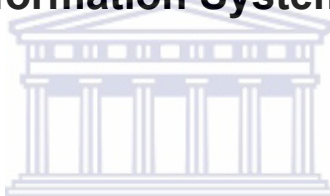# Investigating Design Issues in E-learning

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A thesis submitted in fulfillment of the requirements for the degree of Doctor Philosophiae in the Department of Information Systems,

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Supervisor: Professor A Bytheway

Key Words

Bricolage	Using different tools to view the object of study from different sides and angles as a way to open up opportunities for a multiperspectival orientation to research
Conceptual infrastructure	A construct adopted in this thesis to refer to the theoretical knowledge and application of models and frameworks necessary to guide the use technology to enhance teaching and learning
Course	A programme of study offered and delivered by a lecturer, within the cycle of a semester or a year. This will be a (smaller) unit offered as part of a specific qualification.
E-education	Broad education view that relates to online content/material design, creation, distribution and management; distance education where courses and degrees are offered online, with no face to face contact and business view that focus on e-business in education (in this case) is on commercial transactions and not the online delivery of learning, for example, systems that enable the registering and payment of courses online.
E-learning	Information and Communication Technologies used in teaching and learning
Instructional Design	The structuring of the environment to support learning processes
Learning Design	The description of a variety of approaches and practices associated with the teaching and learning process. The description focuses on what methods are used, what resources (including ITCs) are implied and how the process of teaching and learning is managed
Omnitasking	Refers to the capability to perform tasks beyond the confines of geographic distance, space and time.
Pedagogy	The integration of the practice of particular curriculum content and design, classroom strategies and techniques, and evaluation purposes and methods
Technicism	The overemphasis of the technical side of e-learning
Texture	Designing the use technology to cater for the individual needs of specific subjects

Table 1: Key Words

Abstract

The adoption of information technology as an aid to organisational efficiency and effectiveness has a long history in business and public administration, but its application to the processes of teaching and learning in education has been relatively limited. At the dawn of the new millennium this began to change, as educational institutions around the world began to experiment with new ideas for the use of information technology. This happened at the same time that commercial organisations began to realise that they themselves could – because of the availability of IT based systems – invest in educational services focused on their own needs. It was against this background that this research project set out to study how South African higher education has incorporated new learning technologies in the delivery of programmes.

The study began by exploring the emerging patterns of the use of e-learning in South African higher education. This was to establish a broad understanding of how e-learning was incorporated into the core business of universities. As the study progressed interviews with both teaching and support staff provided course descriptions which were used to expose the kind of considerations that were made in designing, developing and delivering those courses. The main purpose of the study was to answer the question: *what pedagogical considerations are necessary for successful course design when using e-learning*? By placing the course descriptions on a continuum developed as a part of the conceptual framework in the study it was possible to analyse the course design features that emerged. The framework and its differentiated learning designs (LD1/2/3) can be used for both design and evaluation of courses and can facilitate the use of technology in enhancing teaching and learning.
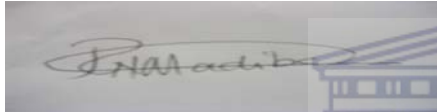
Declaration

I declare that *INVESTIGATING DESIGN ISSUES IN E-LEARNING* is my own work, that it has not been submitted for any degree or examination in other university, and that all sources I have used or quoted have been indicated and acknowledged by complete references.

Full name: Ntimela Rachel Matete Madiba   Date: 31 May 2009

Signed

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List of Acronyms

CHE	Council for Higher Education
HEQC	Higher Education Quality Committee
DOE	Department of Education
ICTs	Information and Communication Technologies
HE	Higher Education
LMS	Learning Management System
VLE	Virtual Learning Environments
PLE	Personal Learning Environments
CMS	Course Management Systems
CMC	Computer Mediated Communication/Conferencing
OLS	Open Learning System
KEWL	Knowledge Environment for Web-based Learning
CLE	Constructivist Learning Environments
ADDIE	Analysis, Design, Development, Implementation and Evaluation
SAADA	South African Association for Academic development
HELTASA	Higher Education Learning and teaching Association of South Africa
AACE	Association for the Advancement of Computing in Education
NASDAQ	National Association of Securities Dealers Automated Quotations
ID	Instructional Design
CLO	Chief Learning Officer
CKO	Chief Knowledge Officer
CIO	Chief Information Officer
CAQDAS	Computer Assisted Qualitative Data Analysis Software

Table 2: List of Acronyms

Chapter 1: Background to the Study

1.1. Introduction

This chapter provides background to the research project *Investigating Design Issues in E-learning*. It explains what the study sought to achieve. The chapter looks at the aims and objectives of the study. Through a brief literature review, the rationale of the study is developed and the problem statement is presented. The delimitation of the study is explained so as to indicate the scope of the work, as well as the limitations that it faced. The chapter concludes with a synopsis of all the other chapters.

1.2. Mapping the rest of the chapters

The study is positioned within a conceptual framework that is examined in Chapter 2. Chapter 3 provides the research design that guided data collection and analysis. Chapters 4 and 5 present the data, the analysis and interpretation thereof. The analysis involved the use of an Access database which generated reports, discourse analysis, the use of qualitative data analysis software and case studies. Chapter 6 is a discussion of institutional case studies that focus on the larger contexts within which the described courses were designed. Chapter 7 presents (course) case studies that demonstrate the pedagogical considerations made when courses are designed using e-learning technologies and then proceeds to present a framework that can be used to inform design and evaluation of courses delivered through e-learning. Chapter 8 provides a summary of the study, the conclusions that are drawn, and identified gaps for further research.

1.3. Aims of the Research

The adoption of information technology as an aid to organisational efficiency and effectiveness has a long history in business and public administration, but its

application to the processes of teaching and learning in education has been relatively limited. At the dawn of the new millennium this began to change, as educational institutions around the world began to experiment with new ideas for the use of information technology. This happened at the same time that commercial organisations began to realise that they themselves could – because of the availability of IT based systems – invest in educational services focused on their own needs. Generally the commercial initiatives have progressed more quickly than those in the higher education sector, and the strategic differences between the two needs to be understood. One view is that the higher education sector has lagged when it should have led, and this was one of the observations that led to the research reported here.

Green indicated that there is some absence of capacity in higher education, making it difficult for these organisations to seize information technology related opportunities in education (Green 2000). In his metaphor of the "ballroom and the dance floor, he asks the question: "Why so slow to dance?" A key problem is not only the time it takes academics to understand and adopt the technologies, but also the design issues that are involved in making e-learning useful to the improvement of teaching and learning. The absence or lack of capacity is a problem that has to be resolved; it is a gap that has to be filled. And, as long as this gap exists, these opportunities will not be meaningfully exploited. The greater loss will not lie in not using the technologies, but rather in employing them without a thorough understanding of the complexities involved in their deployment (that is, as far as teaching and learning is concerned).

The overall aim of this research project was to study in some detail how South African higher education has actually incorporated new learning technologies in the delivery of programmes, to provide some clarity concerning appropriate approaches to their adoption and implementation, and to deal with the question of capacity. Terminology is important, and here these new technologies are referred to as "e-learning" technologies throughout the thesis in order to remind the reader that we are not concerned with *all* information technologies, only those

that are useful in teaching and learning. The terms "e-learning" and "new learning technologies" are used synonymously in this work.

The study began by exploring the emerging patterns of the use of e-learning in South African higher education. This was to establish a broad understanding of how e-learning was incorporated into the core business of universities in the country. A further step was to investigate pedagogical design considerations that were made when new learning technologies are employed. Institutional websites and interviews with lecturers (course designers) and those in support units were used as sources of data for this investigation. The support units are those units that were newly established within institutions to provide support to lecturers as they began to use e-learning technologies in their teaching and learning. An Access database, discourse analysis, the use of NVIVO (a software package for Qualitative Data Analysis) and the mapping of institutional and course based case studies were used as strategies to analyse the data. The insights gathered from the investigation have been used to refine a framework that was initially developed out of the literature review. The framework can be used as a tool to think and work with when courses are delivered using e-learning technologies.

At an academic level the aims of the research are to:

- Explore the emerging patterns of use of e-learning in the South African Higher Education sector

- Investigate what pedagogical design considerations were made in relation to teaching and learning as e-learning was incorporated in the delivery of courses

- Build a framework that will support and improve the design of courses offered through the use of e-learning in order to address the question of capacity and better utilisation of available technologies.

At a strategic level this study aims to map out the (strategic) options available to different role players for the successful incorporation of e-learning. As a result of

exploring which considerations have to be taken account of for successful incorporation, the study provides constructs that can serve as a strategic map and tools to think and work with for successful incorporation of e-learning in teaching and learning. The constructs are the building blocks for the proposed framework.

1.4. Background

In reviewing developments within the field of Information Systems as a field, Ward and Peppard are thankful to the hype that accompanied the Internet and the dot.com phenomenon, and argue that it has helped to make IT (Information Technology) an important item on the agenda of senior management (Ward and Peppard 2002). Though their work is located in business, it also applies to academia. It is because of the hype that by 2003 more than half of South African higher education institutions had acquired an institution-wide learning management system for the incorporation of e-learning into teaching and learning. Kruse alludes to the same in his article where he looks at the state and history of e-Learning through Gartner's "Technology Hype Cycle", and asks the question will 'e-learning be remembered as nothing more than a late salvo in the dot-bomb campaign?' (Kruse 2004). Kruse identifies 'the triggers' for internet technologies using Gartner's "Technology Hype Cycle", which he describes as 'a device that lays the path that technologies generally take, from their initial introduction into the market until their eventual maturation into useful components'. The year 2000 is marked as the "Peak of Inflated Expectations" on the e-learning hype cycle and is significantly followed by John Chambers' declaration of e-learning as the 'next killer application' of the internet (Anders 2001). It is within this background that the potential that e-learning has for higher education was then touted as a necessary strategic focus (Salmon 2000, Weigel 2002, and Laurillard 2004).

By April 2003, out of a total of 35 South African higher education institutions that existed in the midst of the mergers, 19 had acquired a learning management

system as part of their institutional infrastructure - a clear indication that by then South African higher education was willing to participate in the use of the new e-learning technologies. Even though these 19 represented more than half of the whole public higher education sector in the country, there were still concerns about the rate at which institutions were seizing the available opportunities that e-learning seemed to offer, as distinct from simply purchasing and installing the technologies. The question is: after the acquisition of a learning management system, what happens next?

The acquisition of institution-wide e-learning systems has initiated a new era in education and it is crucial that critical observations be made to understand more about the issues that arise, and to support further developments in this regard. As institutions acquired e-learning technologies, other institutional changes also became evident, such as the introduction of new organisational units into their organograms as well as the addition of new designations to the staff roll. How were all these changes to affect teaching and learning – the core business of education, and the very reason for its existence? It is against this background that this study was initiated.
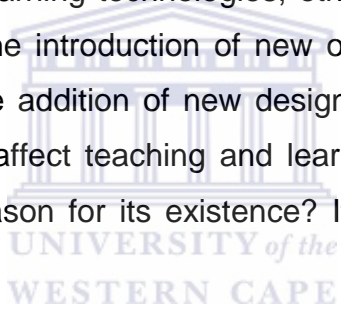
1.5. Rationale

This section explores the rationale for this study in terms of its relevance and importance, with reference to these five areas of concern:

- building capacity for change,

- opportunities to be seized,

- curriculum design, instructional design and pedagogical considerations,

- business versus academic, and

- the case for e-education

However, in order to investigate the pedagogical considerations that accompany the deployment of e-learning, this study had to look at broader issues. It became necessary to look at the overall changes that e-learning has brought and how

higher education has responded. E-learning has had a major impact on higher education, not only in terms of the money spent on acquiring relevant infrastructure but also in the way it has extended the organograms of educational institutions. The addition of new units and designations has suggested new activities and tasks within institutions and in some cases duplication of duties. Of course, a typical institution has a wide range of activities where technology is applicable, more than can be adequately dealt with in a single study. This study therefore focused on how these changes have affected the way courses are designed and delivered within such a context where new technologies are employed.

1.5.1. Building capacity for change

It has already been observed that more than half of the higher education institutions in South Africa have initiated the adoption of e-learning technologies. By April 2003, 16 of the 19 institutions involved had chosen to use WEBCT, a commercial Learning Management System (LMS); three had chosen internally developed systems.

Six years later, out of the 23 institutions that exist after the mergers 13 operate a Blackboard (a vendor company that has acquired WebCT) license. Only one of the three with locally developed systems has maintained the internally developed system; three institutions use SAKAI (Open Source LMS) and five use Moodle (another Open Source LMS). Only one of the 23 does not (as yet) have an institutional Learning Management System. Individual units and departments have Moodle sites running alongside a different institutional Learning Management System in four of the 23 institutions. These developments emphasise the level of participation in e-learning within South African higher education.

Different approaches demand different organisational competencies and incur different kinds of cost, and the question arises as to whether these choices led to different kinds of benefits. Weigel exercises this question when he argues that e-

learning must be scrutinized with the same scepticism that was used to reassess the use of the Internet after the fall of NASDAQ (National Association of Securities Dealers Automated Quotations) in April 2000 (Weigel 2002). He asks the question: "Will e-learning really deliver, or will it turn out to be just another casualty of the overblown expectations of the late 1990's?" Besides, indications are that higher education will be highly affected by e-learning whether or not it participates. Oblinger (Green 2000) confirms this point when she asserts that "the Internet, and the Web are changing instruction" in education. This claim is founded on the premise that the existence of the Internet has accelerated the speed of human life in general. The Internet has added new dimensions of time, speed and immediacy to life, including education, what Grant and Anderson call "Internet time" (Grant and Anderson 2002). D'Andrea and Gosling argue that keeping up with the pace of change 'is a major challenge facing modern educators' (D'Andrea and Gosling 2005).

