). The ability to recombine ideas to form new novel ideas requires rigorous scientific and creative, emotive "thinking". Therefore learning is a co-evolutionary process between the learner and teacher or a conversation to create meaning; it does not have to be based on a hierarchy of learning and this includes assessment processes. (55)

New learning models requires new academic thinking about openness, transparency, and diversity and flattening of hierarchies that will allow the redistribution of decisions and openness to new ways of looking at science and the world. We therefore need a complex perspective on education which includes understanding knowing, integrates subjects in a holistic context, understands the human condition and an earth identity as well as confronting uncertainties through a process of learning to understand each other and a new planetary ethics.

6.8.2 Unisa and learning in the complex world

Vignette

A few years ago, I enrolled for two modules at Unisa, partly because it formed part of a professional development plan for Unisa staff, but also because I wanted to see the Unisa processes in action. So, for the first time in my life, I studied distance learning. Within a week of registration, I received a study pack in the mail, which I had to pick up at the post office. All my study guides were in the pack together with many other pamphlets and brochures, which I ignored because I knew I had very little time to study. I immediately opened the study guides and tutorial letters and read them and noted down my assignment and examination dates.... And then forgot about everything. A few days before my assignments were due, I took out the tutorial letters and did my assignments.

When I had to hand in the assignments, I felt quite nervous to hand them in online. Honestly, I just did not trust the system to work. Although I was part of the team working on the student portal I did not trust it. I ended up handing in my assignments at the assignment boxes on campus. I soon received my feedback but noticed that my lecturer did not mark them but someone else did. It made me feel a little worried but I did well and continued to do nothing until the second assignment was due. This time I had the guts to hand in online but the feedback came via the postal services.

Then examination time came closer. Unisa gave me two days per module off and I stayed home and studied very hard. This took me back to my previous studies and methods of trying to cram information in my head in order to pass

the exam. This time, however, I felt much more disturbed by the process. I knew by now that a few weeks after the examination is done I will not remember the content. I craved a space where I could debate some of the issues in the content of the study guide that I either disagreed with or had additional opinions about.

There was however, no space for interaction and no space for debate. All that was needed was for me to walk into the examination hall and regurgitate what the lecturer wrote in the study guide. The administrative process of writing examinations was a very impressive experience. We wrote examinations in the Pretoria Show Grounds in a massive hall with thousands of little examination desks and chairs. Everyone was shown to his or her chair by the invigilator and everyone got the right examination paper to write. I remember thinking that the Unisa machine is working well. And the machine was working well, but what did I learn? I can barely remember the name of the course now and can vaguely remember something about project management and communication skills, but for the rest, it has left my memory and I did not attend the certificate ceremony or even collected my certificate.

Contrasting this experience however with doing my MA (social sciences) degree at Unisa, it is almost not comparable. When I was selected for the Master's programme, only six to eight students were selected. We had classes on one full day a week and one week per month consisting mostly of discussions relating to theoretical themes and practice sessions in family therapy. Over the two-year period the small group that I was part of and our lecturers became very close, and even though it was more than 20 years ago, I still have contact with some of them. They changed my life. I learnt not only about the theory, but also from everyone who formed part of that group, students and lecturer's life experiences, joys and heartaches. Even though I also had to study and cram information in my head for formal examinations, the process was much more personally beneficial, life changing and enriching. I would not exchange that experience for anything. Learning with others, sharing yesterday and today's experiences with one another and our dreams and passions gave us the time to integrate the theory into our inner beings, and all of us left the course enriched and empowered.

6.8.3 Reflecting on learning in a complex world

The purpose of learning is not to gain a degree or certificate but to learn that life is a process of learning. Formal education, in addition to giving us a lot of information, also enables us to know that knowledge is accessible and teaches us the process of how to process that knowledge. Most universities, however do not teach that process and most of us who discover this, do so through our own processes of discovery. Many end up with certificates and degrees that they cannot apply in practice because that learning must continue in our living.

As I have personally experienced, as humans we learn best in a collaborative, close, intimate community of learning with a culture of openness and respect for our own uniqueness. In such a context we not only feel safe to explore knowing, but we can also contextualise the learning in our daily personal living and for our own needs, passion and life circumstances. Most formal courses do not do that and therefore many students are left with little bits of unrelated information that they cannot apply.

If learning communities can be encouraged and created where learning can happen in a co-evolutionary way, students will not only learn the subject at hand but also learn from each other about sharing ideas and about the process of learning. This, as mentioned earlier, can be a very costly exercise if the university has to set it up. We have seen in chapter 4 various examples of self-organised learning environments or SOLEs where the only thing the university has to do is to encourage self-organised groups of students to come together in a process of discovery and provide some sort of encouragement to keep the motivation levels of students up.

Such networks can develop face-to-face but also on technology platforms, but should be flexible enough to allow students to choose their own preferred platform of communication. In this context, a new way of thinking is required by lecturers, tutors, communications officers and mentors which is more open, encouraging open thinking and the ability to see a pattern, meaning making, an awareness of process and connection forming and an openness to be involved in networks and their changing nature. In this context not only learning about the subject at hand is required but also bringing in related knowledge of other fields

that connect to the particular subject.

It requires a culture of openness to recombine ideas and form new novel ideas by rigorous scientific and creative, emotive "thinking". Learning cannot then be a set of information that you memorise but the information given by the lecturer should be debated and engaged with in a co-evolutionary process between the learner and teacher/tutor or a conversation to create meaning. However, the problem in Unisa as with most universities is that they are extremely hierarchical and a total culture change in the organisation is required where everyone's voice is heard. Where assessment is not only about writing an assignment or examination but looking at the individual's ability to think and apply learning in a wider context of living and learning.

Probably the greatest change for Unisa will have to be a new academic thinking about openness, transparency, and diversity where the academic is no longer the absolute expert that must fill the empty vessels of student ignorance. The knowledge students already have can be used in the co-evolutionary process, because knowing is about understanding life. The academic community will therefore have to "climb out of their own narrow subjects" and also develop an interest in subjects related to what they teach in order for them to obtain a more holistic view and a context of understanding of how their subject fit into life and the human condition.

This will most probably create vast uncertainty amongst academics and students but the process of going through these uncertainties will form part of the learning to live with the uncertainties of life and learning to understand each other. This more complex perspective on distance learning will enable us to see the uniqueness of every student and lecturer in order to find new and innovative ways to teach and learn. One where we can learn to respect one another but also to attend more to the bigger planetary issues and ethics. We should not shy away from these issues, because unless we respect and become open to new ideas, we will not be able to create scholars that can focus their attention on the interconnections between our issues, such as how the economic issues impact on the environment as an example.

6.8.4 Conclusion regarding learning in a complex world

As humans we learn best in collaborative, close, intimate communities (47, 49) of learning with a culture of openness and respect for our own uniqueness (50). In such a context we not only feel safe to explore knowing, but we can also contextualise the learning in our daily personal living (46, 48) and for our own needs, passion and life circumstances. In order to create an ecology of learning we need a new epistemological and cultural foundation; one where we value the student and all members of staff as part of the ecology and where everyone can make a contribution to the co-evolution of the ecology. Where learning is our first priority, but not top down learning, rather co-learning and learning about learning so that students can go into the world knowing how to deal with life and have the ability to participate in personal, local and global issues.

There are many examples of where self-organised learning (51) has worked but it would be impossible to replicate such models at Unisa because Unisa is unique and must co-evolve (53) its own new ecology. This will entail encouraging the formation of learning networks that can take place in various platforms, whether face-to-face or technology enabled where meaning making is priority (54). They should however be part of the co-evolution of the context, the learning network and not impose on the entire student body (56). It should be done in a flexible manner so that students can participate in conversations where their own preferred platforms of communication can co-evolve.

It requires a radical new way of thinking by lecturers, tutors, communications officers (57), mentors and even students and alumni; where open communication and open thinking is encouraged, where the ability to see patterns, meaning-making, awareness of process and openness to be involved in networks and their changing nature is understood. It requires a culture of openness to recombine ideas and form new novel ideas by rigorous scientific and creative, emotive "thinking" and where assessment is not only about writing an assignment or examination but looking at the individual's ability to think and apply learning in a wider context of living and learning.

This will require a new way of thinking at Unisa about openness, transparency, and diversity where the academic is no longer the absolute expert that must fill

the empty vessels of student ignorance and where the university is no longer the only centre of knowledge. Information that is freely available, the subject matter presented by the lecturer and knowledge students already have can be used in the co-evolutionary process, because knowing is about understanding life. Cross-subject discussions should be welcome and lecturers will have to broaden their interest beyond the subjects that they teach in (58).

6.9 Complex thinking and the ecology of action

6.9.1 Introduction to complex thinking and the ecology of action

In order for us to find new more creative ways to manage organisations we need a new way of thinking. Complex thinking requires that we have the ability to unite the opposites in life, therefore have the ability to dialogic thinking (60). Due to the fact that life is unpredictable (61) and has become more unpredictable we need to embrace uncertainty and respect that systems need adequate time to create meaning especially in processes of change (63).

Essentially change needs a context of creativity (64) and where unpredictability is built into our strategies we can allow change to co-evolve. An effective strategy is therefore not to plan the future too closely but to propose scenarios (65) that will ignite the creativity of the members of the organisation.

6.9.2 Unisa and complex thinking and the ecology of action

Vignette

As I have explained in some detail in section 3.3 of chapter 3, the Student Communication and Marketing Strategy and Project has been implemented over the last five years or so. My own involvement has been that of project leader and coordinator and on the one hand it had been a very enriching experience but also very frustrating. I did not realise at the beginning how much detail would be involved, but I learnt quickly and every year I updated the strategy document based on what we learnt the previous year, updated the project plan as well as

the printing schedule, and every year, none of these due dates, although they were meticulously planned, were met.

One of the most difficult parts of trying to develop a strategy was that I was limited by the scope of the project, making brochures and websites better and responding to social media posts, whereas most other student communication responsibilities were in other portfolios. Transactional systems were managed by ICT and enquiries became the problem of the registrar's office. Although we are working for the same organisation it has been very difficult to unify strategies, because everyone would develop their own plans and specifications to get their piece done and in the process we forgot about an essential strategy for student communication. What is it that we want to achieve, how will we do it, but most importantly, why do we want to create better communication channels with students?

I have realised through this journey of exploring humanness, ecological and complex thinking that we are all just trying our very best to do our little piece and in the process we don't think about the most important part, which is not just the student but the whole ecology of learning in the distance education environment. So we need to ask ourselves some very essential questions.

One of the questions is: Why do we want to communicate with students? Do we just want them to have the right information in order to go through the assembly line of distance learning and the student walk and then we think that they succeeded just because they graduated? Or do we want to create a learning environment that is rich in interaction and relationships, a network or an ecology of distance learning, where you can find Unisa anywhere as long as a few students find each other? Creating spaces where people can learn from each other, not just about narrow subjects but about life, and living in a complex world where learning together through caring, collaboration and respect can create a better life for every individual and the global community, including humans, but also all other living creatures.

The second question can be: How do we want to set up such an environment? Living in a mechanistic world, one often thinks that as soon as you have defined the problem, you must either just go ahead and fix it or find a model that worked somewhere else. But in a living world it requires something else, it requires the

emotional will and passion to change the way we think and that will then change our plans which might help us to change our behaviour.

But it begins with a deep understanding of all the parts of the bigger whole. In the student communication project it took me a long time to stop getting upset and angry at colleagues not meeting deadlines, but I realised that I had to develop empathy with everyone's position in order to find a way of getting through the process. And these are some of my insights.

I became aware that the academic community wants flexibility in the offering to students. Academics want to be able to make changes to the qualifications as often and as late as possible in order to keep their qualifications relevant and dynamic. Senate makes decisions about qualifications usually in March and June and academics want to be able to make such changes at any of these dates.