The Internet and the new technologies that came along have not only brought problems of change, they provided a number of opportunities for change management. As Wiersema asserts, e-learning has the ability

> *"to leverage the Internet to help companies and individuals deliver and absorb knowledge and expertise better, faster and more flexibly, thus helping them to become more agile and stay abreast of rapid change." (Wiersema 2001)*

The figure that follows illustrates the challenge faced by higher education (HE) and summarises the challenges discussed in this section.
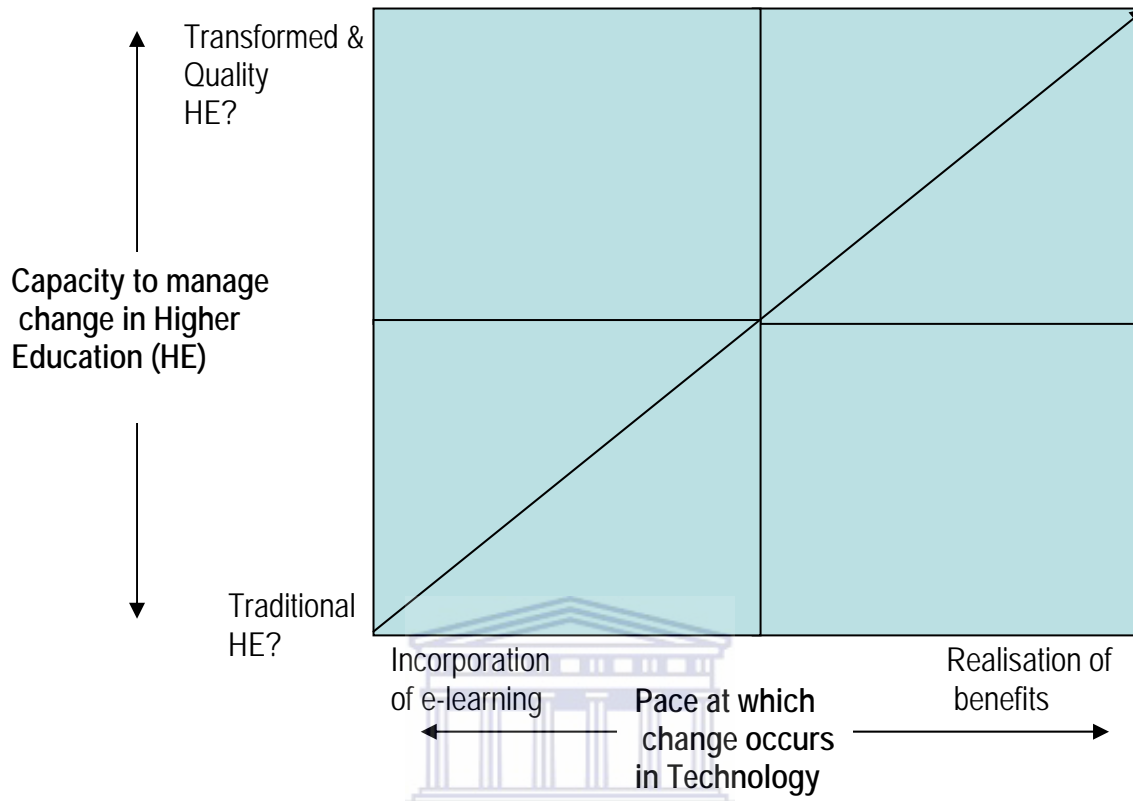
Figure 1: Pace-capacity challenge in Higher education

The argument that arises is that higher education has to engage with its rapidly changing context in order to make sense of it and deal with it for efficiency and effectiveness, as well as for the delivery of quality education. The capacity to manage the change that the technologies bring and reap the promised benefits successfully in higher education is of interest to this study. This (interest) was explored by investigating what the new e-learning units were doing in South African higher education institutions, and what their impact was on teaching programmes.

1.5.2. Opportunities to be seized

There is a long list of claimed beneficial attributes that e-learning is associated with when compared with the traditional classroom and its methods, such as scalability, efficiency, effectiveness, accessibility and speed (Galagan 2000). Many others argue that the new learning technologies have made it possible to

make changes to learning and by doing so have brought about a revolution in learning (Rosenberg 2001); (Salmon 2000). Forsyth states that "the emerging technological attributes of the Internet and the commercialisation of information is the signal for a change in the paradigm of teaching and learning" (Forsyth 2001). What emerges then is the argument that with the opportunities that exist with the Internet and e-learning, teaching and learning cannot remain the same. This proclamation should not be taken as innocent; it should in fact be treated with suspicion. These and other such declarations put a lot of pressure on education to change and to adapt to the new ways of doing things and often without a full appreciation of the challenges involved.

The same pressure was echoed by Bonk and King when they stated that because our workforce will consist of "knowledge workers", (echoing the early work of Peter Drucker (Drucker 1973), learning, thinking and working will no longer be isolated activities (Bonk and King 1998). The new goal of schooling will be to create "knowledge building communities" they (Bonk and King 1998) argue. These arguments have implications for future learning programmes; if true teaching and learning cannot remain the same. It is observed that e-learning puts pressure on institutions to rethink their practices, especially the design of programmes; it also provides opportunities to manage the change that has come to be part of education. An interesting question is whether higher education will unquestioningly accept the dual role and be able to deal with it.

Weigel raises the challenge that e-learning technologies should not only be there to save costs and add a measure of convenience, they should 'deepen the learning experiences of students' (Weigel 2002). Unless they do so, he argues, they are not of much worth. This study does not set out to investigate the saving of costs as such; although issues around convenience surfaced, the focus of the investigation is on how e-learning was used to enhance learning, in Weigel's (2002) words to 'deepen the learning experiences of students'. However, we learn that there is a scale of opportunity, beginning with simple cost reduction and efficiency, and progressing to a quite different mode of teaching, learning

and thinking when compared with traditional methods. The following figure illustrates this point:
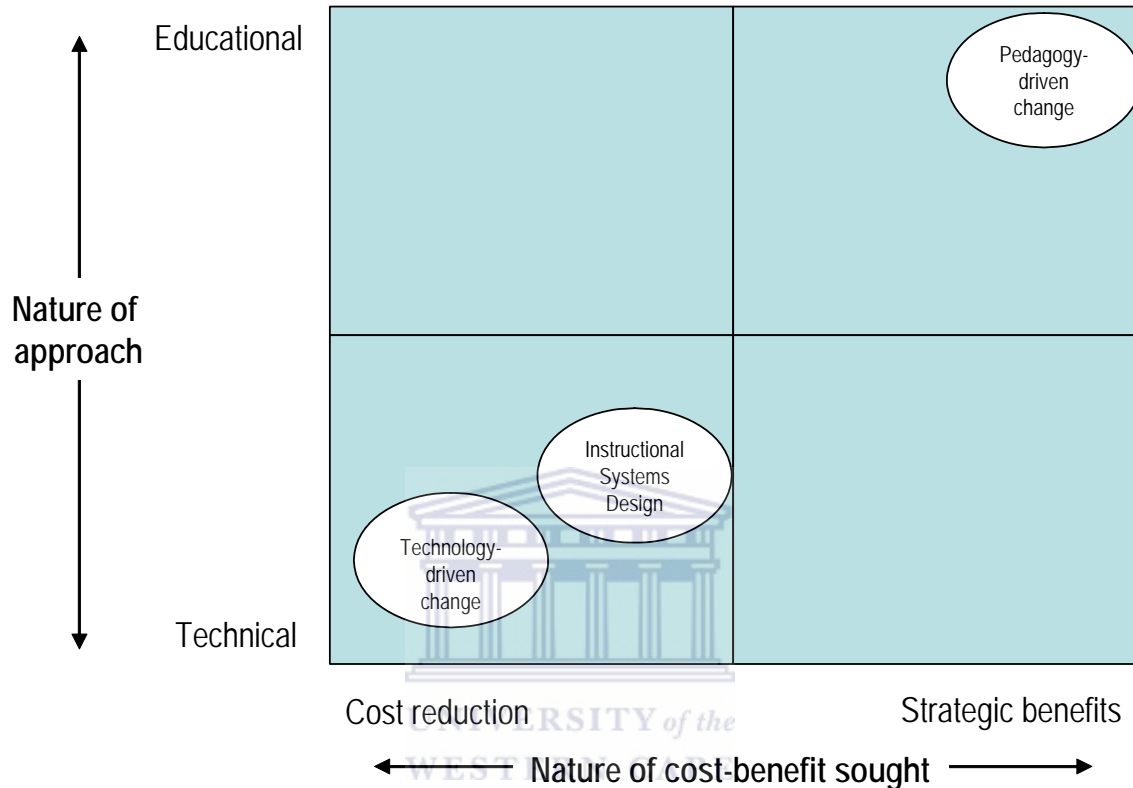
Figure 2: Technology-driven change vs. pedagogy driven change (Source: Author)

1.5.3. Curriculum Design, Instructional Design and Pedagogical Considerations

The pressure that the deployment of e-learning has placed on education has had a positive spin-off. It has kept alive the old question in teaching and learning of *how people learn*. Closely related to this is the question: *what is learning*? As part of responding to the call to seize opportunities in e-learning, course designers and lecturers were confronted with the challenge to design courses that help students learn. They found themselves confronted in a new manner by the two questions: how do we make students learn, and what do we mean by learning? The revival of the two questions did not only come late to the e-learning scene,

the questions did not receive as much attention as needed. Many institutions worked hard to acquire the technological infrastructure and assumed that the learning part will automatically happen as the technologies are deployed. As literature emerged on how to support those who have to design courses, authors were confronted with the challenge to respond to the two questions first before they could make any claims about offering guidelines, strategies, and principles that would lead to the deepening of students' learning in the digital age. A trend amongst a number of these authors who support the use of e-learning in teaching and learning was to attempt to address these questions, whether by means of a single paragraph or a whole chapter ((Rosenberg 2001), (Clark and Mayer 2003), (Alessi and Trollip 2001), (Shank and Sitze 2004)).

What makes these questions important is that e-learning is about learning, not just about the technology. Alessi and Trollip, echoing what many other authors in this area have emphasised; argue that developing materials that facilitate learning requires an understanding and appreciation of how people learn (Alessi and Trollip 2001). The challenge extends beyond adding new technological artefacts to education and infrastructure for content delivery, all the way to ensuring that as the technologies are added, learning takes place meaningfully.

In the attempts to answer these questions a common response by academics and researchers was to revert to a field of practice that came to be known as 'instructional design'. Leigh's historical traces of the field which later came to be referred to as Instructional Systems Design (as the field focused more on the technology and systems for instructional design) is useful in that it portrays developments over time, as such mapping out key milestones (Leigh 2002). He usefully points out influential works such as Skinner's S-R principles and Bloom's taxonomy of learning objectives. With the advent of the internet and related technologies a major assumption was that a combination of the technology and a step-by-step model on how to design courses had the potential to ensure success. This was not the case, especially where success was defined as the deepening of students' learning experiences. At best, success came in the form

of a new challenge to understand the (problematic) issues inherent in the adoption of e-learning technologies, and the inadequacies of instructional design models ((Zemke and Rossett 2002), (O'Neil, Fairweather et al. 1988) and (O'Neil 2008)). A major part of the problem is the fact that there are broader issues that need attention, beyond the narrow confines of instructional design as a field and as practice. These (broader) issues range from curriculum planning to what happens in the classroom.

1.5.3.1. The problem with Instructional Design (ID)

Spector indicates that 'the primary focus of the instructional design process is to structure the environment so as to provide a learner with conditions which will support learning processes" (Spector 1993). He goes on to say: 'When learning goals are simple and delivery media are restricted to lecture and blackboard, this process is easily manageable. However, as learning goals grow in complexity and media choices proliferate, the complexity of the instructional design process generates a number of difficult problems'. This same charge was earlier made by O'Neil, Fairweather and Huh (1988). Though Spector's work helps to indicate the complexities that arise in instructional design as technology advances, another problem that arises is to understand exactly what instructional design is. The definition as given here, embedded within the focus of the field, is problematic, as the coming discussion reveals.

Zemke and Rosett take a 'hard look' and present the relevant arguments that should be considered surrounding issues of instructional design (Zemke and Rossett 2002). Since the emergence of e-learning, the definition of Instructional Systems Design and what it hopes to achieve has come under serious scrutiny, they charge. One of the important questions that they pose is whether Instructional Systems Design (ISD) has become irrelevant and outdated? It is not a 'yes or no' answer that is of interest to this study. What is evident is that the field has to adapt and broaden its discourse in order to deal with the emerging challenges. They (Zemke and Rossett 2002) highlight the argument that if traditional training is a challenge for Instructional Systems Design,there are those

who believe it is more so for the new creative blends of online learning and performance support that are becoming prevalent today, a point that Spector (1993) has also alluded to.

This study does not only recognise that there are dissatisfactions about how Instructional Systems Design has been less successful in the development of courses when the new technologies are employed. It is also concerned that the narrow focus associated with the field has been a limiting factor in the development of these technologies. The narrow focus has led to the situation where pedagogical considerations did not feature much in e-learning developments.

Tennyson and Schott (1997), Alessi and Trollip (2001), and O'Neil (2008) also provide a historical synopsis of the field of instructional design. They point out that it is an approach to developing instruction, primarily used in industry and the military. It was later adopted in a variety of settings; including education. They correctly point out that the roots of the field lie in behavioural psychology. Other strong influences come from the 'Objectives Movement' as started by Ralph Tyler a decade before World War II. O'Neil (2008) and Power (2008) further attest to the narrowness of focus as suggested by this field, which in part is blamed on the 'Objectives Movement'.

It appears that this narrowness of focus is a major weakness. Though the field has served the training world reasonably well, the same cannot be said of higher education. The narrowness is in stark contrast to curriculum design and development as an established field within higher education. Using POD's (Professional Organizational Development Network in Higher Education) divisions of educational development as a field, Power differentiates the micro-level (the level at which instructional design operates) from the macro-level (the level at which strategic or curriculum planning occurs) (Power 2008) . The South African Qualifications Authority (SAQA) cautions that the term 'curriculum' can mean different things to different people and definitions of the word can 'range

from rather narrow interpretations to broad, all-encompassing interpretations which include virtually every aspect of the full education system' (South-African-Qualifications-Authority 2000). Whereas instructional design is narrow in focus, curriculum design is too wide and encompasses a wide scope of activities. For the deployment of e-learning, it is the narrow focus within instructional design as a field that has taken the lead so far. The emphasis on curriculum design within the South African Quality movement offers opportunities to critically avoid the narrow focus of instructional design as argued in this thesis.

In order to problematise the narrowness of focus in e-learning (brought about by its reliance on instructional design) it has been observed that pedagogical considerations were significantly left out in the major discussions and developments as far as e-learning and delivery of courses was concerned. Focusing specifically on learning management systems, Govindasamy argues that most vendors of such systems deliberately distance themselves from pedagogical issues (Govindasamy 2002) . He goes on to argue that his finding 'is coherent with Firdiyiyek's (Firdiyiyek 1999) argument that there is a serious mismatch between the abundance of features in Learning Management Systems and the lack or total absence of explanation on the pedagogy underlying the inclusion of these tools'. Alonso, López, Manrique, & Viñes (2008) point out to the 'serious dysfunction between the profusion of technological features that are put forward and the shortage of pedagogical manners and teaching principles for e-learning'. They advance this argument within a context in which they contend that 'All this technology (developed around the e-learning paradigm) is beneficial for 'improving the quality of learning', but is useless if it is not based on psycho-pedagogical prescriptions'. It is with these arguments in the background that this study set out to investigate pedagogical considerations faced by those that used e-learning in their courses within the South African higher education environment.

This study investigates 'pedagogical design considerations' to locate the focus of the study on those considerations closely associated with teaching and learning.

More specifically, the study looks at what lecturers did in order to facilitate the learning of their students now that e-learning was part of their (teaching and learning) context.

1.5.3.2. The ADDIE model and Instructional Design Technology

Bichelmeyer raises the problem with instructional design (ID) from another angle and highlights the 'discomfort and uncertainty' that exists within the field (Bichelmeyer 2005). Adding to the uncertainties, the field has embraced technology and spawned a sub-field known as 'instructional design technology'. A further complication is that the field has come to be treated as a synonym for the ADDIE (Analysis, Design, Development, Implementation and Evaluation) Model, what Bichelmeyer (2005) describes as 'an inextricable link' between the field and the model. What this has meant to some course designers is that once the technology and the ADDIE model are in place then a successful course has been designed, a situation that has not actually been achieved. This brought the evolution of e-learning to a point where failure became evident, and the touting of benefits moved to the background. Clark and Mayer report on the decline of training delivered through technology since 1999 (Clark and Mayer 2003). Woodill observes that there is growing literature on the failure of e-learning and specifically points to instructional design as one of the problematic areas responsible for the reported failure (Woodill 2004).

1.5.3.3. Three main directions in dealing with failures associated with ID

Attempts to improve instructional design as a field and respond to the failures of e-learning to bring about meaningful learning have taken diverse directions, that is, away from the narrow focus of the field and the ADDIE model, in a search for more useful approaches. Three such directions are worth summarising:

- One direction is to revisit the 'science of instruction' (Clark & Mayer 2003) and base the design of courses on principles derived from within such a field. It has to be noted that this direction is highly compatible with behaviourism and cognitivist theories of learning. What is seen as the

science of instruction is backed up by studies in traditional psychology. The argument (within this approach) is that the design of courses and the use of technology should be informed by empirical evidence derived from 'high quality research' on how people learn (Clark & Mayer 2003).

- A different direction is to embrace constructivism as the overriding paradigm in the design of courses delivered using technology, as a conceptual move beyond behaviourism. The work of Jonassen, Peck and Wilson (Jonassen, Peck et al. 1999) and Salmon (2000) exemplifies this direction. A prevailing belief in the work of Jonassen et al (from 1999 onwards) and Salmon (2000) is that the use of technology in teaching and learning necessarily enforces a constructivist approach.

- The third direction includes a technical focus, with an attempt to incorporate various theories, approaches, and principles in teaching and learning into a set of procedures that leads to the design not only of instruction but of the technology needed to facilitate the instruction (Merill 2000, O'Neil 2008).

A question to be raised is whether South African higher education will contribute to advances within these directions or whether it will add new nuances? Chapter 2 focuses on mapping out these directions more closely in relation to the use of technology in teaching and learning.

1.5.3.4. A 'hard look' at ID: Epistemic change

The problematic nature of instructional design evolves out of specific paradigmatic affiliations the field has espoused at any given time. Jonassen and Rohler-Murphy (1999) argue that 'in order for any discipline to survive, it must accommodate changes in theory and practice and do so in a way that adds value to the discipline'. They point out that the field of instructional design has to adapt to changing epistemic assumptions. Theirs is a call towards constructivist learning environments. Zemke and Rossett (2000), call for a 'hard look' at the field as they point out that there is need for change.

E-learning is a not only a new field, it is also a fast changing field where newly introduced technologies attract a lot of attention and seem to imply that the older ones are obsolete, what Salmon (2000) refers to as a 'context of rapid development'. Attention quickly moves from one aspect to another as focus changes from learning management systems to computer mediated conferencing to social networking systems with the introduction of wikis, blogs and podcasts. Virtual worlds and Second life (computer modelled environments where users can interact) signify another point of focus as far these technolgies are concerned. Instructional Design as a field has to move with this pace if it has to provide meaningful approaches to how instruction has to be designed and delivered when these technologies are incorporated.

D'Andrea and Gosling (2005) assert that despite the acceleration in technological developments there is not much progress when it comes to their application to the improvement of teaching and learning. This assertion points to the complexity of achieving change, the speed at which it is taking place, and the rate at which the benefits brought about by new developments are realized, especially where higher education is concerned. How is higher education supposed to respond to the issue of the pace (the rate at which change occurs) and the capacity to realise the benefits brought about by the change? This study aims to make a contribution in this regard and has chosen as the focal point to investigate pedagogical considerations that inform the use of technology in teaching and learning.

1.5.4. The Business-Academe close up

It has already been argued (Katz & Oblinger 2000) that higher education cannot avoid the challenges that e-learning has brought to it. The challenges do not only involve the seizing (or not) of opportunities and coping with change, they also have to do with higher education's juxtaposition to business. In fact, as Francis (1999) indicates, higher education can fall into any of these roles when it comes to e-learning: as competitor of the corporate world, as adversary, as client or as

partner. So we might expect different circumstances as higher education assumes any one of those roles, and there may be different issues to deal with.

Though it is of special interest to this project to study e-learning programmes in the education sector, the relationships between the world of education and the world of business are important. It cannot be assumed that business and academia see e-learning (or its role) in the same way. On the one hand, the commercialised products that come from business offer promises of what e-learning can do for education. On the other, business makes use of e-learning and in the process seems to challenge academia on how learning can be improved and enhanced through e-learning.

In the introduction of their book, Clark and Mayer (2003) define the goal of e-learning as

> *'[to build] job-transferable knowledge and skills linked to organizational performance, or to help individuals achieve personal learning goals'. (Clark and Mayer, 2003: 14)*

Though they claim that their guidelines apply to educational and general learning goals, they emphasise that they are focused on programs for job-specific skills. Their emphasis suggests that e-learning is more suitable and primarily for training in the workplace. In his attempt to define e-learning in the workplace, Rosenberg (2001) argues that learning is more than training. He further argues that e-learning focuses on 'the broadest view of learning, beyond the traditional paradigms of training' (p29).

Looking at the grounds on which the definitions of e-learning are based in both works, there are a number of observations that emerge. One is the point that e-learning is primarily for the workplace, though it can apply to educational settings as alluded to by Clark & Mayer (2003). Their approach gives e-learning a narrow focus. The Rosenberg argument indicates that training in the workplace has to be stretched beyond its traditional limitations, and that e-learning offers that potential. Though the two differ in terms of the breadth that e-learning has to embrace in the world of work, they do agree in terms of seeing performance in

the workplace as the end product of what e-learning offers. For higher education, Weigel (2002, pxiii) considers that the responsibility 'to cultivate and nurture thought is the preserve of higher education' and it is within this context that he argues for tapping into technology to deepen students' learning experiences. A look at the ends and means of both worlds raises further complications in terms of applying e-learning in the same manner across the two sectors and the usefulness of the features e-learning products offer. The following figure illustrates the suggested differences.
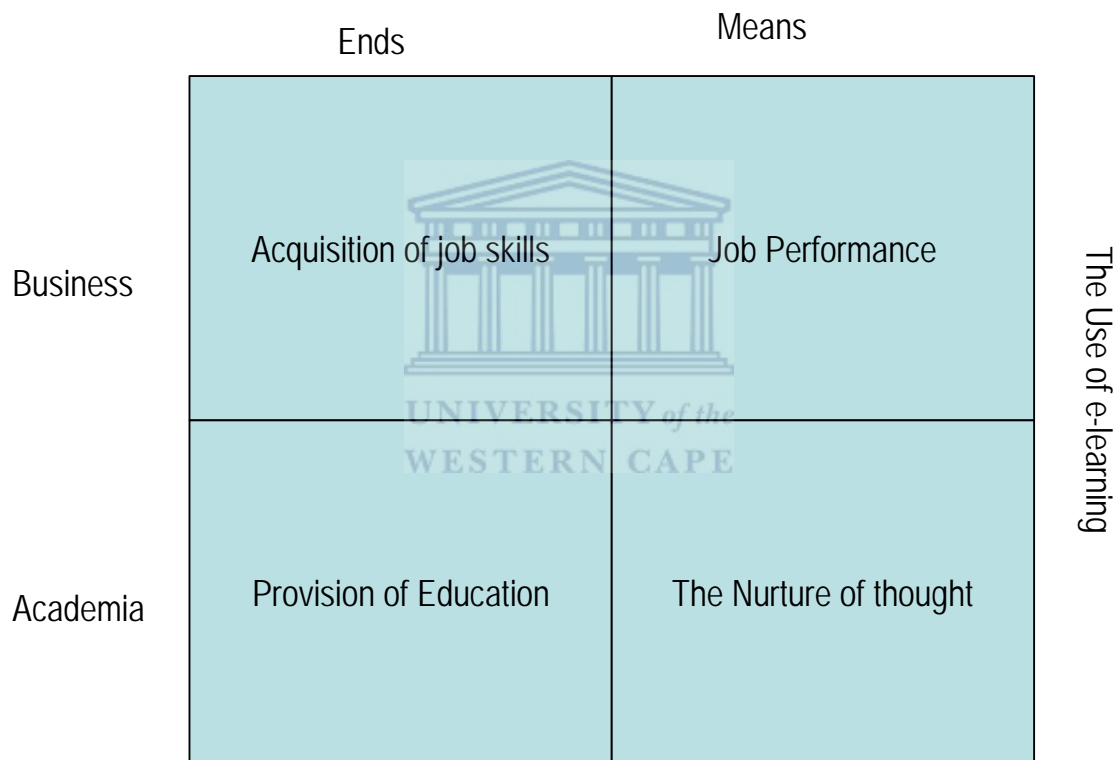
Figure 3: The Business-academe e-learning connection- (Source: Author)

Whatever role the various higher education institutions assume, e-learning continues to suggest adaptations. The pressure to keep a 'competitive edge' is as high for academia as it is for business. There are deep notions of pushing, not only to encourage education to be more like business but pushing business too to be more like education. These notions have become visible through what came to be known as 'corporate universities' and the role that the new learning

technologies have played in making all these possible. Instead of only focussing on the differences, the challenge requires an understanding of the similarities. Questions to ask are: how different is the acquisition of job skills from the provision of education, and how far does the nurturing of thought differ from what job performance entails?

The conception and birth of the corporate university exemplifies all the four roles as analysed by Francis (1999): as competitor of the corporate world, as adversary, as client or as partner when it comes to e-learning. Hearn (2001) examines the different models that corporate universities have assumed and offers a definition to the effect that a corporate university fosters development beyond job skills. This includes learning-to-learn, leadership, creative thinking and problem solving. Corporate Universities largely depend on e-learning technologies for their offerings. Within the different models, corporate universities can pose threats to established educational institutions, especially in the field of business school education and leadership. Hearn reports that about 16 percent of corporate universities have partnerships with traditional universities. E-learning is highly instrumental in realising both the partnership and the rivalry between corporate and traditional universities (Hearn 2001).

For this study, concerns raised by questions about the real mission of higher education are crucial, as different role players ponder the opportunities that e-learning brings. Is a credentialised workforce the end point for education? Is there anything more for which higher education should aim? This is the same argument that has led to the distinction between vocational and philosophical education – the difference between technikons now turned universities of technology (within South African Higher education) and the traditional universities. What implications do these differences have as courses and programmes are designed to be delivered through e-learning in higher education?