The academic planner's office and the Directorate for Programme Accreditation and Registration (DPAR) must process these changes both in terms of government approval but also ensure that the Academic Information Management System (AIMS) is updated on time in order for us to extract the data to publish on the web and brochures. This process requires time. Because AIMS is used for student registration, the database cannot be updated between June and the close of second semester registration which is around end of July. This means that DPAR must update all the changes proposed by senate and then send them to all the stakeholders in the registration section as well as academics to approve it. We have learnt now from experience that this process takes about three months to complete, which means that we only receive the information signed off by the end of October. Printing takes a month because of the large volumes so the brochures are only ready to be mailed to students by the beginning of December and often reaches students very late.

The layout and design aspects must still be done in between approval and printing, but together with ICT we have developed a system where we can create brochures and websites within a few days, but that process is dependent on key individuals in my directorate and ICT and if someone gets sick or is not available it usually sends us into a major crisis. In the last year or so, there have also been questions from management why we print brochures at all, and it might be

that by 2016 no more brochures will be printed.

The administrative staff members working with applications and registrations are however very worried about that because they feel that they will be inundated with enquiries if the brochures are not printed. This process also sends our printing and dispatch departments into crisis, because they must print and mail, especially the registration brochures at the same time as printing and delivering study guides.

My first reaction is that we cannot meet our deadlines; based on the dominoes and mechanistic approach we follow, but looking at this from a meta-position or seeing all perspectives as equally valid the picture changes dramatically. I have heard many students say that they don't read the brochures and I have heard many front-line staff say that students often leave their brochures at home when they come to register. This means that front-line staff have to give the student a second copy. Why, once again, do we apply the rules of one-size fits all? Can regions not get involved and ICT not just implement our ideas but develop ideas together in terms of how to ensure that each student gets the information at the right time and in the format that they prefer. We have never even thought of asking students whether they want brochures printed or in a digital format.

So at the moment different people have different visions for student communication. Even the student communication policy committee that was started in 2013 to a large extent excludes the academic community. One or two academics are invited but the main focus is on information, transactional systems and enquiries. It seems that we must go back to the drawing board, and ask ourselves, what kind of university do we want to be? Do we want to be an assembly line that creates graduates, or a distance learning university that will engage our students in opportunities to connect and build networks of learning that will empower them to not only make their own dreams and passions come true but also make a contribution to creating a better life for all?

So when we go back to the drawing board we must ask ourselves at least some basic questions. Why are we offering distance learning? The answer can either be to be an efficient high performing university that will produce many graduates based on a model of distant learning where we minimise analogue interaction and maximise digital, thin communication. But maybe we can be a university

passionate about learning that wants to create an ecology of learning across South Africa, Africa and maybe even the world, where collaboration and learning takes place in a context of caring and encouragement to empower people and help them make their own futures happen.

How will we create this new system? The honest answer is, I don't know, but the ecology knows, everyone who is part of the system will know a little bit about how to make it happen. The more we communicate and talk to one another in person, look each other in the eye, sometimes using digital media, we will find ways in which to create this ecology together, it will co-evolve in maybe very unpredictable ways but it will be authentic and relevant to us as an ecology and will be rich in the empowerment of many.

What will it take to create such a system? As I have mentioned before it will have to begin with passion, and then sharing that passion, talking about the passion until we all share that passion. That will drive a new strategy with a singular aim towards which everyone can work.

6.9.3 Reflecting on learning in a complex world

It is easy to want to find simple solutions to the complex problems of our time. At Unisa, there are many complex problems and we also fall into the trap of wanting to find easy solutions. But this is like trying to fix a tornado with a screwdriver. One rather needs complex thinking or dialogic thinking; being able to see all sides of the story, and the whole and all the parts reflected in one another. Only when we develop that ability can we unify ourselves into a single ecology or system and can we have a complex enough view of the system in order to start looking for collective ways to communicate better. This view is a much more African view of life where we are all a reflection of each other and we embrace the good and bad in each other as a reflection of ourselves.

This will be an uncertain journey that we cannot plan or predict too closely or have too many fixed ideas about. We must therefore develop openness in thinking, where we also embrace other ideas that differ from ours. Where we can find common patterns that will lead us to new paths of change, where we can co-evolve new solutions for distance learning in order to bridge the distance through

passion, dedication and a little bit of technology in order to no longer be a distant learning university.

Maybe it is time that we listen to Morin (1999) where he suggests that we create an education system that not only teaches knowledge but the nature of knowledge, or learning about learning and also teach the context of learning across various subjects. That we discuss, curing the process of teaching and learning how our humanness impacts on our earth identity and our own survival on the planet. Where we have the guts to create a space to live with the uncertainty of very different opinions but through openness and respect confront these uncertainties through a willingness to understand one another. By doing this, we will create a new ethic and culture at Unisa, not only for ourselves in our small networks but also in the bigger Unisa ecology and hopefully that will filter through to South Africa and all humanity.

6.9.4 Conclusion regarding complex thinking and the ecology of action

Complex systems have a memory need for time to reflect (63) on the change and stability and the co-evolutionary process cannot be closely mapped into the future. At Unisa we have seen how both staff and students have demanded that the new business model be stopped so that the institution can thoroughly reflect on new ways of being a distance learning institution.

What we need is to unify ourselves into a single strategy or ecology of action or ecology of ideas, where we can embrace our complexity and where we can co-evolve collectively new ways to communicate and learn better (65). This view is a much more African view of life where we are all a reflection of each other and we embrace the good and bad in each other as a reflection of ourselves.

It will require that we will have to learn to live with uncertainty because the future cannot be planned and predicted. A new strategy will have to include ways to develop a culture of creativity and openness in thinking (64), where we embrace ideas that we are opposed to; where we can find common patterns that will lead us to new paths of change. This new strategy for Unisa's student communication will have to be a co-evolutionary process where new solutions for distance learning can emerge in order to bridge the distance through passion, dedication

and use technology in order to no longer be a distant learning university.

The strategy must include not only the co-evolution of a new culture, but a common vision grounded in passion and an emotional connection with our students and the process of learning (60). This will empower us to find our humanness and see how what we do and learn impacts on our earth identity and our own survival on the planet. By doing this, we will create a new strategy that is flexible and embraces an unpredictable (61) uncertain future (65). Thus a new ethic and culture can co-evolve at Unisa, an ecology of small networks nested in bigger networks until it extends across South Africa and maybe even have a positive impact on all humanity.

6.10 Conclusions

6.10.1 Two opposing world views

It is clear that many challenges face Unisa today. One of the most pressing issues is that students are not satisfied and not very successful in the Unisa context. The prevailing industrialised hierarchical organisation culture creates divisions and competition between various sectors in the university as well as amongst the university and students. Even though most people embrace technology and groups in the university, there is a lot of resistance amongst staff and students, based on resource limitations, lack of skills needed for the new cybernetic age and the fear of losing jobs.

It is difficult to build interdependence and closer contact in such a large organisation especially with the student/lecturer ratio of approximately 200:1. The student body is also very diverse and not integrated into a single interconnected network that is self-organised and unified. Although these challenges seem insurmountable a new framework is required that will view Unisa as a living system, networked in the interconnectedness of all its parts.

However, before we can think of any possible new framework we need to ask ourselves some serious questions and make some decisions. We need to decide on our epistemology. What comes first? Do we want to be a high

performing and efficient university that alienates our students and even our own staff, or are we driven by our passion for education in the distance learning environment and helping our students and academics to create collaborative spaces for interactive intimate learning or do we want to be efficient.

I know that these are not mutually exclusive, but what comes first? What is our first priority and what drives our behaviour? It seems that at the moment efficiency and financial sustainability comes first. Maybe we need to go back to our original purpose and passion and together develop a vision that speaks to our hearts first that will bring us all together to work together on achieving this common goal. Do we want to be distant or connected to our students? This is a dilemma when you have 400 000 students, but by creating a vibrant, living system, we can co-evolve a new ecology of distance learning that will be in all of us and that can grow with every new student we enrol.

The next question speaks to our humanity. Do we want to value staff and students and teach them to value each other? Do we want to respect the system and allow it to co-evolve into more complex self-organised structures and systems where people both academics and administrators and also students can be creative, collaborative and caring. Do we want to be like a machine or a living dynamic creative university where we consider each other as subjects and where we consider the relationships between ourselves as sacred?

The last question is do we want vibrant learning environments where our students can learn to be citizens of this country but also the world? Do we care to face the uncertainty and follow our passions, trusting the process?

At this point I think it would be useful to reflect diagrammatically what we have found so far and plot the differences between the business/mechanistic model that reflects more closely Unisa's current institutional culture and the ecology of learning.

	Business/mechanistic Model	Ecology of Learning
Epistemology	<ul style="list-style-type: none"> • Mechanistic Model 	<ul style="list-style-type: none"> • Ecological viewpoint
	<ul style="list-style-type: none"> • Focus on parts and problems 	<ul style="list-style-type: none"> • Focus on relationships
	<ul style="list-style-type: none"> • Parts can be fixed if broken 	<ul style="list-style-type: none"> • Systems do not break, they reflect their self-organisation recursively
	<ul style="list-style-type: none"> • Control will make the system more efficient 	<ul style="list-style-type: none"> • You cannot control the system and efficiency lies in the co-evolutionary processes
Wholes vs. parts	<ul style="list-style-type: none"> • System is viewed as parts that must fit hierarchically in position • 	<ul style="list-style-type: none"> • System is viewed as interacting parts and networks nested in one another
	<ul style="list-style-type: none"> • The whole is simply a collection of the parts 	<ul style="list-style-type: none"> • The whole is a reflection of the recursive interactions of the parts and the parts and whole reflect one another
Living vs. Dead	<ul style="list-style-type: none"> • Policies and procedures govern the system 	<ul style="list-style-type: none"> • People and living interaction co-evolve into the system
	<ul style="list-style-type: none"> • Hierarchies keep the system intact 	<ul style="list-style-type: none"> • Self-organisation and co-evolved networks create the system
	<ul style="list-style-type: none"> • Control and programmes create simple one-size-fits-all solutions 	<ul style="list-style-type: none"> • System is characterised by diversity and unpredictability and uniqueness is celebrated
Change	<ul style="list-style-type: none"> • Models for change intervention and adoption can be developed 	<ul style="list-style-type: none"> • Respect for the complexity allows the system to self-organise into unique solutions based on openness and flexibility
	<ul style="list-style-type: none"> • Outcomes are planned and imposed through control and one-size-fits-all solutions 	<ul style="list-style-type: none"> • Reflective debate creates new innovative ideas
	<ul style="list-style-type: none"> • Formal structures and committees manage control 	<ul style="list-style-type: none"> • Self-organised networks co-evolve and create a culture
	<ul style="list-style-type: none"> • Timeframes are imposed in order to ensure efficiency 	<ul style="list-style-type: none"> • Adequate time is needed for change to co-evolve
Human vs. machine	<ul style="list-style-type: none"> • The system or organisation is like a machine that can be managed and controlled 	<ul style="list-style-type: none"> • The system is a living, languaging, cultural complexity •
	<ul style="list-style-type: none"> • Focus high performance to make the system more efficient and such a culture is imposed on the system 	<ul style="list-style-type: none"> • Human emotions, passions and desires and recursive languaging create an organisational culture