1.5.5. E-education: a case for inspection

The "e-education" concept, which is closely related to e-learning, makes the business-academe relationship more interesting. An inspection of the use of the concept reveals that e-learning and the associated technologies can be dominated by business ethos rather than those from education. In that way they serve as tools to emphasise the technological side of these innovations, rather than the educational side. It is interesting to note how a tug of war exists around the term. The one definition emphasizes the business attributes of the term and the other emphasizes the educational side. It becomes clear what has led to the coining of the term e-education and thus the use reflects the orientations of different views. Blackboard broadly defines e-education as 'an emerging category of Web-based infrastructure and applications designed to unify the daily student experience'. In their definition, e-education includes:

- Enterprise-wide environments for online teaching and learning (distance, hybrid or web-enhanced)

- Customizable, role-based portal communities and

- Online/offline transaction systems that facilitate campus and institutional commerce and related transactions

(Blackboard CIO Series White Paper, (Blackboard 2003)

The third bullet portrays a business-oriented view of e-education since it covers the systems that include commercial transactions. Within this definition it makes sense to speak of the e-education value chain, which includes software, hardware, administrator support and maintenance, student, faculty and administrator training, and pedagogical support. This view of e-education is closely linked to e-business in the sense that it is the education part of the e-business scope, or the way e-business manifests itself in education. The focus of e-business in education (in this case) is on commercial transactions and not the online delivery of learning.

Other vendors see e-education as infrastructure for leveraging an institution's technology, systems and services for greater operational effectiveness in teaching, learning, research and administration. It is viewed as an enterprise-wide solution for unifying the administrative, academic, and community (or rather communication) elements of today's digital campus. The focus in this view is about the administrative capacity of the systems involved. The components of the SCT (a vendor) infrastructure include

- Presentation infrastructure,

- Application infrastructure,

- Middleware,

- Data storage infrastructure and services.

The South African White Paper on e-Education (Department-of-Education 2004) engineers a definition of e-education for the South African context. It defines e-education as revolving around the use of Information and Communication Technologies to accelerate the achievement of national goals. It identifies three roles that e-education has to play: to connect learners and teachers, to connect teachers to professional support services as well as to provide platforms for learning. All these will be achieved 'via effective combinations of pedagogy and technology' (p14). It has to be noted that this combination is a complex one to achieve and raises tensions that can be problematic to deal with.

Within this broad education-oriented view e-education is seen as more than the development of computer literacy, it is seen as the ability to:

- Apply ICT skills to access, analyse, evaluate, integrate, present and communicate information

- Create knowledge and new information by adapting, applying, designing, inventing and authoring information

- Function in a knowledge society by using appropriate technology and mastering communication and collaboration skills

E-learning is seen as only a sub-component by some, not necessarily as synonymous with e-education. There are two other associations within the broad education view, one that relates to online content/material design, creation, distribution and management; and the second that relates to distance education where courses and degrees are offered online, with no face to face contact. The broad education-oriented view that is evident in the South African White Paper on e-Education can further be separated into the content-oriented view and the distance education view. Within this context, e-education is linked to infrastructure to house and administer electronically stored content for training, teaching and learning.

Thus if the current uses of the term are considered, the concept of e-education can be seen to incorporate views with different orientations - business, administration, content and distance education. In the broadest sense, if the boundaries between the business and education views are separated, the term e-education can cover the systems, tools, infrastructure, policies, strategies and pedagogies involved when Information and Communication Technologies are employed to enhance education. And in this wide incorporation, it becomes a challenge to give pedagogy the place and attention it deserves; e-education as a concept appears to be far removed from teaching and learning.

Figure 4 represents the separate views. The business view reveals the business interests in terms of these technologies. The broad education view seeks to combine the technology and pedagogy. The content view allows interesting partnerships with business and the focus is on content creation. Since the emergence of these technologies a number of businesses have created a niche area that involves the creation and marketing of content for those involved in education and training. Weigel (2002) expands on the commoditization and commercialization of education and establishes the link between the commercialization and the distance education views. He argues,

From a global standpoint, certainly the most compelling argument in favour of the linkage between e-commerce and the mass-produced distance learning can be found in the

humanistic mission of higher education. It has been estimated that the creation of one university per week will be necessary if educational infrastructures are to keep up with world population growth (Daniel, 1996). This is a staggering figure. It is impossible to see how it could be feasible - on either economic or logistical grounds - to meet this global demand for education if not with e-learning. (p52)

All these views reveal how these technologies keep on making connections between business and academe. It might be that these are the kind of roles that will give shape to what Francis (Francis 1999) referred to in terms of higher education, that is as competitor of the corporate world, as adversary, as client or as partner when it comes to e-learning. The following figure represents the different views.
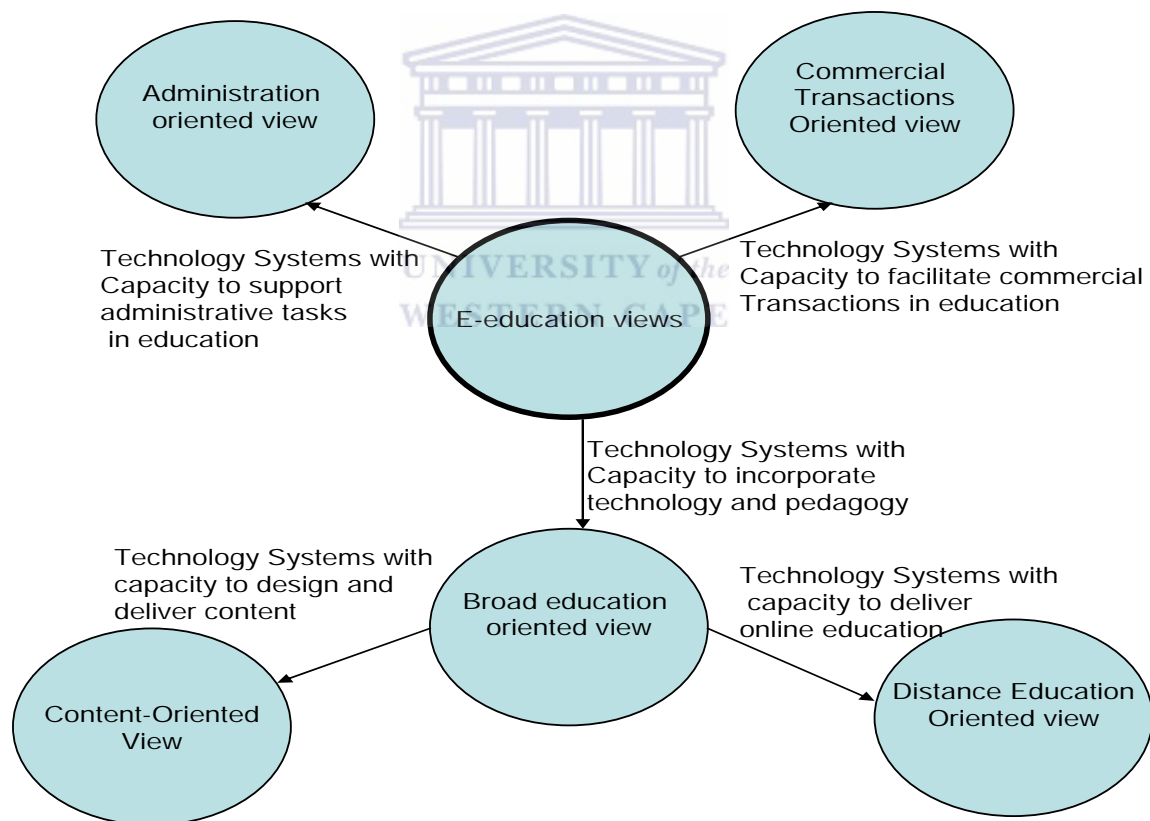
Figure 4: The different views of e-education (Source: Author)

In its broadest sense the concept of e-education signifies the changes and the proclaimed revolution that the internet and e-learning technologies have brought to education, especially in terms of administration, management and the communication aspects of delivering education. As cited in D'Andrea and Gosling (2005), Rocklin (2001) argues that there is a difference between the claim that the 'internet is revolutionising higher education' and saying that the 'internet is revolutionising learning'. It is the learning part where there is still much scepticism as far as these technologies are concerned and this is what this study focuses on.

1.6. Problem identification

The problem that higher education faces in the use of e-learning is whether its deployment will be beneficial for helping to achieve the mission to which higher education aspires. Can e-learning be applied beneficially in areas which cannot be reduced to administrative chores of teaching and learning or training of job skills? In setting out a framework for programme accreditation, the (South African) Council for Higher Education recognises that though there is uneven development that characterises South African higher education, the work of the Higher Education Quality Committee is to produce a transformed higher education system of high quality which is able to address the complex knowledge development needs of the South African society (Council-for-Higher-Education 2004). This implies that though there are various areas for development within institutions, the quality of programmes and the quality of teaching and learning remains a strategic goal that has to address the 'complex knowledge development needs'. The question is whether e-learning can deliver on this challenge.

Another challenge is that even business does not necessarily see the acquisition of job skills as an end in itself, but rather as a means to improved job performance. Hence, the problem is to respond to the challenge and provide the relevant answers to the question: *what are those pedagogical design issues that*

should distinctly be considered when learning programmes are delivered using e-learning in higher education? Closely linked to this question is the intention to improve teaching and learning and deepen students' learning experience. Hence, this question is embedded within a context where the overriding assumption is that e-learning should not be used for its own sake. It should be used to enhance and support teaching and learning.

This study investigates pedagogical design issues of courses offered through these new learning technologies. A course is defined as a programme of study offered and delivered by a lecturer, within the cycle of a semester or a year. This will be a (smaller) unit offered as part of a specific qualification. The study investigates existing courses that have incorporated learning technologies in their delivery and then identifies those features that characterises the learning programmes. The knowledge gathered in the research process is used to develop a framework that can be used in the design and evaluation of courses when using e-learning. In this way, academics within higher education (including management) will have a tool to think with and refer to when they have to support the design of learning programmes supported by e-learning. This contribution (of a design framework) should capacitate and help to encourage academics to meaningfully seize opportunities that emerge with e-learning.

1.7. Delimitation of the study area

This study adopts a qualitative approach and focuses on courses delivered within higher education in South Africa. At the start, the websites of all higher education institutions were used to identify the level of activity in relation to e-learning, within South African higher education. The gathering of information on the websites, which dates from April to August 2003, was used to map further areas for data collection. By that time, in the midst of changes brought about by mergers, there were 19 institutions that had acquired a learning management system as part of their institutional infrastructure. New positions were created in stand-alone or within existing units to drive the deployment of e-learning.

Information gathered from the websites revealed that for some institutions not much was happening beyond the acquisition of the learning management system, whereas for others, there was visible activity. Based on information mapped out from the websites, nine institutions were then targeted and interviews were carried out in six of the nine. The participants in the interviews were drawn from those who offered courses using e-learning and from those who served in a support function, giving support to lecturers as they used the e-learning technologies. The sets of data, namely, website data and the interviews, were subjected to four layers of analysis to allow for a qualitative focus.

The study moved beyond the concept of triangulation, where the emphasis is on collecting sets of data that can be tested against one another; instead *crystallization* was adopted. Where crystallization is the guiding principle, the same set of data is looked at from different angles and sides, and like a crystal is allowed to show its different 'reflections and refractions' (Denzin and Lincoln, 2000). The four layers of analysis were aimed at targeting the crystal view in the research design. The following figure portrays the full journey taken by the study, from the role the hype played to the final product of the research project - the development of the framework:
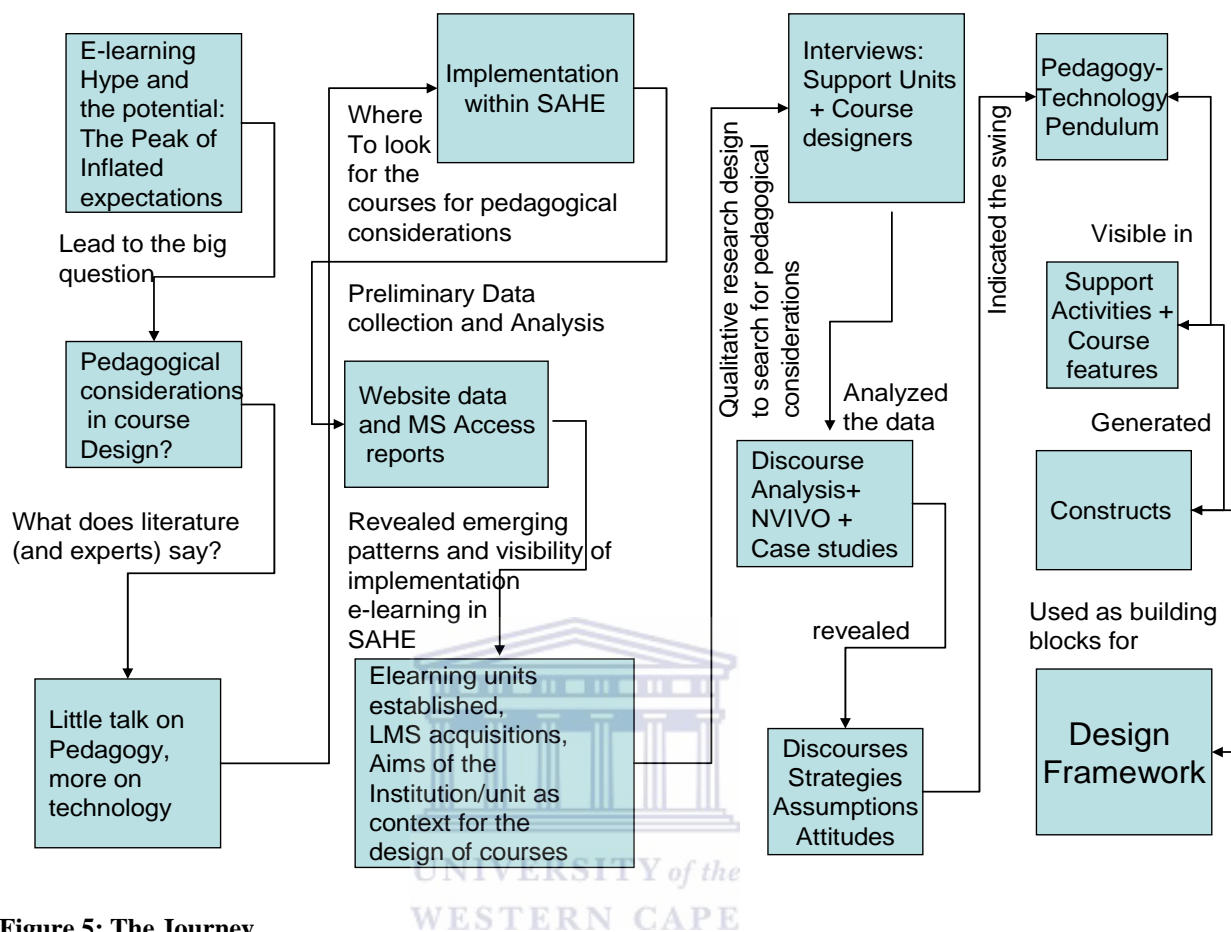
Figure 5: The Journey

1.8. Limitations

The study faced a number of limitations. The identification of courses to be investigated was enabled by institutional infrastructure. Because of this relationship, courses that were offered by lecturers independent of the institutional infrastructure were excluded, even if they involved some form of e-learning. These were courses not linked to the institutional learning management system, and not supported by the established e-learning unit.

Some of the 19 institutions had inactive learning management systems. This limited the population of the study. In some institutions there was no course delivery through the system and in some cases the support unit was manned by only one person so that there was not much activity that could be identified with

e-learning. The kind of information that was gathered from the websites is tied to a specific period and time. The flexibility with which website data can be updated does not allow this section of the study to be duplicated as information will have changed. The fact that this study was initiated when many South African institutions were at a peak of adopting e-learning, meant that some institutional websites were being revised and their accessibility was problematic. Because of the changes that e-learning was bringing into institutions, there was major restructuring of units and this made contact difficult. The number of participants interviewed differed from one institution to another. This number was guided by how active the institution was. The mergers were another factor that added to the instability of the environment.

One more major limitation to the study is the pace at which learning technologies are changing and advancing, a point that can render research data obsolete. For this study it is a challenge to make sense of the collected data given the speed at which e-learning technologies are advancing, and (as will be found) there are many other enduring aspects to this work that will continue to be relevant for a long time to come.
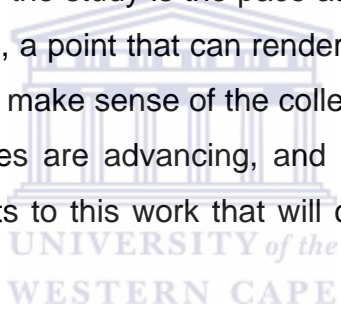
1.9. Conclusion

The following section gives a synopsis of each chapter to reveal the journey that the study undertook from the start to the finish. As Figure 5 indicates, the initial part was to find a way through the hype that surrounded e-learning at the break of the new millennium. At the stage when the benefits that e-learning was bringing were being touted, there was not enough talk about issues of pedagogy. When responses to questions around pedagogy slowly emerged there was a need to ask critical questions to ensure that the use of e-learning improved teaching and learning. The study then moved from literature review via research design, to data collection and analysis. Through analysis and interpretation of the literature and data, insights gathered in the study were used to inform the design framework presented in Chapter 7. What follows is an outline of the chapters.

1.10. Chapter Outlines

Chapter 1: Background to the Study

This chapter presents the backdrop within which this work is conceptualised. The chapter spells out what the research project Investigating *Design Issues in E-learning* seeks to achieve. The chapter looks at the aims and objectives of the study. The problem statement and the research question are explored.

Chapter 2: Literature review

In this chapter a conceptual framework within which this research project Investigating *Design Issues in E-learning* is framed is presented by examination of relevant literature. From the literature four issues identified as key are discussed. The four issues are: the benefits that come along with e-learning, the revolution e-learning has brought or will still bring, the South African higher education quality agenda and the need for meaningful pedagogy in order to make e-learning useful at the level of higher education.

Chapter 3: Research methodology

Chapter 3 sets out to provide a research design. The chapter discusses the qualitative approach the study has adopted. It describes and justifies the methods used in data collection and data analysis in the research design.

Chapter 4: Emerging patterns of use

This chapter presents the discussion focussing mainly on the first set of data. An Access database was used to organise the information gleaned from institutional websites. Through reports generated from the database it became possible to investigate institutional structures dedicated to support e-learning implementation.

Chapter 5: Constitutive Discourses, codes & nodes

The chapter discusses further analysis that the two sets of data were exposed to, namely, discourse analysis and the use of a qualitative data analysis software. It was important to keep the data from the preliminary part of the study in close comparison with the data that were emerging from the interviews, as these comparisons laid reasonable grounds for interpretation of the interviews and were helpful in the process of formulating meaning.

Chapter 6: Institutional cases and models

This chapter first discusses institutional case studies of how the integration of e-learning within South African higher education has developed. The focus is on the different models of e-learning deployment that have emerged as well as the different institutional cases that have been identified. The concluding section concentrates on a case that exemplified the 'professional development model'. The case is treated as instrumental and lessons learnt are drawn to support pedagogical design in course delivery.

Chapter 7: Course cases

This chapter focuses on the framework constructed as part of this research study. The aim of the study was to answer the question - what are the pedagogical considerations that have to be taken into consideration when courses are designed using e-learning, especially if the full potential is to be realized? The framework is developed as a response to the question. Unlike the previous chapter that focused on specific institutions as cases, this chapter concentrates on course cases designed within the specific institutional climate (model) as discussed in Chapter 6. Features that characterise the courses under description are used to refine the framework.

Chapter 8: The Design Issues Framework

This chapter summarises the developments in the study and then presents the conclusions and recommendations. The aims and objectives of the study are

used to map out what has been achieved and what are areas for further research.

Chapter 2: Literature review

2.1. Introduction

In this chapter literature is reviewed to map out a conceptual framework for this study. A major observation is that beyond the hype that accompanied the introduction of e-learning in both the corporate and academic world, e-learning has brought significant changes to education. Further than that it has prompted and revived questions that ask what learning is and how people learn. The two questions create an opportunity to attend to another major question related to improving teaching and learning: what can help deepen the learning experiences that teachers are trying to create for their students? By drawing such questions to centre stage in e-learning as the technologies develop, teaching and learning stand to benefit. These questions have always been around; e-learning has opened up a new context within which they have to be asked. One more opportunity that e-learning provides is that it makes assumptions behind the planning and implementation of teaching and learning more transparent, that is if not more explicit. It enforces the documentation of processes associated with teaching and learning. The level at which teaching and learning processes can be documented is one of the 'affordances' that Anderson (Anderson 2004) alludes to.

The chapter expands on the issues raised in Chapter 1 and by further reviewing literature the chapter identifies key issues that impact on the use of e-learning and sketches out a framework to guide further developments in the study. Four key issues stand out: the benefits that come with e-learning, the South African higher education quality agenda, the revolution e-learning brings to education and the need for meaningful pedagogy that will make e-learning useful in higher education. Beyond the scope of the four issues, e-learning definitions are discussed and are linked to the key issues. The lack of meaningful pedagogy remains an issue that has to be resolved. The questions on what learning is, how

people learn and what can deepen students' learning experiences are revisited in the (new) context ushered in by the learning technologies.

2.1.1. The much touted benefits

A striking element when one begins to peruse literature on e-learning is that there has been a lot of touting of the benefits that come along with these learning technologies, both in the corporate and educational world. The starting point for many e-learning discussions concerns the benefits. Pollard and Hillage (2001) confirm the charge that 'much of the literature concerned with e-learning extols its virtues'. What remains to be done is to realise these benefits within those organizations and institutions that have embraced e-learning. There are of course a number of problems that can be identified in this unseemly optimism.

Higher education in particular is charged with a number of offences with regard to the benefits as well as the potential that e-learning brings. One of the charges has to do with the pace at which it (higher education) incorporates these technologies. The charge is articulated by Green (2000) and the complaint is that it appears that higher education is slow in implementing e-learning as a strategy in their institutions, and in consequence leaves opportunities for the corporate world to seize. He asks the question: "Why so slow to dance?" in the employed metaphor of the "ballroom and the dance floor", in which he argues that it is higher education that prepared the dance floor. There are a number of factors that might have caused the delayed pace. Weigel (2002) usefully highlights some of the factors that are involved in the delay. His discussion, captioned by the sub heading 'The Academy and Technological Resistance' is worth quoting at length:

> It is no wonder that many (faculty) would resist the introduction (or, worse yet, imposition) of some new learning technology or method that will allegedly "revolutionalise" the classroom experience. The potential success of e-learning in higher education has been seriously impeded by overeager vendors who overstate the benefits of the latest technology or overzealous administrators who- with dollar signs in their eyes- have suspended their disbelief….Some may suspect that faculty resistance to new technologies is much like a repeat of the medieval crafts guild's resistance to the technological developments that launched the Industrial Revolution….There are striking parallels, for example, between the

extravagant enthusiasm associated with the classroom use of instructional television during the 1960s … and the current hype about distance education. Good teachers-not technological tools-open up new worlds for students. (p28)

It is worth noting that though Weigel (2002) blames vendors and administrators he confirms the point that there is resistance by teachers in higher education to incorporate the new learning technologies and this is one of the factors that contribute to the delay that Green (2000) points out.

A closer look at those benefits that have been reported, many of which came through marketing media, indicates that they are (more) on the technical side rather than the educational. They include: lower delivery costs, minimized productivity losses, just-in-time information, personalised learning, ease of distribution, anytime and anywhere availability, and ability to track progress and performance. Pollard and Hillage give the benefits a more detailed treatment and describe them as 'at least partly genuine' and identify accessibility, modularisation and learner-centricity as evidence in that regard (Pollard and Hillage 2001). Responding to access as one of the highly touted benefit, Anderson argues that education is not only about access, and calls for educational theory to address other 'affordances' and limitations of the context for which it is designed, including that of the World Wide Web (Anderson 2004). Laurillard (2004) alludes to the same as she asserts that the publicised benefits confirm that e-learning is strong on the technical side and calls this over marketing of the technical side 'a more natural course of techno-hype'. She then urges those working 'to improve student learning, and seeking to exploit e-learning to do so', to drive it towards the quality agenda.

2.1.2. The South African Higher Education Quality agenda

The Laurillard's call to drive e-learning towards the quality agenda resonates well with international developments in quality assurance for higher education and is specifically relevant to the South African higher education context

(Laurillard 2004). The Council for Higher Education has been assigned (the) responsibility for quality assurance through the Higher Education Act of 1997 and discharges this responsibility through its permanent sub-committee, the Higher Education Quality Committee (HEQC) (Council-for-Higher-Education 2004). The quality assurance mandate includes institutional audits and programme accreditation of which a significant focus is on quality-related arrangements for teaching and learning. One of the aspects the HEQC addresses through the mandate concerns 'the importance of the promotion of student learning' (CHE, 2004, p6). Driving e-learning towards the quality agenda will benefit South African Higher Education, especially if e-learning can be linked to strategies to promote student learning. It is a noticeable effort that the CHE has commissioned research that led to a report on Information and Communication Technologies and the South African Higher education: Mapping the Landscape (Czerniewicz, Ravjee et al. 2006). This is confirmation that the new technologies in learning cannot be taken for granted.
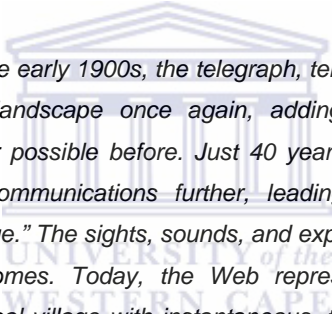
It is worth noting though that even within these quality developments that are internationally benchmarked, the focus on teaching and learning arrangements is still loosely conceptualised. The quality assurance of these arrangements happens at levels significantly far removed from those activities that are linked to teaching and learning. For example, quality assurance happens at the level of institutional audits and programme accreditation. The level at which teaching and learning activities occur is not directly and necessarily impacted on. As such, it becomes a challenge to measure the quality of student learning. What is well established is the fact that deepening and improving student learning is a desired outcome.

It has to be noted at this stage that there is recognition that e-learning has a contribution to make towards teaching and learning; that is, beyond the techno-hype messages that have dominated and accompanied it so far (Weigel 2002, Laurillard 2004). The potential is there, the challenge is to drive e-learning to deliver to quality standards in higher education. This will be one way to deal with

the delay that Green (2000) has alluded to as well as the resistance that Weigel (2002) has highlighted. The question to address is how can e-learning be utilised to promote student learning?

2.1.3. The proclaimed revolution

Along with the touting of benefits is the proclaimed 'revolution' that e-learning has brought or will bring in the learning arena as Weigel (2002) has alluded to. Rosenberg (2000) places this revolution within a historical time line of "restructuring technologies' in the class of Gutenberg's printing press and argues that the presence of the web represents the latest of these 'restructuring technologies'. Within this argument he asserts

'Between the mid-1800s and the early 1900s, the telegraph, telephone, radio, and film rapidly altered the communications landscape once again, adding a dose of realism to the communication that was never possible before. Just 40 years later, television dramatically disrupted our paradigm of communications further, leading to what Marshall McLuan popularised as the "global village." The sights, sounds, and experiences of people all over the world appear daily in our homes. Today, the Web represents the latest restructuring technology, expanding the global village with instantaneous, two-way communication and a unique ability for anyone to participate and contribute' (p20).