	Business/mechanistic Model	Ecology of Learning
	<ul style="list-style-type: none"> The work gets done through formal structures and plans 	<ul style="list-style-type: none"> Focus on collaboration, trust, openness and caring to create a vibrant culture that will make the system efficient
	<ul style="list-style-type: none"> Community is not necessary for efficiency 	<ul style="list-style-type: none"> Communities are created with a sense of place
	<ul style="list-style-type: none"> Humans are viewed as objects 	<ul style="list-style-type: none"> Humans are viewed as subjects
	<ul style="list-style-type: none"> Culture of competition 	<ul style="list-style-type: none"> Culture of collaboration, intimacy, openness and creativity and the sacred space between us
Communication	<ul style="list-style-type: none"> Most communication is in digital format due to the perceived efficiency 	<ul style="list-style-type: none"> Communication is both digital and analogue to ensure humanness in all its complex facets is respected
	<ul style="list-style-type: none"> Culture of control 	<ul style="list-style-type: none"> Culture of respect, openness, caring and collaboration
Learning	<ul style="list-style-type: none"> Learning happens in a conveyor belt system which produces graduates 	<ul style="list-style-type: none"> Learning happens best in an organic environment
	<ul style="list-style-type: none"> Student is an empty vessel that must be filled with knowledge 	<ul style="list-style-type: none"> Student is part of the co-evolution of knowledge and knowledge is the product of co-evolution
	<ul style="list-style-type: none"> Academic controls knowledge 	<ul style="list-style-type: none"> Learning is the process of meaning making through the process of learning to see patterns and connections
	<ul style="list-style-type: none"> Learning does not require relationships but simply a transfer of knowledge. The relationship can therefore be distant 	<ul style="list-style-type: none"> Learning happens in intimate connected relationships
	<ul style="list-style-type: none"> Learning is about transfer of knowledge and subject-based 	<ul style="list-style-type: none"> Learning is not just about learning the subject but also to learn how to learn and learn about the nature of knowledge; learning is both about the subject and its relevance to local and global issues
	<ul style="list-style-type: none"> Academic is the expert 	<ul style="list-style-type: none"> Academic is the facilitator of co-evolution of networks of ideas

	Business/mechanistic Model	Ecology of Learning
Strategy	<ul style="list-style-type: none"> • Management develops strategy and the rest of the system must implement 	<ul style="list-style-type: none"> • The system co-evolves strategy based on the core passions that drive the organisation
	<ul style="list-style-type: none"> • Strategies are imposed 	<ul style="list-style-type: none"> • Strategies are co-evolved
	<ul style="list-style-type: none"> • Implementation plans are detailed and rigid and plots interdependencies 	<ul style="list-style-type: none"> • Implementation plans are not too detailed and make room for the unpredictability and uncertainties in the system
	<ul style="list-style-type: none"> • Strategy is based on rational drivers 	<ul style="list-style-type: none"> • Strategy is built on collective passion
	<ul style="list-style-type: none"> • Focus on simple one-size-fits all solutions 	<ul style="list-style-type: none"> • Focus on the complexity of the system and respect it
	<ul style="list-style-type: none"> • The future must be planned and controlled 	<ul style="list-style-type: none"> • The future is uncertain

Table 6.1: Business/mechanistic model vs. ecology of learning

6.10.2 Towards a new framework for student communication at Unisa

If you asked me which one of these epistemological views I choose, my answer will of course be the ecological and complex point of view. I want to be part of a living dynamic university that is full of life, caring, collaboration and creativity, where we trust one another and work together towards this common goal. Where we value each other and our relationships so much that we consider them as sacred.

So what would a new framework for student communication at Unisa look like if it were based on an ecology of distance learning? It would start with a clear epistemological position and purpose. Are we a mechanistic, efficient, high performing, financially sustainable organisation first or are we first a learning organisation that creates collaborative spaces for interactive intimate learning that will be relevant for our own lives and futures but also for our country and planet. An ecology of learning would focus on how to create a learning community where interaction, support, collaboration and respect are the most important values.

The natural consequence of clarifying the epistemology and values would be to define a clear vision based on why we do it and our passion and emotions. Something like “creating futures together” or “making our futures happen”. However, I would not presume to know what that vision should be, but it must be emotive and built from the passions of people and should be co-evolved based on reflective discussions and agreed upon and co-evolved in the institution including a large part of the student body.

In the co-evolutionary process of creating this vision we will then co-create a new institutional culture based on trust, collaboration and caring. No culture change programme will be necessary because the process of collaboration will co-evolve the culture. This culture will then not only apply to staff but also how we relate to students and we will ensure that our students become part of this culture. This culture will be based on:

Epistemology based on holographic principles and embraces complexity

- Embrace a new epistemology based on ecological principles
- View each individual, staff and student, as a holographic reflection of the bigger Unisa

Culture that is collaborative, alive and human

- Respect for the whole ecology and a focus on relationships and value it as a living, languaging, cultural complexity.
- Value the interacting parts and networks that co-evolve in the system embracing the culture that emerges. It is human emotions, passions and desires and a recursive languaging that creates organisational culture.
- Understand that you cannot control all aspects of the system.
- Value problems people identify in the system because they are opportunities and not threats.
- Manage the system as a nested network where everyone is equally valued but with different roles and the role of management is to facilitate this.
- Respect the autonomy of the individuals, networks and system as a whole.

- Embrace the diversity, unpredictability and uniqueness of everyone.
- Complex communities need a sense of place where both digital and analogue communication can enrich the culture and embrace humanness in all its complex facets.
- Encourage a culture of respect, openness, caring and collaboration where learning can happen in an organic way and where the student is part of the co-evolution of knowledge and knowledge is the product of co-evolution.

Learning that is vibrant and open

- Learning is the process of meaning-making and through the process of learning we learn to see patterns and connections. This needs intimate connected relationships and networks to ensure that the knowledge gained is more than just the subject but is learning how to learn and learn about the nature of knowledge. Learning is both about the subject and its relevance to local and global issues.
- The academic or tutor is not only the expert but also the facilitator of co-evolution of networks of ideas.

Open communication and change strategies as co-evolutionary processes

- Understand that change has to co-evolve and cannot be imposed, but opportunities must be created for co-evolution.
- Allow a self-organised co-evolutionary process to spontaneously work on issues because reflective debate creates new innovative ideas.
- Allow for adequate time for change to co-evolve and focus on collaboration, trust, openness and caring to create a vibrant culture that will make the system efficient.
- The system co-evolves a strategy based on the core passions that drive the organisation and the most effective strategy is one built on a collective passion for the whole system. Implementation plans are not too detailed and make room for the unpredictability and uncertainties in the system. The focus is on the complexity of the system and respect for it.

The only thing that is certain is that the future is uncertain but if we tackle it together, anything is possible.

6.11 Metalogue

“Hi there,” asked Rina when she connected with me through online chat. “How is it going with the writing?” “I think I have finalised my chapter 6, but it feels like something is missing. I feel that I need to close with a very specific set of plans.” “Yes, vague is not good,” Rina said, “one has to be practical.” “Yes,” I said, “it feels like I’m making far-reaching suggestions, but nobody will want to implement them. I am making suggestions about epistemology and not so much changes in practice.” “But love, can a system decide to change its epistemology or is it a matter of evolution?” Rina asked. “Mmm that is a good question,” I replied. “I think Unisa is in an epistemological bind at the moment. On the one hand it wants to be a high performing and efficient business and on the other hand it wants to be a great and caring university.” “Are these two things mutually exclusive,” Rina asked. “No, I don’t think so,” I replied “but one has to choose one.” “But why?” Rina asked. “Because that determines your priorities and therefore guides your behaviour.” I replied.

“Oh, I see” said Rina, “so if your main priority is learning, the entire university will focus on that, but if your main priority is to be sustainable then all your energy goes into that. That’s the bottom line.” “Yes, just like that,” I replied. “If money is your priority then you focus on the bottom line and competition and things like throughput rate and investments, but if teaching and relationships are your priority you place your focus there.” “Ok,” said Rina, “then you choose to go online because everyone else is going online and you want to keep up with the competition. But that’s very short-sighted.”

“Yes, it is,” I replied, “you only focus on the immediate future and how to fix the problems of today. You don’t see the bigger patterns.” “And,” said Rina, “the reason Unisa does this is because it has so many students so on the one hand it has a lot of money but on the other hand it is very overwhelming.” “So now we are stuck at Unisa with trying to fix this enormous problem that we just cannot get our heads around” I replied, “but if we look at it differently and see the student first the whole picture changes. If we see Unisa as a potential ecology of distance learning where people can learn from one another and learn from and with each other to learn so that they become emotionally and intellectually richer people, then the whole picture changes.”

"But will that make a difference in the end?" Rina asked. "You know," I said, "Unisa is only graduating about 12 000 students this Autumn Graduation Ceremony, so I think something is going wrong. If you really care about students and their futures then that will not be good enough. In addition semester modules might bring in more money for the university but it seems that lecturers and students just cannot find the time to engage with one another lately."

"Well, I have to tell you something Louise," Rina said, "I know many people who study through Unisa and almost all of them say they would move to another university if they had a choice." "Why do they say that?" I asked. "They say that Unisa is simply not talking to them anymore and that makes their studies very difficult." "That makes me feel very ashamed," I replied, "and that is why I want to say what I want to say. You know Rina," I said, "I think there are two forces at Unisa, the one that wants to focus on mechanistically and economically managing the university to be efficient and the other force that is caring and wants to teach and learn."

"Wait," Rina said, "that reminds me of evolution. Why did humans or Homo sapiens survive and Australopithecus didn't?" "Well," I replied, "according to Maturana humans evolved into a subspecies that he calls Homo sapiens amens, which means that we are loving beings and that our whole living evolved in this way. This made us into a very collaborative emotive species and this aided our survival. So when we stand together we are able to change the world around us radically, we are even changing the face of the earth." "But," said Rina, "it can be a very destructive force as we are seeing today in the way we are destroying the environment. We might in the process cause our own extinction." "That's true," I replied, "so one has to be extra careful, and that is what Maturana is saying, if we are not careful we might be evolving into a new species that he calls Homo sapiens aggressants that will lose our sense of caring for each other."

"But we must not forget what the impact of the huge student numbers has on the people at Unisa, love," Rina replied, "We cannot blame them because they are totally overwhelmed." "Yes, I know," I said, "I know. Other universities go out to schools and recruit the best students," Rina said, "and when they get those students they treasure them, but Unisa just gets more and more students without having to do anything." "Yes I know," I replied, "we are now at a point where we no longer go out to recruit students. So Unisa is focusing on other external threats," I said, "we focus on the greater demands students are placing on our systems and the threat of other online

universities and MOOCs on the global arena. So that places our emotional attention on threat, instead of caring and teaching and learning. What I'm saying is that we must place our emotional energy in our students and being a university again, one that cares about the future of our students."

"Yes, but because Unisa is so big, it makes that very difficult," Rina said. "Yes, it makes it very difficult," I replied. "So maybe we must stop worrying about that and create an ecology of learning, one that is based on networks and a culture of learning through collaboration, caring and sharing ideas." "Well," said Rina, "maybe you are right, maybe you're not writing this for Unisa, but for those little jackals sitting at the door waiting for Unisa to fail and want to steal your students." "Oh no, I hope not so," I replied, "but we have to accept that 1800 full time academics cannot teach 400 000 students effectively, not even if you have 5000 tutors."

"So are you explaining how to change that?" Rina asked. "Well, I think you can only do that within an ecology of learning and that means you have to change the whole way you think and have the guts to allow self-organisation to happen more spontaneously, allowing students and lecturers and even administrators to work out ways to create networks of learning. Now that you say that, simply going online sounds silly because that just is the same way of doing and hoping that the technology will make it more efficient." "Precisely" I replied, "it needs a new epistemology, and that means we have to start with the organisation, inside and change the culture. People must start talking to one another, self-organise in networks that will make interaction flow more freely."