It is this disruption of paradigm that has to be carefully understood. It should be clear from this assertion that the paradigmatic stretch did not end up with realism, it has moved further. Many others (Wiley 2002), Salmon (2000) agree with Rosenberg (2000) that with the Internet and e-learning a revolution is here. Others see the revolution as part of a much larger post-modern phenomenon. But whether the paradigmatic disruption is a realist one or beyond realism, or even post-modern, like the conversation in the Will Smith sci-fi movie *I, Robot* 'correct questions' have to be asked. Is it just a paradigm shift or is there something more? What is it that has been revolutionised? As argued in Chapter 1, others see the revolution in education and not necessarily on learning (Rocklin (2001) as cited in D'Andrea and Gosling (2005)).

Prensky in his 'Digital natives, Digital Immigrants' debate, stretches the argument further as he argues that the revolution is not only philosophical, it is neurological as well (Prensky 2001). He draws on a concept of 'neuroplasticity', the idea that the brain undergoes physical changes based on stimulation it receives from outside. Drawing on what he calls the latest research studies in neurology and neurobiology, he attempts to strengthen his argument that 'today's students are no longer the people our educational system was designed to teach'. His idea is to increase the pressure on education with the assertion that in this digital age teaching has to make substantive adjustments. This type of pressure has led to a focus on the characterisation of the different generations: the boomers, generation-Xers, the millenials and the net generation (Oblinger 2003), (Oblinger and Oblinger 2005). The underlying assumption is that only when there is a firm understanding of what characterises the current students in higher education, as well as the younger workforce, can e-learning be used in better ways to enhance their learning. The question is, is that enough to lead to deeper learning?

The Masie Report (2003) on learning standards suggests that the real revolution is not (necessarily) with the introduction of the internet as such or what e-learning can do so far, but moves further and argues that the real potential for revolution comes with the introduction of learning objects. The report states

> *"The emergence of learning technologies has significantly altered the way in which people acquire the knowledge and skills they need to do their jobs. One learning technology concept in particular, the Learning Object (LO), has the potential to revolutionalise the paradigm of learning." (p42)*

Learning objects are seen as a significant milestone in the development of e-learning technologies. Even if there were proclamations that they (learning objects) will bring the real revolution, the lack of accompanying 'conversations' on meaningful pedagogy lead to no fulfilment of these prophecies.

2.1.4. 'Little conversation' on pedagogy

With the benefits touted and the revolution proclaimed, a question that has to be asked is what pedagogy informs the developments of these allegedly beneficial and revolutionary technologies. As some of the authors celebrate both the benefits and the perceived revolution, only a few poses the question of pedagogy. Infused within the discourse of instructional design the charge is that there is little talk so far in terms of sound (instructional) design in e-learning. In an interview for Online Educa (OE) Berlin 2004 conference, Wayne Hodgins (Hodgins 2004) (invited as one of the keynote speakers for the conference) is asked to respond to the question:

OE: We have seen a lot of innovation on the technological side in the last years. How would you consider the situation on the pedagogical side of things?

The question, together with the answer he provides attest to the fact that the question of pedagogy poses a challenge that is not yet fully attended to. He responds in this manner:

Hodgins: …in short I think that we have barely begun to consider and focus on the pedagogical aspects. I am particularly struck by the almost complete lack of attention required to our thinking and practices of teaching, instruction and how best to help others learn. In my work around the world I find an almost universal consensus about the radical shift to a very learner centric model of learning. However there appears to be almost no discussion or consideration about how this will require an equally radical shift in the instructional models, teaching methods and the overall pedagogy to effectively support learner centric learning. As a result I think we are still at the very earliest stage of the revolution in learning and also early in seeing the benefits this will all bring.

In discussing how learning objects developments should incorporate instructional design Wiley (2002) accuses groups steering those developments as engaging in less talk than is desired when it comes to instructional design. It should be

pointed out that according to the Masie Center Report (2003) learning objects represent a major milestone development and achievement within the scope of e-learning technologies. (In his words) Wiley (2002) puts it this way:

> While groups like Learning Technology Standards Committee exist to promote international discussion around the technology standards necessary to support learning object-based instruction, and many people are talking about the financial opportunities about to come into existence, there is little conversation around the instructional design implications of learning objects. (p119)

It is remarkable that the failure of learning objects to bring about this revolution was later acknowledged in the 'blogsphere' when Wiley later sounded their 'death bell'. It is this 'almost complete lack of attention' that Hodgins (2004) refers to and the 'little conversation' that Wiley (2002) speaks about that has prompted and contributed to the exploration in this study. An identified need at this stage in e-learning developments, as well as the quality agenda of higher education, is to expand the conversation so that pedagogical considerations are given considerable attention when e-learning is used in higher education. The rationale is that if the conversation on pedagogy is expanded then e-learning with its recognised potential will be able to make a significant contribution to the quality agenda as far as the promotion of student learning is concerned. A question to attend to first is what is e-learning.

2.2. Defining E-learning

Defining e-learning as a concept is necessary. It is not the meaning that poses much of the problem, rather the varied scope and coverage associated with the term, the same challenge facing e-education as discussed in Chapter 1. To some the scope can be as narrow as to cover only one component of technology for use in learning. This could be the use of a discussion forum, an individual website or a learning management system. To others there is a plethora of technologies involved as new ones are continually emerging. It is important to explore the definition from both the academic as well as the business world as there are interesting parallels. It seems there is a connection, rather, a shared

space that e-learning creates between the two worlds as already highlighted in Chapter 1. The following section explores e-learning definitions.

2.2.1. E-learning as performance support

As mentioned in Chapter 1, the Clark & Mayer's (2003) definition of e-learning is confined to job skills. They define e-learning as 'instruction delivered on a computer by way of CD ROM, Internet, or intranet' (p13). Together with the definition they identify three types of e-learning lessons associated with different learning assumptions. These are: learning as information acquisition, learning as response strengthening and learning as knowledge construction. They then argue that e-learning lessons built on these assumptions will assume different shapes. The following table is adapted from their work and demonstrates their definition and the assumptions behind the design of e-learning lessons.
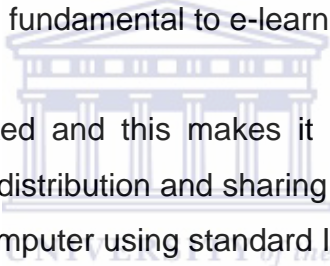
Types of learning	Learning Assumptions	Lesson features	Uses	Associated expressions and metaphors
Receptive	Information acquisition	Information is delivered to memory for storage and retrieval	Information delivery	Jug (from teacher) pouring into the sponge (learner)
Directive	Response Strengthening	Drill and practice	Mastery of procedures	'Show and do' 'Byte sized chunks'
Guided Discovery	Knowledge Construction	Guidance to the learner to build own mental representations	Accomplishment of an authentic task	Guide on the side (not the sage on stage)

Table 3: Types of learning & assumptions (Adapted from Clark & Mayer (2003)

With this analysis in the background, Clark & Mayer (2003) argue that the challenge for e-learning is to build lessons that are compatible with the human learning processes. They then commit to the use of cognitive learning theory as they deal with 'the how' of designing effective e-learning lessons. Though

confined to the training of job skills, their definition (and treatment of e-learning lessons) is helpful in the sense that they identify the three types of learning and their accompanying assumptions. A significant contribution on their part is the understanding that the different learning types require different treatments. This should contribute to a reasonable framework when one has to plan for learning experiences that have to be supported by e-learning technologies.

Rosenberg (2002) too confines his definition to the workplace and covers a broader scope which he calls job performance. His is removed from the sense of the technical worker who needs skills for a specific job. He leans more to the side of a knowledge worker. He defines e-learning as the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and performance. He lists three criteria that are fundamental to e-learning; that

1. E-learning is networked and this makes it capable of instant updating, storage and retrieval, distribution and sharing of instruction or information.
2. It is delivered via a computer using standard Internet technology
3. It focuses on the broadest view of e-learning solutions that go beyond the traditional paradigms of training.

A more careful observation reveals that what differentiates the Clark & Mayer (2003) from the Rosenberg (2002) definition is that theirs is closer to the concept of training on the job in order to develop job skills. His definition draws in notions of knowledge management to distinguish instruction from information, and learning from training. He argues that learning should be defined in a way that works in the context of organizations and businesses. According to his definition, enhancing performance through knowledge management is what gives the e-learning agenda a distinctive feature. The following table summarises his distinctions.

Learning (defined as)	• Learning is a means the end of which is workforce performance • It is a process by which people acquire new skills and knowledge to enhance performance • It enables people to work faster, better and smarter to reap business benefits
Training (differentiated into four components	• An intent to enhance performance • A design with instructional and measurement strategy • The means and media to deliver instruction • Formalised assessment or certification
Training (differentiated from others)	• Purpose is to instruct and the goal is to transfer skill and knowledge • Requires interruption of work • The training programme dictates how the user will learn
Instruction (identified characteristics)	• Focused on a specific learning outcome • Purpose defined by instructional designers • Based on strong diagnosis of user needs • Sequenced for optimum memory retention • Contains presentation, practice, feedback, and assessment components
Information (identified characteristics)	• Focused on a specific organization of content • Purpose defined primarily by users • Based on the characteristics of particular discipline and targeted users • Sequenced for optimum reference • Primarily centred on effective presentation
Knowledge management	• Purpose is to inform • Requires less work interruption • User determines how they will learn • The goal is to be a resource to the user
Performance support	• The purpose is to guide performance directly • Least interruption from work, integrated into work tasks • Task as hand defines what the tool will do • Learning is secondary to performance • The goal is to assist performance or help do it completely

Table 4: Learning/training/instruction/KM/PS (Adapted from Rosenberg (2002)

The Rosenberg (2002) approach to e-learning does not only draw on knowledge management, which he defines as an area where we apply what we know about how to create information that people can rely on, but also on organizational learning, behind which Peter Senge is the acknowledged theorist. Rosenberg (2002) paints a picture of e-learning enabling organizations to become learning organizations. He argues that learning has been elevated to the highest levels of the firm and this is evident in the investments organizations make in corporate universities as well as the appointment of Chief Learning officers (CLO's), Chief Knowledge Officers (CKO's) and Chief Information Officers (CIO's). He sees e-learning providing tools alongside these developments in order to enhance organizational performance. His arguments emphasise a few claims he makes about the potential e-learning has and the revolution it brings. These include the assertion that learning is a lot more than training, that information is better than instruction and that performance support is part of the highest level of the knowledge management pyramid, and he calls that level the enterprise Intelligence.
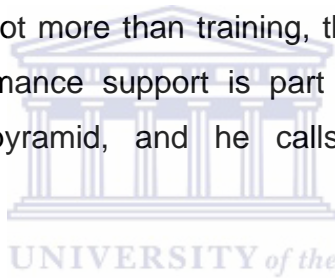
Exploring Rosenberg's (2003) approach is useful in terms of what considerations need to be made for the designing of courses where e-learning is implied. On another level, the exploration expands the discussion on the difference and similarities between how business and academe employs e-learning. It is in the way Rosenberg (2003) argues for the use of e-learning in the business world that the observation that business is also pushed to be more like the academe is confirmed, the notion of a learning organisation.

What is notable is that in order to define e-learning Rosenberg (2002) and Clark & Mayer (2003) had to revisit the question of what learning is, what the purpose of learning is and how do people learn, even though they confine their context to the workplace. They emphasise the importance of these questions in the use of e-learning. The distinctions from Rosenberg (2002) provide a broader view of what considerations have to be made when one plans to create learning

experiences supported by (the use of) e-learning technologies. It is not enough to decide whether the intention is to foster information acquisition or response strengthening or knowledge construction, as Clark and Mayer (2003) assert. Other considerations include whether the intention is to provide training, knowledge management or performance support.

These distinctions do not only have huge implications for the design of e-learning courses and meaningful pedagogy. They provide indications of how academic staff can be trained and supported. The Clark and Mayer definition is close to classroom application of e-learning whereas the Rosenberg contribution can easily apply to staff development. His contribution is insightful in terms of staff development in higher education, where e-learning is not only seen as supporting student learning but also supporting the knowledge and skills of those who have to teach, in other words, supporting the performance of teachers.

The distinctions highlight the importance of a feature to be considered in the design of courses for e-learning, that of texture. Understanding the texture of the learning to be promoted has to be given attention if the design is to be meaningful. From the two tables (Table 3&4) it becomes clear that designing for learning conceived as receptive, directive or guided discovery enforces differentiations in choices to be made. The same applies in the case where learning is distinctly defined as training, instruction, information (acquisition), knowledge management or performance support. These distinctions illustrate the point that designing learning should be informed by the nature of the learning that is implied. The concept of texture in learning is worth exploring.

Pollard & Hillage (2001) claim that their definition is founded 'on the basis of a review of the various uses of the term in the literature', and on the term's use among the organisations they have examined. They define e-learning as the 'delivery and administration of learning opportunities and support via computer, networked and web-based technology to help individual performance and

development'. Theirs supports both definitions already discussed and further highlight the administrative role that these technologies can assume.

2.2.2. E-learning in higher education

From a higher education perspective e-learning is linked to student learning that uses information and communication technologies (ICTs) (Laurillard, 2004). Within this context the following is adopted as the definition: 'the use of any new technologies or applications in the service of learning or learner support'. An interesting link is created with the previous definitions contextualised within the workplace. The reference to support creates a common factor. The question that arises is what are the differences and similarities between performance support in the workplace and learner support within the context of higher education. It is within this context (of higher education) that Laurillard (2004) makes the call to drive e-learning towards the quality agenda to ensure 'an improved system of higher education'. Laurillard's (Laurillard 1993), (Laurillard 1997), (Laurillard 2002), and (Laurillard 2004) contribution to the question is embedded within the framework for the effective use of educational technology that she provides.

Weigel (2002) focuses on higher education too and does not necessarily commit himself to a definition of e-learning but argues that 'from a practical standpoint, deep learning and e-learning are inseparable'. It is deep learning that he defines as 'learning that promotes the development of conditionalised knowledge and metacognition through communities of inquiry'. This, according to him, can only be achieved if e-learning is employed. His argument is that e-learning 'makes possible something that would otherwise not be feasible from a logistical or economic standpoint'.

The assertion he (Weigel 2002) makes is that higher education will not achieve its mission if learning technologies enabled through the Internet are not employed. This is a big statement since with it comes the suggestion that without e-learning higher education will (always) perform below the mark and that quality

will be compromised. Though Weigel (2002) does not make the link himself, the notion of deep learning can also be traced back to the Marton, Hounsell & Entwistle (Marton, Hounsell et al. 1984) theory of deep and shallow learning. He (Weigel 2002) links his definition of deep learning to constructivism and the work of such theorists as Jean Piaget, Lev Vygotsky and John Dewey. His contribution is also made more concrete in a model for 'depth education'.

With Weigel's work a significant contribution is made, his is the appropriation of e-learning for higher education and a fundamental recognition that the mission of higher education is not limited to providing knowledge and skills for the workforce. He admonishes, 'but the responsibility to cultivate and nurture thought is the preserve of higher education'. This alone situates his work and contribution within a different paradigm from many others that are technocratic and technicist and too limited in approach, (only) focussing on the skills needed to prepare and present a credentialised workforce to the industry. Unfortunately the technicist and technocratic approach has been the dominant view and has lead to the deficiency of a proper pedagogy in the deployment of learning technologies in particular. Weigel's (2002) contribution helps to raise complex and significant challenges that we need to confront if technology has to contribute meaningfully and enhance teaching and learning. The following sections of this chapter will focus on some of these complex issues that Weigel's (2002) work and that of others with this line of thinking, have helped to raise. These include what higher education is all about, what the technicist approach to the development of these technologies has produced so far and where to look for sound pedagogy.

2.2.3. E-learning milestones – expanding e-learning definitions

E-learning technologies have moved a noticeable distance in terms of development and innovation since the 1980's. It is important to trace these developments in order to understand why there is still so little conversation on pedagogy when other developments have progressed so much. Besides,

investigating these developments helps to expand the discussion on what e-learning is and by doing so, demystifies it.

The Masie Center Report on learning standards (2004) provides a line of development with identified milestones. This is from the time when the internet introduced the two way communication that made information sharing easier compared with the time when learning management systems proliferated the scene and were the 'technology talk' of the day in the training and the education arenas. The third milestone that can be easily spotted is the introduction of learning objects. Wayne Hodgins (2004), named the father of these developments, argues that learning objects are what will bring the real benefits that up to that time could not be realised in e-learning. He says this with an open admission that it will only happen when pedagogical issues are well attended to. The following is a simple representation of the milestones for technology in learning and education in general:

Introduction of the two-way communication through the Internet ---→ Learning Management Systems -----→ Learning Objects

Macromedia Inc's Director for Global Education Solutions, Ellen Wagner gives these developments a more sophisticated look and presents a more complex timeline. Highlighting the complexities that come with these developments, she adds different descriptors to Marc Rosenberg's (2003) 'restructuring technologies', she labels them as 'converging' and then employs Clayton's (1997) descriptor and calls them 'disruptive'. What these descriptors ('restructuring', 'converging' and 'disruptive') emphasise is that these technologies have brought significant changes to the way we go about the business of education and learning. The following is a more complex representation of the timeline for these developments. Not only does it mark the timeline, but it should also be viewed as a record of the plethora of technologies

associated with e-learning, from the PC based training of the 1980's to the learning object and game/simulation authoring tools of the new millennium:
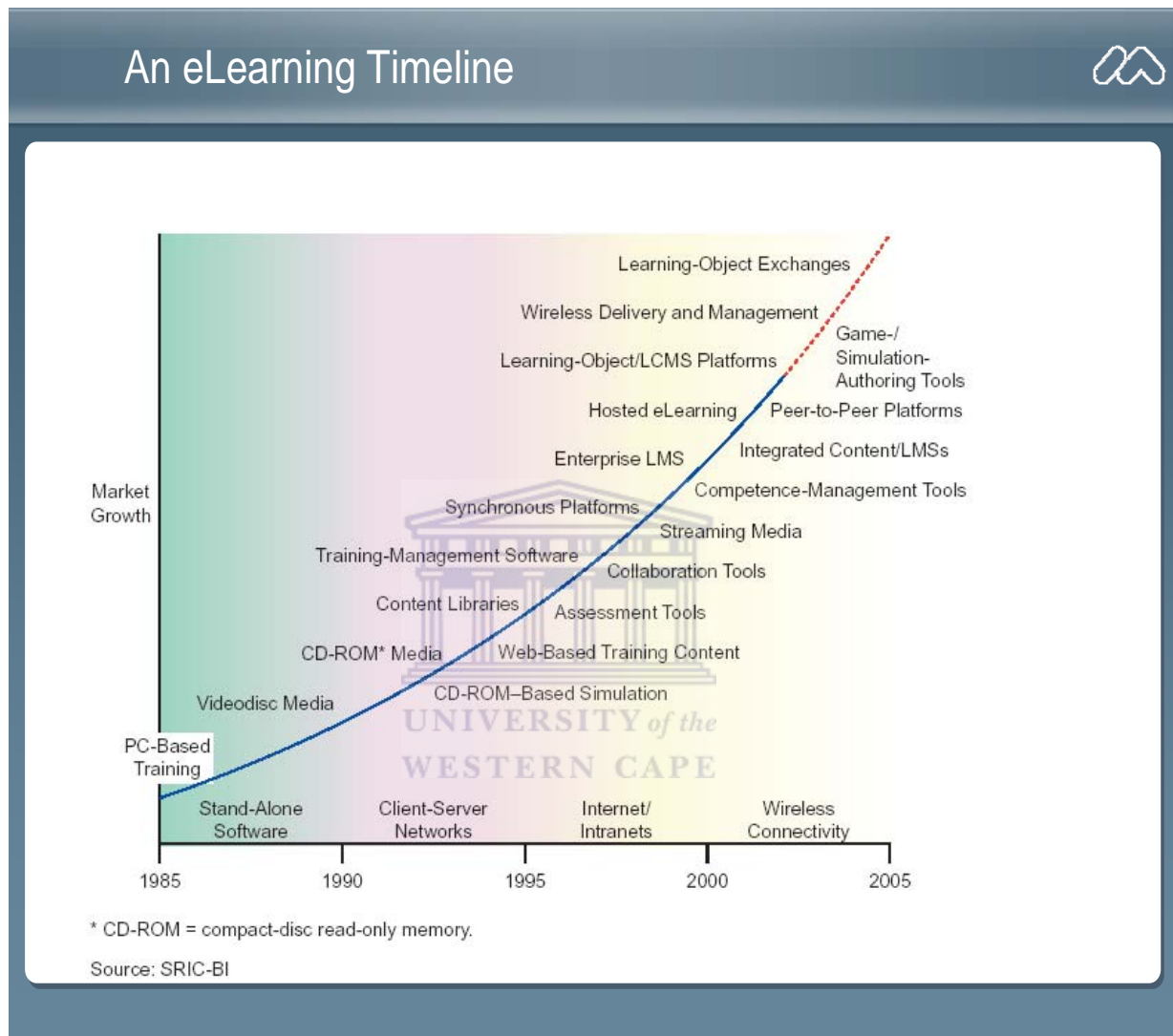
Figure 6: E-learning technologies timeline, (Taken from Ellen Wagner's keynote address at E-Learn 2004, November 1-5, Washington DC, USA)

The proliferation of social networking systems and virtual worlds (e.g., Second Life) makes this representation outdated. With these (many) developments that are associated with e-learning a key question this study poses is why has it been so difficult to carve out a sound pedagogy alongside the development of these technologies? What could have impeded proper understanding and development of pedagogical issues as technological advances proceed? There are a variety of

reasons that various people provide. For the purposes of this thesis a few of the possible sources for this problem will be discussed. One of those few sources is well articulated in the words of a Minister of State in Singapore, Mr Lim Swee Say (Pan 2004), when he says that 'we live in interesting times where (technological) solutions go in search of problems'. Using the thinking in Say's statement, Pan (2004) asks 'if pedagogy is not trailing behind technology?' The sense gathered from the question is that it might be that pedagogy (in this environment where learning technologies advance in ways that are highly complex) reorganises and reshapes (or rather looses shape) in order to conform to what can be achieved given the technological infrastructure. The issue here is surely technology should be bending and shaping in order to help achieve the aims of pedagogy. The argument in this thesis is that, it is because of the manner in which this complex and problematic relationship between technology and pedagogy has evolved so far, that we have this 'almost complete lack of attention' and 'little conversation' on pedagogical issues, where new learning technologies are concerned. It is basically because pedagogy is made to chase after technology and not the reverse - which would seem the more desirable state.

2.3. Pedagogy, technology and Instructional Design

In looking at this problematic relationship between pedagogy and technology, it is necessary to inspect Instructional Design as an area and field of study that is supposedly focused on guiding the effective design of instruction. What is even more necessary is to scrutinise the link the field has with both pedagogy and technology, and in the process isolate what problems exist in an attempt to work towards the answers. With the advent of technological advancement, the field has reshaped and produced focal areas that came to be known as Instructional Systems Design (IDS) and Instructional Design and Technology (IDT).

A more pertinent issue to note in this discussion is that there are constraining discourses associated with Instructional Design as a field. But before this line of thinking is given more attention, it is important to look at the reasons provided by those who have confidence in instructional design, how they define its failure given the developments we have in learning technologies; a discussion that was partly treated in Chapter 1.

2.3.1. Need for change in ID: epistemic assumptions and narrow focus

It is not only the narrow focus that is a problem in ID; theoretical foundations can also be problematic. Tennyson and Schott define instructional design as a field of study concerned with improving student learning (Tennyson and Schott 1997). They go on to indicate that (as a field of study) 'it provides theoretical foundations to principles of instructional design, a research base confirming the theoretical foundations and a direct involvement in the application of those principles'. They further point out that it is often referred to as prescriptive theory in that the variables and conditions of ID theories are predictable to given learning outcomes. Merill (2002) indicates that as represented in (Reigeluth 1999) (1999) ID varies from basic descriptive laws about learning to broad curriculum programmes that concentrate on what is taught. It can then be observed that at a theoretical level ID espouses a broad view towards education and learning and yet at an operational level the narrow focus dominates ID approaches, as discussed earlier.

From these sources there is an indication that it is not that easy to separate the area from which ID draws its foundations, which is the area of learning theories, with its very practice. Tennyson and Schott (1997) further indicate that the practice side of the field provides the methods and techniques for developing and producing learning environments. The main point made here is that the design of learning environments depends on the theories, principles, methods and

techniques that ID has to produce. With good theories and principles leading to good methods and techniques the end product should be learning environments that produce the best student learning results. To the contrary, the quality of student learning has continually received attention as in need of improvement. Why has ID not been able to deliver?

There are at least two identifiable areas of contribution that led to the recognised failure within ID circles: research into programmed instruction and the development of teaching machines as pioneered by Skinner, and the objectives movement popularised by Ralph Tyler and Robert Mager. Tennyson and Schott (1999) clearly point out that Skinner's theories were later proved to be not appropriate as understanding of learning deepened and paradigms shifted. Cogntivist theories took over as behaviourism lost ground. It is in this context that Jonassen and Rohler-Murphy (1999) argue for change when it comes to epistemic and pedagogic assumptions in ID, a change from the classical approaches that have dominated the field. They advance their argument in a context where they argue for constructivist learning environments. What makes their argument valid is the fact that approaches and theories can be found to be wanting, and this can lead to misinformed methods and techniques.

As argued in Chapter 1, the field of instructional design did not offer much in dealing with the complexities involved in learning, especially that learning technologies have advanced so much. There has been a narrowing of discourse in the developments that evolved in this field. This has resulted in a number of complications, especially in its sub field that came to be known as Instructional Design Technology. This narrowing of discourse is well demonstrated by the 'inextricable link' (Bichelmeyer 2005) that exists between the field and the ADDIE model. As already argued in Chapter 1 a further complication is that the field has come to be treated as a synonym for the model.