"That's so exciting," Rina said, "imagine you sit in Soweto, and you talk to a guest lecturer in Iceland about climate change." "Wow yes," I replied, "or even Facebook him. And, and," Rina said, "you have a class discussion with students in Spain and Timbuktu and even maybe someone next to you in the regional centre or in our own living room." "Now you have it," I exclaimed, "everywhere where there are students, whether they are in big centres at our regional centre, or small groups living in small towns getting together or virtual groups meeting online they form part of the ecology of distance learning. We all, students and staff, create networks of learning; all you need to do is encourage networks." "And it can happen anywhere," Rina exclaimed, "in Pretoria, in Groot Marico, in Cape Town and anywhere in the world, even Shanghai."

"And," I said, "students learning mathematics can learn from students doing social work and vice versa and so we create deeper ecological and global learning and

learning about learning and learning about life.” “You know,” Rina replied, “South Africa is ideally positioned for this kind of thing. We are Africans, we know about networking and communication and caring, we are experts!” I smiled, “We are people who care about people and you know we have half a million alumni that can also become part of the network and help and learn and co-evolve in the culture of the ecology of distance education.”

“And the online thing?” Rina asked. “Well, I replied, technology is just the medium. E-learning is no different from correspondence study if we don’t learn differently and because it often still keeps the student at a distance, but real Open Distance Learning is open to ideas, open to allow people to innovate and allow them to create close and collaborative ways learning together and co-evolving the university anywhere we are.”

6.12 Chapter summary

In this chapter I took the fundamental principles derived from chapters 4 and 5 and mapped them to my lived experience at Unisa in sections 6.3 to 6.9. I mapped each fundamental against the Unisa context through a process of story-telling and reflection. In the end I came to a conclusion in each section based on these lenses I used. I also came to some conclusions and created a map of two prevailing worldviews that creates epistemological confusion at Unisa (section 6.10.1). Finally, I came to the conclusion that a new culture is needed to help both our students to thrive through an institutional culture that is based on humanness, co-evolution of learning in networks of conversation. This might empower each of us (staff and students) to be more productive and successful through a network and ecology of learning through openness, cooperation and caring.

Chapter 7: Summaries, findings, conclusions and recommendations

*I will first sit a little
I will merely listen, watching for a story
I will sit waiting for it
That it may float into my ear
I will feel it coming
I will listen intensely
I will listen down the road...
That I may walk on the wind that is my story
(||Kabbo in Gillespie, 2013:25)*

7.1 Introduction and continuation of the story

I still love libraries, but now, for me they form part of a pattern and network of ideas, ideas of all those books in the library and the people who wrote them and the people who read them and engage with them. Without the people books are just pieces of paper but people give them meaning. In addition technology and the Internet was helped me to connect even further and more intensely with the ideas of others. During this journey the Unisa librarians assigned to help me have taught me how quickly and efficiently we can connect with the ecology of ideas that each of us, studying are busy expanding through our studies.

I also love technology, and my friends often call me the gadget queen and many people ask me about my training and are surprised when they learn that I am a social scientist and that I have never been trained in information technology. They are then very curious to learn how I got into the world of web development and technology and my answer usually is that I love computers and that I have a good relationship with them. What I have discovered was that through my intuitive relationship with technology and my interest in human relations, a dialogic relationship developed in me where I am able to explore the way people and technology can complement each other.

Over two decades of connecting people and technology I became involved in student communication at Unisa and recently developed a discomfort at Unisa. I had a sense that humanness was lost. This time I immersed myself in the issues at hand through

this journey of writing a thesis. I found myself again sitting on the proverbial library floor and fell in love with the ideas Maturana and Capra, but also others like Kauffman, Morin and Cilliers. They again taught me anew about life, caring, relationships and complexity. They taught me that we are human and as humans we have alienated ourselves from the world around us through science and technology amongst others, and they gave me some insights on how we, as humans, can find our way back.

What I have also discovered was that this dialogic relationship in me, between my love for people and technology, not only exists within me but also in Unisa. We are holographic reflections of one another. I have learned that technology can enrich our social and learning environments and can lead to greater collaboration and openness but it can also alienate us from life where caring, respect, intimacy and even love is lost.

This has been a very humbling experience, but not in the obvious sense of the word. Humbleness to me, as described by Don Juan in Castaneda (1974:7) is not a lack of self-confidence but rather a way of looking at the world where you no longer concern yourself so much with what others think of you but rather to seek impeccability in your own eyes. This means that you don't know something for sure but rather to focus on your own actions and feelings and to take responsibility for your own life and stop blaming the world around you for the problems you encounter.

Through this journey I have learnt that I cannot separate myself from Unisa, in a sense we are one; a unity, and my view of Unisa is a reflection of myself and I am a reflection of Unisa. That is why I started to refer to Unisa as "we" in this thesis, because we are not mutually exclusive. On the other hand, I am also responsible for my thoughts and feelings about Unisa. They are mine and cannot be blamed on others. Both Unisa and I have grown a lot over the last two decades, but we have also lost something. We have both fallen in love with technology and efficiency, tried our best to use technology in order to be more efficient and high performing. However, technology has a way of complicating life, making digital communication easier and faster and in the process people expect of you to be more available and accessible. This leaves us overwhelmed with everyone trying to contact us, and we simply cannot cope especially if we want to control it.

This study has led me further into exploring our humanness and that we as humans crave and thrive in environments where relationships, culture, interdependencies,

wholeness, love and creativity exist. I also explored the way the world has changed and how learning can no longer be the same as it was 200 years ago. Then the world was predictable, but the world we live in today has become very complex and unpredictable and simply learning facts is no longer enough. What is then needed? What is required for us to learn in this new society we live in? What I discovered was that we need to learn in a context of caring and collaboration, in intimate relationships with others to explore learning not only in our areas of interest or subjects, but to learn in the wider sense, to learn how to learn and to learn in a networked way where we learn about learning and all the intricate connections around us so we learn about life, but also understand the global issues of today.

7.2 Revisiting the aim for the study

The objectives of the study as stated in chapter 1 (1.2) were to assess current processes and systems at Unisa and to make recommendations regarding new approaches to student communication in distance learning and specifically in the Unisa context but also to provide a new epistemological framework for communication in the distance learning environment in order to ensure academic and personal success for the student.

I decided to make this a very personal journey and use myself as the subject in the form of autoethnographic storytelling and combine that with the exploration of two more stories, humanness and ecological thinking. This enabled me to gain a deep understanding not just of the general environment of student communication at Unisa but also to explore both theoretical and personal insights into my own role in this environment. What I have discovered was that there is a parallel between my life and that of Unisa.

Unisa started out in a world that was much simpler, much as I did, where television and the Internet did not exist, and co-evolved in a world, during the 1990s and onwards, where communication and relationships began to be mediated much more through technology. In the process, both Unisa and I began to engage much more closely with technology to make student communication business processes more efficient. Reflecting on the first objective of assessing current processes and systems and making suggestions regarding new approaches to student communication in distance learning I would say that through our excitement in creating new technological

platforms and technology-mediated tools and processes to facilitate communication we somehow lost something of the quality in our relationship with people and our students. We forgot to place our focus on our students and their human needs. Reflecting on the second objective to examine the basic conditions for effective learning and communication in a distance learning environment, we know now that humans need collaborative, intimate and open environments to live and learn in and it is only in such a context that we can be happy and thrive. I have also learnt that this not only applies to our students but to all of us in the Unisa context, administrative and academic staff alike.

And finally, reflecting on the third objective to provide the university with a new epistemological framework for communication in distance learning in order to ensure academic and personal success I have made it clear that what we need is a new epistemology, an epistemology that strangely co-evolved with information technology and the network society but one that takes us back to our original humanity. One that does not start with efficiency and high performance as a means to student success and organisational sustainability, but one where people and our relationships with them form the foundation for success, both for the university and our students. By exploring Unisa through my lived experiences as well as through key documents and incidents, it became clear that we need to find our way back to our own humanness and an ecology of distance learning. To a place where we are all valued as subjects, as human, a place that will give us a view of life that is open to the individual needs of our students but also to a new ethics of openness and caring, where we view our relationships as sacred with respect for one another; one where we are passionate about breaking down the barriers between various subjects, departments, Unisa and the student.

7.3 Summaries of chapters

The journey took the form of a number of steps and phases. I wanted to tell a story of both the evolution of Unisa and humanness in terms of communication and learning and see how investigating Unisa from a new epistemological perspective, could provide us with pointers towards more effective communication and learning in the ecology of distance learning. I decided to write mainly in the first person and where I spoke from my own deep inner voice I italicised the text to ensure that the reader understands that these are deeply personal reflections.

The overview

Chapter 1 – the introduction

In chapter 1 I started to tell my story and how I got involved in student communication at Unisa and I described how I became concerned about how we as a Unisa community communicated and related to our students (1.1). I explained the aim of the study and defined clear research questions and objectives (1.2). Last I described the research process and how I conducted the study through recursive process of philosophical reflection through analytical autoethnography (1.3).

It then created 3 different versions of the Unisa story as shown in Figure 1.1 represented by the 3 circles. Through this process I explored humanness in chapter 4 and cybernetics and complexity in order to gain a better understanding of ecological and systemic thinking in chapter 5. From these 2 stories or literature reviews I distilled 7 fundamentals that then aided me in viewing Unisa a second time from a new perspective as was done in chapter 6. That process in turn provided me with a set of 7 conclusions that will now start a new process of viewing Unisa (for a third time), our relationship and myself in a different light. Through further reflection in my recommendations in this last chapter and into the future that lies ahead a conceptual framework for future communication with students at Unisa will emerge and possibly also as a conceptual framework to view any system or organisation (1.3).

Chapter 2 – The methodology

In chapter 2 I elaborated on the research process and I explored the epistemological and methodological aspects of the research (2.2). I explained my epistemological stance as constructivist, philosophical and reflective and therefore used a qualitative research approach (2.3). I explained how I decided to use Unisa's context of student communication as a case study research design (2.4) and explained why autoethnography and particularly analytical autoethnography was used together with a literature review as methods in my research (2.6). I explained how analytical autoethnography and a literature review (2.7) acted as a reflective philosophical tool by crystallising fundamentals as the basis for a reflective philosophical study that I mapped onto the case study context. I also explained how I selected and analysed data (2.8) and then discussed authenticity, trustworthiness (2.9) and ethical issues (2.10).

Chapter 3 – the first order story of Unisa

In chapter 3 I explored both a factual and more personal story of Unisa (3.3). This was my first order story of Unisa, because it was told without any theoretical or reflective lens but was simply my account of how events happened. In this section I relied on various memory organising references, but mostly relied on my more than 20 year lived experience in the Unisa context and culture. I tried to share my frustrations and our inability to create a context where students could succeed. Many of my own attempts to solve these issues were fruitless but as with most people in the Unisa community well intentioned.

In the metalogues (3.2, 3.4) I however expressed my inner battle with Unisa, and how the organisational strategies and policies pushes the student further and further away. I admitted to my role in this and how I to a large extent participated in the mechanised way of problem solving and inability to understand how the organisation can remain functional despite the doubling of student numbers. I also alluded to a possible different way of thinking by not blaming any individual but viewing Unisa as a community that attempts to address the issues of ineffective communication with students, even though these attempts do not seem to work.

Chapter 4 – The story of Humanness

In chapter 4 I started to tell the first of 2 stories that would later act as theoretical lenses through which to explore Unisa (4.1). I told the story of humanness and focused specifically on how we as humans evolved (4.3, 4.4) as co-operative, connected collaborate and intimate beings and how through our ability to control the environment around 14 000 years ago we lost some of that sense of community and started to live in hierarchical competitive environments (4.5). This lead to a society that was controlling, rigid and hierarchical and this in turn created an education system that would serve such a society (4.6).

Through new ways of thinking aided by cybernetics and complexity and technological development a new way of living, communicating and learning evolved that somehow is closer to our origins and may help us to create systems of learning that will be more effective (4.7). It therefore makes sense that an education system that is rigid, closed and hierarchical will not prepare students for this network society, especially when there is physical distance between them and the university. The marginalised

students are the most isolated, especially since they find it even more difficult to connect with the university but in general, learning is most difficult in an environment of alienation and disconnect.

Effective learning therefore needs an interconnected, collaborative and open environment where students can learn about life, the human condition, their place on earth and learn to cope with the uncertainties of the life we lead today (4.7.4). The network society has already created such an environment and if education systems can embrace this, a new way of formal learning can emerge (4.8).

Chapter 5 – Cybernetics, complexity and ecological thinking

In chapter 5 I explored the second story that would later act as additional theoretical lenses through which to explore Unisa, but this time I explored the basic principles of cybernetics (5.4.1), second order cybernetics (5.4.2) and complexity on the one hand but also the epistemologies that underlie them in Bateson's ecology of mind (5.5.1), Maturana's biology of love (5.5.2) and Morin's complex thinking (5.5.3). The basic principles of cybernetics, second order cybernetics and complexity are underpinned by ideas that are not reductionist but rather focus on the relationships and patterns of relationships which lead to a holistic view of life. Ecological thinking therefore requires a focus on and respect for the interconnectedness between us (5.5.4).

At the end of chapter 5 I distilled the 7 fundamentals (5.6) that could then be used as the reflective lenses through which I could tell the second order story of Unisa.

Chapter 6 – The reflective story of Unisa – finding a meta or second order view

In this chapter 6 I took the fundamental principles derived from chapters 4 and 5 and mapped them to my lived experience at Unisa in sections 6.3 to 6.9. I mapped each fundamental against the Unisa context through a process of story-telling and reflection. In the end I came to a conclusion in each section based on these lenses I used (6.3 - 6.9). I came to the conclusion that a new culture is needed to help both our students to thrive through an institutional culture that is based on humanness, co-evolution of learning in networks of conversation. This might empower each of us (staff and students) to be more productive and successful through a network and ecology of learning through openness, cooperation and caring (6.10).

7.4 Limitations of the study

The epistemological foundation of this study is constructivist, which means that the study is essentially reflective and that I form the main instrument of the research. My own lived experience and reflections form the basis of my findings, including the meaning I derive from it and that includes my findings and recommendations. I have however through my literature review created a clear theoretical framework for the study that I used to map these experiences and reflections against the data that I shared. The data consisted of my own lived experiences that I shared through stories and supporting documents such as policies and strategic documents of the university and videos and transcripts of an event. I used these to aid in the process of creating an ecological perspective that should be rooted in the epistemological foundations of the organisation.

This study, therefore, does not pretend to be “objective” research, as I believe that objectivity is an inappropriate concept in a constructivist. I also do not claim that this study is relevant in other contexts that are similar, however I will reflect in section 7.8.2 on possible ways to apply some ideas from this study to a wider context. I chose to be open about the fact that this is my very personal journey in the very specific context of Unisa and in taking this journey I attempted to find some basic fundamentals by walking in the footsteps of some great cybernetic and complexity scientists and philosophers such as Bateson, Maturana, Kauffman and Morin. Through their insights, and exploring the Unisa context from documents and my lived experience I can now only give my humble, personal view and imagined vision for a Unisa that shifts its focus to a place where caring, collaboration and even love becomes the first priority.

7.5 Findings and conclusions of the study

It is difficult for me to talk about findings in this study, because it was an emergent process and it is still emergent. The process of discovery has however been life changing for me. I have found that I cannot blame the system for reacting the way it does, because it is only reacting congruent to its own autonomy and self-organisation, and instead of trying to change it the way I want it, a new epistemological viewpoint is required.

I came to the following conclusions:

7.5.1 Conclusion regarding Unisa's epistemology

It seems to me that Unisa is stuck between two world-views that are in direct opposition to one another. On the one hand we want to be efficient, high performing and economically sustainable where the student is the client and where systems and software must be implemented to improve efficiency. On the other hand Unisa wants to be caring, provide flexible support to every student based on his or her needs, helping them to create better futures for themselves. This split leaves both the student and staff with a sense of confusion and disconnect.

It seems that Unisa must make an epistemological choice. Not between either efficiency or caring, but the choice of which one to put first. Which one to make part of its DNA? If we make the choice to view Unisa first from an ecological epistemology and focus on being and creating a caring, empowering and connected culture. Such a culture might allow both staff and students to be creative and connected and this in turn will enhance our efficiency.

Viewing Unisa as a complex ecology of distance learning brings with it a very different set of priorities. In an ecology, every part is equally important and valued and the relationship between the parts form the essential focus of the organisation. The focus is on building relationships and culture and with a system like Unisa is then centred on an ecology of learning and not on the knowledge transferred from the lecturer to the student. In such an ecology system IT software is developed or purchased as part of the co-evolutionary process in creating a better learning ecology. Efficiency and financial sustainability will then be an outcome of the system and will not have to be imposed on the system.

7.5.2 Conclusion regarding holism and the holographic principle

The mechanistic worldview that is prevalent at Unisa creates a culture of alienation and disconnect. A place where students are separated and isolated

from each other, the university and learning in a network society. Viewing Unisa from a holistic and holographic perspective and helping others to do the same can create a new culture where the parts don't blame each other for mistakes, but where we embrace each other with our abilities and shortcomings and where the whole is in synergy and reflects the same values of respect for the wholeness and all its parts. Such a new perspective requires first the creation of a culture where the focus is on interdependence and interconnectedness as well as understanding, care and collaboration through which we can create a new ecology of distance learning that focuses on building a learning ecology where everyone participates and that is no longer distant.

7.5.3 Conclusion regarding Unisa as a living system

If Unisa is regarded as a living system, (with patterns that connect, with interaction between its parts and containing energy allowing complex interactions) then the parts and the whole can only receive information that is news of difference and makes sense of the world in its own unique way. When the system encounters problems it recursively self-organises because it is autonomous. Every individual at Unisa views the world through the lenses of their own self-organisation.

A factory and hierarchical model that views parts of the system as objects that must adhere to the rules separate both staff and students from one another and creates a culture of disconnect and discontent. Trying to impose patterns of living on autonomous beings brings with it its own dilemmas and often an unintended culture, because Unisa as an organisation can only co-evolve based on its organisation where things do not happen but people act and do and is unpredictable. One size fits all as a solution will have unpredictable consequences. Placing people in an environment where they cannot be creative and contribute to a culture of disconnect and unhappiness and this becomes part of the memory of the organisation and has a significant impact on the pace and manner in which both staff and students perform.

Although Unisa is by law a hierarchical institution, a new cultural ethos can view that structure as nested systems where the systems are within systems or one system is the context for another system and there is no one above or below; a system that has a sense of place and a caring and collaborative community.

This will create an ethos that will guide us to more openness and self-organisation, where spontaneous initiatives are welcomed, where new contexts are created to find common solutions and find new innovative way to create an ecology of distance learning.

In such a context there can be no rigidness in finding ways to deal with complex issues and a culture of openness and flexibility is proposed. This new culture ought to be based on, many sizes fit the diverse unique many. Where openness is the norm and conflict is seen as an opportunity to co-evolve into more complex patterns. Openness in ODL then might get a new meaning; openness for new ideas, openness for everyone's opinion and an openness that will allow everyone at Unisa to thrive.

7.5.4 Conclusion regarding co-evolution and change at Unisa

Many institutions often see change, and that also includes Unisa, as a simple matter where proposed changes are imposed on the system with little respect for the autonomy and self-organisation of the system. The balance between stability and change must however be maintained. If not it often leads to resistance that can sometimes be overt and visible but often is covert and difficult to pinpoint. Testing ideas through smaller pilot projects or opening up conversations using broader platforms rather than the formal ones, including social media, might give an indication of how the organisation will react to proposed changes and prevent resistance to change.

In a new culture of openness and respect, change should not be imposed on the organisation but co-evolves in the system. A new culture based on ecology will have a sense of tolerance for each other and patience and openness to allow the emergence of new ways of being. Co-evolution requires adequate time and space to recursively reflect on the issues at hand. To have an understanding that change cannot happen either too slowly or too fast and that we cannot exactly predict how these changes will play themselves out.

In an ecology of learning the boundaries between student and lecturer might be less distinct, but the university will also not be the only node of learning, because learning and change from outside the organisation is welcomed. In the process,

self-organised learning will be encouraged, because if you do not see yourself as the sole supplier of learning, all forms of learning are welcomed.

Many more solutions (including technology) will then be welcomed as long as they aid the learning process. In such a context communication would not have central control mechanisms but we will encourage self-organised groups amongst students, the public, lecturers, administrators, alumni, and anyone who wants to be part of the ecology. In a co-evolutionary process the students can participate in creating such contexts for learning that will allow open collaboration and co-evolution of learning.

7.5.5 Conclusion about humanness at Unisa

Our attempt to create institutional efficiencies have created patterns of interaction that are focused on efficient digital communication systems which makes students and staff members feel alienated and distant in the distance learning space. As humans we need caring, collaborative and intimate spaces where we can do things together with a common goal and in our case for effective learning to take place where we respect one another and where self-organised learning creates passion and creativity. As emotioning and languaging beings we need such spaces to learn through passionate interaction, sharing and collaboration.

As humans we respond to both analogue and digital communication, and therefore we need to act caring, and should not just say it. Everyone must see each other as part of the same community with structures that separate us, but these structures are not rigid, we are all still part of the same organisation. At Unisa we need to allow self-organised networks or small collaborative communities to co-evolve where students, lecturers and tutors can support one another and learn from one another. One where they can share stories of past or present experiences and where the actual content of learning is less important but rather helping each other to learn how to learn. Such communities do not have to be physically close to one another since the network society has proved that technology can bring us closer together if we use it to aid open communication. The network society has created a context where distance learning does not have to be distant. The Internet and social media have made

this possible.

In terms of communication we need reflective space where we can talk freely and create a common understanding by sharing our stories in order to create a culture that is rich in ideas, creativity and culture. This ecology must be based on a new ethic that is grounded in what Kauffman (2008) calls the sacred, Maturana and Verden-Zöller (2008) call the biology of love, Bateson (1980) calls the ecology of ideas and Morin (2008) calls it fellowship. Here, collaboration, respect, intimacy and wholeness evolve and creativity and openness having differing or even opposing points of view is welcome. Only then can we co-evolve an ethics and culture from which a new strategy can emerge.

7.5.6 Conclusion regarding learning in a complex world

As humans we learn best in collaborative, close, intimate communities of learning with a culture of openness and respect for our own uniqueness. In such a context we not only feel safe to explore knowing, but we can also contextualise the learning in our daily personal living and to our own needs, passion and life circumstances. In order to create an ecology of learning we need a new epistemological and cultural foundation; one where we value the student and all members of staff as part of the ecology and where everyone can make a contribution to the co-evolution of the ecology. Where learning is our first priority, but not top down learning, rather co-learning and learning about learning so that students can go into the world knowing how to deal with life and have the ability to participate in personal, local and global issues.

This will entail encouraging the formation of learning networks at Unisa that can take place in various platforms, whether face-to-face or technology enabled where meaning making is a priority. They should however be part of the co-evolution of the context of the learning network and not imposed on the entire student body. It should be done in a flexible manner so that students can participate in conversations where their own preferred platforms of communication can co-evolve.

It requires a radical new way of thinking by lecturers, tutors, communications officers, mentors and even students and alumni; where open communication and

open thinking is encouraged using face to face and technology mediated communication, where the ability to see a pattern, meaning-making, awareness of process and openness to be involved in networks and their changing nature is understood. It requires a culture where the lecturer is not the only expert and where openness means that you recombine ideas and form new novel ideas by rigorous scientific and creative, emotive "thinking" and where assessment is not only about writing an assignment or examination but looking at the individual's ability to think and apply learning in a wider context of living and learning. Cross-subject discussions should be welcome and lecturers will have to broaden their interest beyond the subjects that they teach in.

7.5.7 Conclusion regarding complex thinking and the ecology of action

Complex systems have a memory and need time to reflect on the change and stability and the co-evolutionary process cannot be closely mapped into the future. At Unisa we have seen how both staff and students have demanded that the new business model be stopped so that the institution can thoroughly reflect on new ways of being a distance learning institution. What we need is to unify ourselves into a single strategy or ecology of action or ecology of ideas, where we can embrace our complexity and where we can co-evolve collectively new ways to communicate and learn better. This view is a much more African view of life where we are all a reflection of each other and we embrace the good and bad in each other as a reflection of ourselves.

It will require that we learn to live with uncertainty because the future cannot be planned and predicted. The strategy must include not only the co-evolution of a new culture, but a common vision grounded in passion and an emotional connection with our students and the process of learning. This will empower us to find our humanness and see how what we do and learn impacts on our earth identity and our own survival on the planet. Thus a new ethic and culture can co-evolve at Unisa, an ecology of small networks nested in bigger networks until it extends across South Africa and maybe even have a positive impact on all humanity.

7.6 Reflection on the conclusions

All these ideas seem utopian, and might be too, if simply imposed on Unisa, this would create great resistance, chaos and unhappiness. We cannot see these findings as part of a strategy that will be implemented through projects and processes. Unisa is a complex ecology of learning that is evolving in a very specific context of the South African environment. This provides Unisa with certain opportunities and constraints, both internal and external. The nature of the hierarchical structure and the mechanistic thinking about students and problems are ingrained in the epistemology of the institution.

So what can I, a single middle manager do to change the situation and I recently asked myself this question, do I even want to try? Can one change the fundamental epistemology and culture of an institution? Well, everything that I have said is already part of the epistemology of Unisa. Most people want to work and study in a caring ecology and management want students that are happy and successful. It requires a difference that makes a difference. Something, some new meaning that will not just be words but emotioning, languaging and living as well as meaningful reflection on the issues that we already raised.

Maybe the time is ripe now that Unisa is experiencing a sense of chaos. Maybe a set of small ideas can ignite a spark in ourselves that can, like the butterfly effect, cause massive changes across the university community. But we cannot know where and what that will be unless it already happens, because complex systems are unpredictable. So maybe I need to simply start in the small space or ecology that I function in.

New cultures evolve through emotioning and languaging, through conversations and experiencing life together and not seeing each other as a threat or competition. So where do I begin? We each need to begin with ourselves as a holographic reflection of the whole system. How can I change? How can I change my focus from first focusing on efficiency and technology to focus on students and their needs to enable a close intimate collaborative learning space?

I end up with seven questions:

- a) How can I see Unisa through new epistemological lenses based on interconnectedness, collaboration, humanness, caring, co-evolution and a learning ecology?
- b) How can I see Unisa as a whole with dynamic parts reflecting on each other and where, as one, we can create a new ecology of learning?
- c) How can I stop seeing Unisa as a machine but a living being with dynamic creative energy?
- d) How can we allow Unisa to co-evolve based on its unique autonomy into new self-organised ways of being and ecology of learning?
- e) How can we reclaim our humanness in the learning environment where collaboration, relationships, culture, love, creativity, mind, art and even uncertainty and chaos help us to find the pattern that connects us all?
- f) How can we create learning environments and a culture that reflects the above so that we can create intimate learning spaces where we can not only learn about our own subjects, but learn about learning and how to learn and to learn to all collectively become responsible citizens both locally and globally while in the process of creating better futures for ourselves?
- g) How can we develop a new strategy of action that respects our differences of opinion and even uses them to co-evolve more complex and relevant ways of being and learning in the ecology of distance learning at Unisa?

Thinking about how to implement these seven principles or answer the seven questions seems like a daunting task. However, again I realised that my own mechanistic thinking was getting in the way. It is not about how to fix things or how to change the organisation. One of the most important things that complexity has taught me is that small initiatives can have a massive impact and that solutions most often are hiding as intricate patterns in systems. However, one cannot plan and predict too closely but can look for patterns that emerge and connect with them.

I don't have to look far or wide for these, I am here as a holographic reflection of Unisa. Maybe it would be useful to start with the emotive, the human aspects and ask ourselves the three questions that Sinek (2009:55-60) asks in the order he proposes. Let's ask ourselves first why we do what we do, then how and what we do. Why do I want to create a new framework for student communication? My humble answer is, so

that we can create spaces where students can learn effectively, not just to gain the narrow knowledge of their subject, but to become happy and participating members of their local and global society.

How can this be achieved? Can we create or encourage learning spaces where our students can learn more than our narrow fields and also learn how to learn and what knowledge is about and how it can serve us in terms of our own personal, local and global needs. These spaces cannot be restrictive but need to be collaborative, open for new ideas, intimate, encouraging and caring where the knowledge of everyone is shared and combined in order to create a new future.

We know that we provide students with a lot of information and knowledge which they must learn in order to gain an education or a degree. But in the ecology of learning, where learning is a co-evolutionary process, a new way of viewing and doing is required. We must see the student as an autonomous being, who can only be what they are; so when our students don't read the brochures we cannot say that they are lazy or simply that they don't like to read. In an ecology, you might ask different questions, for instance to ask what it is in our relationship with the student that makes them so overwhelmed that they cannot read everything we send them? On the other hand, what is it about the network society that changed the culture of reading? Another question could be, why applicants think that distance learning is easy and we can explore not only how they think but also what we say to them. Maybe the way we communicate to them with models such as the student walk we imply that distance learning is a step-by-step affair that seems easy. Maybe opening up conversations with applications would be more relevant.

As mentioned previously, trying to introduce these changes might simply create further resistance in the organisation. But Unisa is currently at a crossroads. One can even say that it is in a state of chaos, which might provide me with an opportunity to look at the patterns that have emerged in the study such as the pattern of disconnect and rather connect with that. I can also not change the way others feel and think but I can focus my attention and reflections and therefore my recommendations on those areas in the organisation where I have a sphere of influence. I will take you through some of my recommendations which will demonstrate how I as an individual who is part of student communication can use these fundamentals to change my living and thinking and doing in order to encourage a distance learning ecology.

7.7 Recommendations: towards a new framework for student communication

The essence of this new proposed viewpoint was derived from the 7 fundamentals which proposes a new culture that will ensure that students and staff at Unisa create a space that is not only conducive for effective learning and working but a space where they can thrive. Such a culture would consist of:

- a) An epistemology based on ecological and holographic principles that embraces complexity based on the principles of ecology and holography that focuses on the relationships between everyone at Unisa and sees each individual, staff and student, as a holographic reflection of the bigger Unisa. Efficiency is then the outcome of a co-evolutionary process and because it is co-evolved the entire system will participate in both identifying issues and finding solutions. Our collective passion for Unisa will then drive change and our strategic intention will be on our relationships and the patterns that connect us.
- b) A culture that is collaborative, alive and human and respects the whole ecology, all its interactive parts and networks with no central control mechanism in order to allow the system to self-organise and find its own new culture. This can only be done in a culture where diversity, unpredictability and the uniqueness of everyone is embraced through respect, openness, caring and collaboration where learning can happen in an organic way and where the student is part of the co-evolution of knowledge and knowledge is the product of co-evolution.
- c) A culture where learning is vibrant and open and is the process of meaning-making. Through the process of learning we discover patterns and connections. This needs intimate connected relationships and networks to ensure that the knowledge gained is more than just the subject but is learning how to learn and learn about the nature of knowledge. Learning is both about the subject and its relevance to local and global issues. The academic or tutor is not only the expert but also the facilitator of co-evolution of networks of ideas.
- d) A culture where communication and change strategies are seen as co-evolutionary processes where people are given time to debate about their core passions especially those that drive the organisation and the most effective strategy is one built on a collective passion of the whole system. Implementation

plans are not too detailed and make room for the unpredictability and uncertainties in the system. The focus is on the complexity of the system and respect for it.

7.8 Third order reflection on Unisa: Looking inward, looking outward

This process of reflection has given me the opportunity to see myself no longer as separate from Unisa, but as a reflection of it and this empowered me to look at my role in Unisa from a very different perspective. This process forms part of the third or next order story of Unisa. This story will focus on 2 opposite sides of the conversations. The first is to look inward, to see where I am and how my own living at Unisa can have an impact. Second I can also look outward, to see what impact the recommendations can potentially have on other organisations and knowledge in the distance learning arena as well as the network society. I reflected on how some of these basic principles are universal and can be applied to other distance learning contexts or for that matter any organisation and community.

7.8.1 Looking inward

In this study I have both viewed myself at times as an outsider, looking at the problems of Unisa from a distance, but also as an insider, often feeling entangled in the Unisa issues. Understanding how ecological thinking can change the organisation also provided me with additional insight into my own role and place in it. I am not only an insider, as a staff member, or an outsider, as a researcher, but my role as staff member, student and researcher made me aware of my dialogic relationship with Unisa, where Unisa and I are holographic reflections of one another. On the one hand I therefore do not have to feel that I must present Unisa with a “complete solution” but I can participate in the ecology both at Unisa, in my broader social relationships and also in the global ecology of learning.

In terms of my own influence on student communication, I am responsible for the student communication strategy as well as for the development of a student communication policy. This is a great opportunity to, in the next few years, focus our attention on students. Not just to provide excellent service first, but rather to first develop relationships between Unisa and the student, between parts of the

organisation such as the academic and administrative subsystems in the organisation, and even how we will facilitate collaborative and encouraging environments amongst students and others, which could include tutors, lecturers, alumni and many others.

When we write new policies or new strategies for student communication, active participation of students and all sectors of the university is a basic requirement. I have to admit, that this has not happened fully in the past, and I must now create a wider network of conversation and discussion in order for us to create a context where more parts of the system and especially students can participate. If we all participate, the new strategy and policy will not be documents and processes imposed on students and staff that might anger or threaten them, but they will rather be a co-evolutionary process that we all co-created.

I understand that we cannot communicate effectively with students unless we make an asserted effort. We can do this on many platforms, on social media, in person at the regions, where we can involve the CMO's actively, or by telephone or web blogs or discussion forums or any medium that seems appropriate. The tools are not important. It is not what we do but our intentions and how we do it. It needs a culture of openness where students can share with us their experiences and we can share with them ours. If we start the conversation, many others might want to participate. All it requires is openness and respect, and the ability to listen to the conversations and create recursive conversations where the more opinions there are the more the complexity will appear and in the process, new ideas will co-evolve and more complex patterns will emerge.

It must be clear by now, that I do not think one person can develop a new strategy and impose it on the rest of the organisation. Students are however hungry to talk to the university and have an open line of communication. An open network for communication might create an overwhelming flood of conversation, which might in the end perpetuate the sense of disconnect we have with students and with each other.

Creating such a network must therefore be a self-organised system. A platform where it is clear that there is no central node of control and where students can freely share their ideas. Unisa is desperate to find solutions for student enquiries, and we often see on Facebook how students assist each other when

no one else helps them with their enquiries. MyUnisa has social media features, but the university has been very careful to implement the features specifically because they feel that the communication must be managed effectively.

Maybe we can start small and ask a few students to participate in helping other students with administrative and academic issues and allow the network to grow organically and to self-organise into more complex networks. We also need to find out from students what such a platform should look like or where it should reside, in the public domain or behind the firewalls of myUnisa or maybe both. In our own communication we must also make it clear that this is students helping students or for that matter anyone so that we do not create the expectation that there is a central node of control where we have all the answers.

This will however require capacity in the organisation, and again this can be done by freely inviting people who have a passion for student communication. Because most staff members are currently overwhelmed by the massive workload, we will have to start small and not impose such responsibility on individuals. I do however feel that a small team must be created to facilitate the process in the ecology. This team can not only be in CCM but must involve the broader Unisa and can consist of communications and marketing specialists that can organically evolve new ideas through reflective conversations. Starting to involve the SRC and other student groups in conversations about the student communication strategy and policy and extending it to further networks of conversation can do this.

Making sure that the conversations happen in small intimate groups is essential, otherwise the pattern of disconnect will simply prevail. It will require mutual understanding that there will be no central nodes of control but allow self-organisation to take place, allowing groups who feel comfortable and safe with one another to meet and discuss issues.

A very ambitious idea might be to start a pre-registration programme, involving academics, students, CMO's, tutors and administrators to create conversations about how to participate effectively in the Open Distance Learning space. One where it is not just a lecturer standing in front of a class but people sharing ideas and co-evolving networks of conversation. Maybe we can start by having workshops to introduce students to open distance learning, teaching them not

about any particular subject but helping them to understand how to learn. Maybe even workshops on how to learn how to learn ICT can be introduced. We can also help students to create networks of conversation around themselves that will stimulate conversation regarding their own area of interest and will also give them a wider view of academic issues.

Such networks will then grow from these networks where students will be encouraged to talk to other students and alumni who can further provide them with information and support. In the past we have mentioned to students that they must find a mentor, but finding one person to address their needs might place too much of a burden on the mentor. However, a network works differently, it creates freedom to participate when you feel the need to and can also teach the student that in life, we need a network of support to create our own future and become a responsible local and global citizen.

We cannot think that we can do this overnight or think of it in simplistic terms, but rather set a process in motion and allow the network to self-organise into more complex networks of collaboration. Creating a strategy and policy that encourages active conversations with students will also create greater participation in the organisation regarding the issues, where the conversations will co-evolve into a new culture of participation and collaboration, rather than a culture of aggression, frustration and completion. We can start this process through social media and conversations with the SRC and small groups of students and staff who are interested in creating a new ecology of distance learning.

7.8.2 Looking outward

Although the study was limited to the ecology of distance learning and student communication at Unisa, the fundamental principles are essentially fundamental to all distance learning environments and for that matter any human ecology. Most distance learning universities struggle with similar issues where the student feels isolated and each one tries to find their own ways of creating learning environments that are effective.

In a world that is more and more connected, where learning is no longer the sole domain of universities, and the Internet has opened up possibilities of learning outside formal structures, most distance learning universities will have to find new and innovative ways to both communicate with students and find ways of learning that is more relevant to the way people are living in the network society today. My proposal is that they place their focus not solely on issues of how technology can enhance student communication but first focus on epistemological issues. This will place the student at the centre and technology and efficiencies will then be the outcome of a co-evolutionary process for the ecology of learning.

Creating ecologies of learning where open interaction is encouraged, where there is no real central node of control, where the teacher is a facilitator and no longer the only source of knowledge and where collaboration is the main way of being, can change society fundamentally. This is very possible, because if one imagines a future where technology will be much more freely available, the marginalised can then become part of this network society and learn that learning is not just about knowing facts, but learning is about learning how to learn and becoming active actors or participants in the global or planetary network society.

In this complex global networked world where equality and the individual has again become valued, and learning is the right of everyone we must find new ways to live, communicate and learn, find new ways of becoming institutions of learning. Such new ways of thinking will make us value each other, value each individual's place in this world, value our environment and the planet we live in, but always find new ways of learning facilitated by technology that will allow us to self-organise into communities of learning. In such communities we will learn about life and knowing as we live it and possibly find solutions to our social, emotional, organisational and planetary problems.

7.9 Recommendations for further research

This opens up great opportunities for further conversation and research, both in terms of student communication, organisational culture and the learning ecology not only for Unisa but learning ecologies everywhere. In many organisations there is little

awareness of how epistemology impacts on the culture of the organisation and the way it influences the way we communicate and manage our organisations. In the learning space, the industrialised model still prevails and there is much room to explore new avenues of self-organised and network learning.

It starts with a new awareness and a need or passion to create a new culture based on our essential humanness, and a need to create a learning space that is relevant in the network society we live in. This research study could be extended once the new ecology of learning and new way of thinking co-evolves in order to provide further reflective avenues and future insights.

In addition very specific research studies could be executed, as part of the process, to track how the ecology of learning co-evolves. Instead of only tracking student satisfaction in terms of surveys, conversation circles can be tracked through their exploration on how to improve student communication. Another way would be to do an autoethnographic study as a journey with a student or students as they take their journey through distance learning to see what they struggle with and how they create meaning in the learning ecology. Last a study could be conducted on how a new institution culture co-evolves if the system is allowed to self-organise into an ecology where respect for humanness, collaboration and care becomes the first priority.

7.10 Closing remark

Alvin Toffler in Greenstein (2012:139) said, “The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.” The crisis we are facing is not one of technology or sustainability or e-learning. Our real crisis is one of our students not learning how to learn, live and love in our modern society. It seems to me that we no longer have a choice, but to allow ourselves to co-evolve a new culture that is again passionate about education and learning, but this time a new kind of learning; a learning that is passionate about lifelong learning and a learning that will make us all responsible and participating citizens of this most beautiful planet.

And so this journey continues, and I still constantly find myself browsing libraries, the Internet and engaging with friends and colleagues, to find new and innovative ways to explore a new culture based on ecology and complexity. And I will continue to find new

stories of Unisa, new perspectives that will bring us (myself and Unisa) closer to a community where collaboration, caring and real learning, learning about living on this planet in a sustainable and happy way, will be our way of life.

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Research Ethics Clearance Certificate

This is to certify that the application for ethical clearance submitted by

L Schmidt [6923453]

for a D Ed study entitled

**The ecology of distance learning: Towards a framework for
student communication at the
University of South Africa**

has met the ethical requirements as specified by the University of South Africa
College of Education Research Ethics Committee. This certificate is valid for two
years from the date of issue.

A handwritten signature in black ink, appearing to read 'CS le Roux'. The signature is stylized and cursive.

Prof CS le Roux
CEDU REC (Chairperson)
lrouxcs@unisa.ac.za

15 August 2013

Reference number: 2013 Aug/6923453/CSLR

Appendix B: Letters of permission

LETTER OF CONSENT

Louise Schmidt
PO Box 75916
Lynnwoodridge
0040

e-mail: schmidt.louise@gmail.com
Cell: 0833254951

Dear Jacques du Plessis

RE: Letter of consent to participate in study

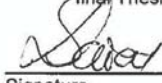
You are invited to participate in an informal interview as part of the research study by Louise Schmidt, who is currently busy with my Doctorate in Education at the University of South Africa under supervision of Prof MP van Niekerk. The title of the thesis is: The ecology of distance learning: Towards a framework for student communication at the University of South Africa.

The research method used that is relevant to this interview is autoethnography, and part of the narrative story I should verify some of the information as part of the narrative. Your participation is therefore required for this purpose. You will be required to make yourself available for about 30 minutes during which there will be an informal discussion to verify some facts that relate to the auto-ethnographic narrative to verify the researchers my memory of events or aspects and information that the research needs clarity of. The interview will be voice recorded and afterwards transcribed. The study will be emergent and therefore information might have to be verified during a follow-up interview.

Your participation in the study is completely voluntary and with no compensation. The research thesis will, however be shared with you at the end of the study. All information you shared will be kept confidential unless otherwise agreed and your consent may be revoked by you at any time. The risk to you as an individual is therefore minimal and your participation would be beneficial to the University of South Africa since it may lead to a new emerging student communication framework. The number of participants is not yet clear since the study is emergent but I expect that around 10 individuals will be interviewed.

I, Louise Schmidt, commit to the following:

- I hereby give my guarantee that I will protect the privacy, anonymity and confidentiality of the participant.
- I also ensure that any participant may withdraw from the study without penalty for 30 days after the interview.
- I will share my research findings with all participants in the form of a electronic copy of the final Thesis

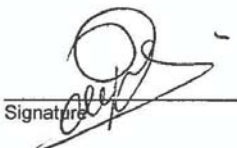


Signature

Date 4 October 2014


I, JACQUES DU PLESSIS, agree to the following:

- That I am participating in the study voluntarily
- That my opinions in the study may be used and shared in the research process.



Signature

Date 04 OCTOBER 2014

Louise Schmidt
PO Box 75916
Lynnwoodridge
0040

e-mail: schmidt.louise@gmail.com
Cell: 0833254951

Dear Rina van der Watt

RE: Letter of consent to participate in study


You are invited to participate in an informal interview as part of the research study by Louise Schmidt, who is currently busy with my Doctorate in Education at the University of South Africa under supervision of Prof MP van Niekerk. The title of the thesis is: The ecology of distance learning: Towards a framework for student communication at the University of South Africa.

The research method used that is relevant to this interview is autoethnography, and part of the narrative story I should verify some of the information as part of the narrative. Your participation is therefore required for this purpose. You will be required to make yourself available for about 30 minutes during which there will be an informal discussion to verify some facts that relate to the auto-ethnographic narrative to verify the researchers my memory of events or aspects and information that the research needs clarity of. The interview will be voice recorded and afterwards transcribed. The study will be emergent and therefore information might have to be verified during a follow-up interview.

Your participation in the study is completely voluntary and with no compensation. The research thesis will, however be shared with you at the end of the study. All information you shared will be kept confidential unless otherwise agreed and your consent may be revoked by you at any time. The risk to you as an individual is therefore minimal and your participation would be beneficial to the University of South Africa since it may lead to a new emerging student communication framework. The number of participants is not yet clear since the study is emergent but I expect that around 10 individuals will be interviewed.

I, Louise Schmidt, commit to the following:

- I hereby give my guarantee that I will protect the privacy, anonymity and confidentiality of the participant.
- I also ensure that any participant may withdraw from the study without penalty for 30 days after the interview.
- I will share my research findings with all participants in the form of a electronic copy of the final Thesis



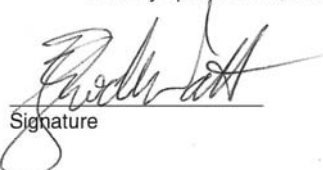
Signature

16/11/2014.

Date

I, Rina van der Watt, agree to the following:

- That I am participating in the study voluntarily
- That my opinions in the study may be used and shared in the research process.



Signature

16/10/2014

Date

LETTER OF CONSENT

Louise Schmidt
PO Box 75916
Lynnwoodridge
0040

e-mail: schmidt.louise@gmail.com
Cell: 0833254951

Dear Prof Stan Lifschitz

RE: Letter of consent to participate in study

You are invited to participate in an informal interview as part of the research study by Louise Schmidt, who is currently busy with my Doctorate in Education at the University of South Africa under supervision of Prof MP van Niekerk. The title of the thesis is: The ecology of distance learning: Towards a framework for student communication at the University of South Africa.

The research method used that is relevant to this interview is autoethnography, and part of the narrative story I should verify some of the information as part of the narrative. Your participation is therefore required for this purpose. You will be required to make yourself available for about 30 minutes during which there will be an informal discussion to verify some facts that relate to the autoethnographic narrative to verify the researchers my memory of events or aspects and information that the research needs clarity of. The interview will be voice recorded and afterwards transcribed. The study will be emergent and therefore information might have to be verified during a follow-up interview.

Your participation in the study is completely voluntary and with no compensation. The research thesis will, however be shared with you at the end of the study. All information you shared will be kept confidential unless otherwise agreed and your consent may be revoked by you at any time. The risk to you as an individual is therefore minimal and your participation would be beneficial to the University of South Africa since it may lead to a new emerging student communication framework.

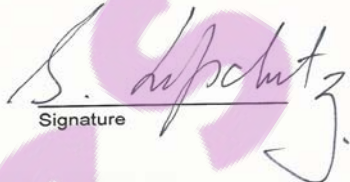
I, Louise Schmidt, commit to the following:

- I also ensure that any participant may withdraw from the study without penalty for 30 days after the interview.
- I will share my research findings with all participants in the form of an electronic copy of the final Thesis


Signature _____ Date 19 September 2014

I, DR S. LIFSCHITZ, agree to the following:

- That I am participating in the study voluntarily
- That my opinions in the study may be used and shared in the research process.


Signature _____ Date 19 SEPT. 2014.

Appendix C: Fundamentals of humanness

No	Principle linked to text	Category
1.	Humans evolved in a deep ecological way living (4.4.1 page 96) in small communities (4.4.1 page 96) where everyone knew each other in an environment with the ethical context of co-operation, interdependence and love (4.4.2 page 99).	Reclaiming humanness (32)
2.	Humans are love dependent animals and will get sick or unhappy if they function in a context of aggression and competition. (4.4.1 page 98)	Reclaiming humanness (33)
3.	In organic communities all facets of our lives formed an interconnected unity created by a web of interconnected living and story-telling. (4.4.2 page 99).	Reclaiming humanness (34)
4.	Technology (4.4.3 page 100) and learning (4.4.4 page 101) in organic communities happened in the course of living and learning was about knowing what is necessary for living now.	Learning in a complex world (46)
5.	We derive pleasure from doing things together in groups and in these groups or communities everyone is valued with joint and complementary goals. (4.4.1 page 98)	Reclaiming humanness (35)
6.	Learning happens best in context where there is a sense of place and intimate relationships exist. (4.7.3 page 126)	Learning in a complex world (47)
7.	Learning happens best when it is about learning what is necessary for living. (4.4.4 page 101)	Learning in a complex world (48)
8.	Living in hierarchies and environments of aggression and control is not natural for humans and learning in a structured environment focusing on issues disconnected from our environment is foreign to our being. (4.7.4 page 130)	Reclaiming humanness (36)
9.	All life is interdependent and interconnected and so should all sciences be in order to get the holistic more complete view of life. (4.7.4 page 141)	Holistic and holographic perspective (7)
10.	Education systems should be based on a thinking that is based on organic human living that are cyclical and dynamic. (4.7.4 page 131)	Learning in a complex world (49)
11.	Education systems should be sensitive to the uniqueness of the student and respect and treasure their passions and life circumstances. (4.7.4 page 130)	Learning in a complex world (50)
12.	Self-organised learning should be encouraged and facilitated through the opening of communication channels using communication technology on the one hand and encouraging communication amongst students as well as the encouragement of mentors. (4.7.4 page 131)	Learning in a complex world (51)
13.	Learning happens in a network of connectedness, internal connections and external connections between various levels of networks. (4.7.4 page 137)	Learning in a complex world (48)
14.	Knowledge not only resides in networks and living systems but also in non-living appliances (4.7.4 page 137)	Learning in a complex world (52)

No	Principle linked to text	Category
15.	Learning is a co-evolutionary process and the learner is the teacher is the learner. It is a conversation to create meaning. (4.7.4 page 137)	Learning in a complex world (53)
16.	The process of learning requires the ability to see pattern and meaning making, an awareness of process and connection forming and an openness to be involved in networks and now their changing nature. (4.7.4 page 137)	Learning in a complex world (54)
17.	Testing of knowledge is not only an outcome, but a co-evolutionary process of selecting a world view through constant activity of work and life. (4.7.4 page 137)	Learning in a complex world (55)
18.	Learning and knowing is a process of recombining or multiplying ideas to form new novel ideal and requires both rigorous scientific and creative, emotive "thinking". (4.7.4 page 138)	Learning in a complex world (56)
19.	A new way of thinking in education requires new academic thinking about openness (4.7.4 page 139) that requires respect and understanding. (4.7.4 page 144)	Learning in a complex world (57)
20.	We need a complex perspective on education which includes understanding knowing, integrate subjects in a holistic context, understand the human condition and an earth identify as well as confronting uncertainties through a process of learning to understand each other and a new planetary ethics. (section on Complexity in education, 4.7.4 page 141-144)	Learning in a complex world (58)

Appendix D: Fundamentals for the nature of systems

No	Principle linked to text	Category
1.	Reductionist thinking is not very useful in dealing with complex systems. (5.3. page 154-156)	New epistemological vision (1)
2.	All cybernetic explanations are negative, which means that it requires a particular way of viewing the world in order to see patterns. (5.4.1 page 156)	New epistemological vision (2)
3.	Complex systems have circular feedback and causation that implies that they have complex branching of interconnected chains of causation. (5.4.1 (1) page 157)	The nature of living systems (9)
4.	Cybernetic systems are open to exchange of energy but closed to information unless that information is “a difference that makes a difference” and perception is coloured by the organisms own organisation. (5.4.1 (2) page 157-158 and (5.4.2 (a) page 177 and 5.5.1 page 176)	Self-organization and autonomy (14)
5.	The closedness of the system is determined by the self-organisation of the system. This means that for change to happen there must be a fit to the organisation of the system. (5.4.1 (b) page 157-158)	The nature of living systems (10)
6.	Living systems are self-organizing or self-creating and new patterns emerge spontaneously into more complex patterns. (5.4.1 (c) page 158)	Self-organisation and autonomy (15)
7.	A holistic view is required to effectively deal with living systems because the whole is more than the sum of its parts. (5.4.1 page 158)	Holistic and holographic perspective (6)
8.	Human systems are unable to view the world from outside their own “lenses”. There is therefore no objective observation. (5.4.2 page 159)	Essence of humanness (37)
9.	There is a balance between stability and change in a system and the organization of the system determines what will change and what not. (5.4.2 (b) page 160)	Co-evolution and change (25)
10.	The self-organisation of the system consists of two components, the structure of the system and it’s organisation. Structure is the way the parts of the system are constituted and organisation is the relations between the parts that give it its identity. (5.4.2 (a) page 159)	Self-organisation and autonomy (16)
11.	The pattern of all living systems is networks. (5.4.2 (c) page 163)	Structure of living systems (20)
12.	Living networks are nested in other networks and pure hierarchies do not exist in nature. (5.4.2 (d) page 163)	Structure of living systems (21)
13.	Co-evolution or change is the recursive process where the organism and the medium change together in a congruent manner, or a manner that conserves the organisation of both. There is no such thing as evolution, only co-evolution. (5.4.2 (e) page 164)	Co-evolution and change (24)

No	Principle linked to text	Category
14.	Human systems have meaning that gives it the ability to reflect recursively and creates more complex levels of meaning. This gives us the ability to reflect on our own selves and the world around us. (5.4.2 (f) page 165-166)	Essence of humanness (38)
15.	Complex systems are sensitive to initial or starting conditions and small variations over time can lead to major changes in a non-linear system. (5.4.3 (a) page 166)	Co-evolution and change (26)
16.	The behaviour of complex systems are unpredictable and we neither know what the starting state is or predict exactly where the system is going to, you have to track its behaviour from beginning to end to know anything about the system. (5.4.3 (a) page 166 and 5.4.4 page 175)	Co-evolution and change (27)
17.	Whereas simple systems have periodicity, complex systems have variability from which patterns can emerge. (5.4.3 (a) page 167)	Co-evolution and change (28)
18.	Emergence is the process where new order is created from chaotic systems through self-organisation. (5.4.3 (b) page 171)	Co-evolution and change (29)
19.	Complex systems create irregular shapes that are often self-similar, or fractals, where the part looks like the whole at many different scales. These patterns create a more organic and complex view of life that is closer to nature. (5.4.3 (a) page 169)	Structure of living systems (22)
20.	Living systems need energy to renew themselves. (5.4.3 (b) page 171)	The nature of living systems (13)
21.	Complex systems have the ability to self-organise into greater states of complexity or higher orders of complexity. (5.4.3 (b) page 171)	Co-evolution and change (30)
22.	Change happens where chaos creates order but we cannot know exactly beforehand how this process will take place. (5.4.3 (b) page 173)	Co-evolution and change (31)
23.	Complex systems do not have centralised control mechanisms. (5.4.3 (b) page 171)	Structure of living systems (23)
24.	Complex systems have memory and history that forms part of its identity. (5.4.3 (b) page 174)	Self-organisation and autonomy (17)
25.	In complex systems there are no happenings, but only doings. Agents, which include biological entities including humans, act and do. (5.4.3 (b) page 173)	The nature of living systems (11)
26.	Complex systems are adaptive and it is not possible to predict what will create a change in the system, whether the stimulus would be internal or external. (5.4.3 (b) page 173)	Self-organisation and autonomy (18)

Appendix E: Fundamentals for ecological and complex epistemologies

No	Principle linked to text	Category
1.	Epistemology is the way we know, think and decide in the process of our living determined by our organisation. (5.5. page 176)	New epistemological vision (3)
2.	Life and all mind is the pattern that connects, which needs interaction between its components, triggered by difference, containing collateral energy, requiring circular chains of determination in which information is transformed or coded in logical levels. (5.5.1 page 177-178)	The nature of living systems (12)
3.	The map is not the territory and the name is not the thing named, they are on different logical levels. (5.5.1 page 178)	New epistemological vision (4)
4.	Life is made of meaning and patterns and stories that happen in the process of living. (5.5.1 page 179)	Human communication (42)
5.	Learning is a recursive process including basic learning and learning about learning and learning about your process of learning of learning. (5.5.1 page 180-181)	Learning in a complex world (59)
6.	Most verbal communication is digital, and in modern society we often negate the analogue part of how we communicate. (5.5.1 page 182)	Human communication (43)
7.	Ecological thinking or the ecology of ideas requires that we respect the interconnections between us in order to create unity and respect and to prevent further destruction of our societies and planet. (5.5.1 page 183)	New epistemological vision (5)
8.	Humans are languaging and emoting beings and all behaviour including rationalising is grounded in emotioning. (5.5.2 page 184)	Essence of humanness (39)
9.	Meaning arises when network configurations appear in languaging and this process forms "cultures" or ways of living. (5.5.2 page 184)	Human communication (44)
10.	In our networks of conversations we create domains of inter-objectivity where we agree about how the world is. (5.5.2 page 184)	Human communication (45)
11.	Complexity sees humans as subjects and not objects with affectivity that creates complex patterns of language and culture. We co-create the world through our language and culture. (5.5.3 page 186)	Essence of humanness (40)
12.	Complex thinking requires dialogic thinking in order to unify the world. (5.5.3 page 187)	Complex thinking and the ecology of action (60)
13.	Organisational recursion and self-eco-organisation are the processes where complex systems are the products of a process of reproduction and precedes us. (5.5.3 page 188)	Self-organisation and autonomy (19)

No	Principle linked to text	Category
14.	In complex thinking not only is the whole more than the sum of its parts but also the whole is reflected in the part as well as the part is more than the whole which is called the holographic principle. (5.5.3 page 187)	Holistic and holographic perspective (8)
15.	Living complex systems are unpredictable and in complex thinking we should embrace uncertainty. (5.5.3 page 188)	Co-evolution and change (61)
16.	The ecology of action or strategic complex thinking embraces uncertainty and only propose scenarios that can be modified as needs be. (5.5.3 page 188 and 189)	Complex thinking and the ecology of action (65)
17.	Any change proposed tends to be more effective right at the beginning. (5.5.3 page 188)	Complex thinking and the ecology of action (62)
18.	Complex systems and especially human systems have memory. A certain amount of time is required for the memory to form and for the reflections of reflections to create memory. Complex systems need enough reflective time to assimilate changes from its environment. (5.5.3 page 189)	Complex thinking and the ecology of action (63)
19.	Creativity is an essential feature for change to emerge. (5.5.3 page 189)	Complex thinking and the ecology of action (64)
20.	We should respect the sacredness of life, which is found in love, cooperation, intimacy and the wholeness of the universe. (5.5.4 page 190-191)	Essence of humanness (41)