Reiguleth's article is considered (not only from the journal editor's point of view but by many others) a good summary that enlightens the debates around the appropriateness (and inappropriateness) of Instructional Systems Design as a model for analysis, development, delivery and evaluation of instruction (Reigeluth 1996). His work in this field can be seen as what has largely sparked debates and (the) questions about whether Instructional Systems Design is still relevant in this environment where technologies for learning have advanced so much. In this article Reiguleth (1996) starts by providing a strong defence for Instructional Systems Design and argues that both its process and product models, 'better known as instructional-design strategies and theories' have been very successful, and then asks if they really need to change. He calls for a change in the paradigm of instruction first, from the focus on 'sorting and standardization' to focus on learning and customization. What has to be celebrated from this contribution is that he highlights two significant areas for change: one is that what was seen as instruction and education so far in this paradigm has to be questioned, and secondly that the mission for education was not learning but the sorting of learners: to 'separate labourers from managers' in his words. He continues in almost a cynical manner to state

> *After all you couldn't afford to- and didn't want to- educate the common labourers too much (or they wouldn't be content to do boring repetitive tasks, nor to do what they were told to do without questions). That is why the current paradigm utilizes norm-based testing. When you really think about it, our current paradigm of education is not designed for learning, it is designed for sorting. We now need a focus on learning and not sorting. (p3.21)*

It is striking that what Reiguleth (1996) points out in this part sounds very much like how the Apartheid System of education was designed before the democratic era in South Africa. How striking it is that Reiguleth's (1996) criticism applies to the United States of America. But for Reiguleth (1996) to argue that the focus in education has to change because it focussed wrongly on sorting and not on learning is also an acknowledgement that Instructional Systems Design is also wrongly focussed - otherwise how could it manage to support education in its sorting mission? He has already admitted that it (Instructional Systems Design)

was very successful over the years. To improve on his argument is not to argue that instructional theory has to change only because education is changing in the information age. The fundamental reason for change should be that Instructional Systems design has to correctly focus too - on learning. An important message with the Reiguleth (1996) article is that when the focus and intention of education, learning and instruction is not well clarified, the design (of lessons or courses or programmes) will also be messy and the goals too will not necessarily be well defined and achieved.

The other significant area that has to change is the understanding of what instruction is. He (Reiguleth) calls for a more broadened meaning of instruction. In this he confirms the charge that so far instruction theories that informed what is known as instructional design as an approach in education and training have been a limiting factor. They could not serve the broader needs of education in particular, though some might spot a chicken and egg situation here - that between educational theories and instructional design theories and models it is not clear which one lead to this limited way of thinking about learning.

These sentiments echo the call that Rosenberg (2001) makes, his is in terms of broadening our understanding of what learning is, that is beyond the concept of training and instruction. He argues that if that broadening is done, then e-learning too should not be understood in those narrow terms of supporting training (and instruction) only. He makes a call to move away from what he calls the training mindset. His words are worth quoting,

> *Despite more technology, most training departments, corporate universities, and even organizations that have begun their transition to performance still function predominately with a training mindset. They have concentrated their resources, either by design or legacy, almost exclusively in the instructional arena.*

He goes on to say,

> *E-learning provides an opportunity for us to broaden this perspective. What we are beginning to note about e-learning is its growing diversity, beyond courseware and instruction, to generating and disseminating information and directly supporting performance. (p11)*

Laurillard (2002) argues that instructional design theory is a logically principled approach, it is not empirically based and as such it does not build teaching on knowledge of students. One can even argue that it (instructional design) does not focus on teaching at all. It focuses on other aspects like content and the process of how to get the content to the learner, that is, without paying much attention to teaching (and learning); especially in the way some of its definitions are framed. As Zemke and Rosett (2002) argue, the focus is on the structure of the learning process. This has lead to a sidelining of those pertinent issues that deal with how one ensures that (deep) learning is achieved, for example.

In exploring answers to the question: 'To what extent can (or should) we build today's instructional strategies into CBT authoring systems?' O'Neil provides insight into the question of where the failure of Instructional design and the use of instructional technology lies (O'Neil 2008). He makes a stern remark and reminds us that instructional technology is 'a technology'. He argues that the real technology behind, which is the authoring languages are 'essentially instructionally irrelevant' and are 'written on a level of discourse below' what is desirable. His words are worth quoting:

> *CBT languages, as they have been developing, although they may be mechanically efficient and intellectually seductive, are essentially instructionally irrelevant. That is, although they provide the tools for defining interfaces between users (authors, students, proctors, instructors, etc.), the content and the systems capabilities, these are at best only definitions of mechanical boundary conditions (Bunderson, 1977). The languages are deficient in the metaphors of the instructional technology; they imply no necessary considerations of primitive content structures, strategy definition, or locus of control. Most are written on a level of discourse far below that which would be desirable (Pask, 1969). In short, whereas they may serve to communicate to the system 'how' to do something, they offer little help to the instructional designer in terms of the more important question, namely 'what should be done' instructionally.*

O'Neil identifies three stages of development in the history of ISD: the 'artistic (cottage industry)', the empirical and the systematic (O'Neil 2008). He then analyses what deficiencies lay behind each approach in the different stages. He points out that the artistic approach has failed to have a major effect on the progress of education and training. It has only been good for demonstrating the possible 'pot-pourri' applications associated with Computer Assisted Instruction (CAI). The empirical approach is considered 'prohibitively expensive' as it depends on 'course try-out and revision based on data from testing students'. The systematic approach depends on principles of 'systems approach'; in this case the system is improved but not necessarily the learning. His contribution is important in that it highlights the complex relationship between instructional technology and the fact that its availability does not necessarily answer the 'what should be done' question as far as instruction is concerned. It is an indication that the advances in learning technologies do not come along with answers to the question, the answers have to be sought. The following discussion on learning objects illustrates this point even further.

2.3.2. The Learning Object movement – the case to consider

A case to consider is the argument around the introduction of 'learning objects', touted as having the potential to bring the real revolution promised with the introduction of e-learning in the education and learning arena (Masie Center 2003). A look at learning objects from a critical perspective helps to clarify issues. It has been observed that the learning object movement is put under scrutiny by such pitfalls as brought about by behaviourism, especially as reflected in Instructional Systems Design. Learning objects, also referred to as Reusable Content Objects are rated to be the most important amongst the emerging technologies and are predicted to have the greatest impact on higher education in the near future (Bonk, Kim et al. in press). The learning object movement faces a double edged sword when it comes to meaningful pedagogy. The fact that there is not enough talk about pedagogy has already been highlighted. Secondly the inherited shortcomings that are part of instructional design theories inform the

basis of learning object design and development, and how they are to be used in learning.

David Wiley (Wiley 2004), (Wiley 2000) and (Wiley 2002) has given a useful discussion of issues surrounding the use of the concept 'learning objects', and has pointed out a number of problems in the existing definitions. In his discussion he charges that the working definition from the Learning Technology Standards Committee working group is 'broad, and on examination fails to exclude any person, place, thing or idea that has existed at any time in the history of the universe' (Wiley 2002). It is not only the lack of specificity that poses a problem; it is also the emptiness in the definition that suggests that learning objects are anything and everything. In the definition Wiley (2002) provides, that learning objects are 'any digital resource that can be reused to support learning' a new issue of differentiation surfaces. The definition suggests that the concept should be tied to the support and facilitation of learning rather than the provision of content. It is important to see these two issues as different. Confusing them will result in a confused focus when learning objects are to be developed. He argues that learning objects must participate in a principled partnership with instructional design theory if they are to succeed in facilitating learning. His argument assumes more value when he further asserts that the expected revolution that learning objects will supposedly bring and that everyone seems to be banking on, will never occur unless more work is done on the instructional use of learning objects.

Another problematic definition is provided by the MASIE Center e-learning Consortium (2003). In this work the learning object is defined as 'a self-standing, discrete piece of instructional content that meets a learning objective'. A further description is provided and the building blocks within learning objects are 'self-contained pieces of informational content that can be used alone or can be dynamically assembled into Learning objects to meet the 'just-enough" and "just-in-time" requirements of the learner'. More issues emerge with this definition. A

disturbing revelation is that here learning objects are seen as small pieces of information. This view is problematic in the sense that learning is seen as acquisition of information and it is criticized by Wiley in what he sees as difficulties and opportunities in the learning object movement (Wiley 2004). He puts it in this way; that within a context of problem solving, learning objects and other resources change from 'info-capsules that transfer inert knowledge from expert to novice, into semiotic tools that mediate and shape the learners actions'.

Wiley (2002) makes reference to critical theory to discuss the design and use of learning objects. The reference can be traced back to the work of the Frankfurt school (a school of thought made up of a group of theorists who were united by their reactions to adaptations of Marxism in the 1920's-1930). Wiley's argument illustrates the point that in the name of science and technology and advancement, the positivist notion of thinking produces new forms of barbarism, even when the main project appears to be civilization and human progress. A new form of domination over human beings is then created with the introduction of learning objects, or as members of the Frankfurt school put it, 'domination has assumed a new form' (Giroux 1983). With learning objects (as conceptualised in the definitions treated by Wiley (2002)), the freedom of the learner (and the teacher) is highly threatened. Human agency is exchanged for technological agency. Those trapped in this paradigm see technology as a change agent and not the human beings that have to use it as authentic agents. That technology is a change agent in itself is highly problematic and should be treated as contested ground. It is challenges of this nature that higher education faces in the incorporation of e-learning into teaching and learning.

Wiley makes the charge that learning objects have an oppressive nature. This is after he has highlighted a number of problems concerning the concept, including the definitions given to the concept (Wiley 2002). The following are two problematic definitions of what a learning object is: 'any digital resource that can be reused to support learning' (Wiley 2002) and 'a self-standing, discrete piece of instructional content that meets a learning objective' (Masie Center 2003). What

Wiley (2002) further points out in his work is the recognition of contributions from a different paradigm in the learning and knowledge debates. He usefully draws attention to the work of Paolo Freire (1970) that was highly critical of 'banking education' in his Pedagogy of the Oppressed (Freire 1970). Part of the essence of the work was to challenge the idea that people's minds are seen as 'banks' where information can be deposited, only to be withdrawn when needed. What the work of Freire (1970) has contributed to education is to add a list of questions about the way education is delivered, questions on society, humanity, empowerment and disempowerment. There are a number of pointers here. If learning objects acquire the shape and texture that is envisioned by the Masie Center (2003), then they (learning objects) will not only be oppressive as Wiley (2002) further charges, but dehumanizing because they are seen to be capable of taking over human agency. Within this positivistic paradigm where the learning objects are embedded, a technicist view of learning is assumed. It is this technicist nature that requires a critical look. This seems to explain why pedagogy is sidelined in these developments, especially if technology is seen to have the ability to drive learning irrespective of the human agents involved. It is only recently that pedagogy is featuring in research and development work focusing on learning objects (Alonso López, Manrique and Viñes 2008).,

2.3.3. Taking a critical look at pedagogy

Drawing from the work of such theorists as Giroux (1983), Giroux and McLaren (1989), it is possible to take a critical look at pedagogy (and instructional design in the process), that is, beyond the 'hard look' taken by Zemke and Rosett (2002). This should provide useful insights in dealing with the dehumanising effects in the current conceptualisation of the learning objects, as well as the overall use of e-learning in education. A critical look should also address the technicist approach that might otherwise dominate the use of these new technologies in learning, that is, if care is not taken. Using critical theory as epistemic foundations, pedagogy becomes critical pedagogy.

In introducing what critical pedagogy is all about, Giroux (1983) posits the questions underlying the mode of analysis in this area of work. The questions are 'how do we make education meaningful by making it critical, and how do make it critical so as to make it emancipatory'. He (Giroux 1983) argues that traditionalists have failed to develop a radical theory of pedagogy because there is 'no room in their discourse for the fundamental categories of praxis: categories such as subjectivity, mediation, class, struggle, and emancipation'. Including these kinds of issues in the discourse of learning technologies has potential to open up avenues that would otherwise never be opened. But how do we pull these issues to the level of the classroom, where the real seat of pedagogy is? Are these issues not too high up, above the level of the classroom? For Giroux, these are the real pedagogical considerations that those involved have to battle with.

It will be useful to explore what Giroux (and those who are like-mined) defines as pedagogy (Giroux 1995). The use of this concept 'pedagogy' in this argument is not meant to compete with the sense in the concept 'andragogy', a term associated with Knowles, also proclaimed the father of adult education methodology. He, Knowles (originally) defined andragogy as 'the art and science of helping adults learn' (Feuer and Geber 1988). Knowles re-examined his original assertions about the unique characteristics of andragogy and came to believe that it is not simply a theory of adult learning, but a situational model for human learning (Feuer & Geber, 1988). The sense of the word pedagogy, in critical theory, the kind purported by Giroux (1989) covers all levels of education-primary, secondary and tertiary.

Giroux (1983) outlines the meaning of critical theory as an attempt 'to assess the newly emerging forms of capitalism along the changing forms of domination that accompanied them', including an 'attempt to rethink and radically reconstruct the meaning of human emancipation, a project that differed considerably from the theoretical baggage of orthodox Marxism'. To this he adds, by stating that 'the

concept of critical theory refers to the nature of self-conscious critique and to the need to develop a discourse of social transformation and emancipation that does not cling dogmatically to its own doctrinal assumptions'. What is valuable here is his additional argument, that critical theory refers to both a 'school of thought' and a process of critique, and that he argues, 'it is *invaluable* to educational theorists' (emphasis inserted). In his words, critical theory 'calls for ongoing critique, one in which the claims of any theory must be confronted with the distinction between the world it examines and portrays, and the world as it actually exists'.

With those questions in mind, but more with e-learning in mind, what is it that critical theory and critical pedagogy have to offer? At a theoretical level there is a valuable point not to be missed - a warning that Bannan-Ritland et al gave in their work as they were exploring the use of constructivism in the design and development of learning object systems (Bannan-Ritland, Dabbagh et al. 2000). Their warning is that we 'need to be careful of using new technologies to implement only thoroughly tested models of teaching, rather than as a catalyst for transforming the learning process by attempting to implement potentially more powerful but not yet fully explored pedagogies'. Though their focus is on constructivism as the unexplored pedagogies for learning objects, this study would like to apply the same warning about critical theory and pedagogy. E-learning and the development of learning objects can serve as catalysts for transforming the learning process if amongst others we enrich our pedagogical discourses with issues raised within that scope.

Giroux and McLaren first compare and contrast popular culture and classroom pedagogy as we have it, unchallenged by critical theory, so as to highlight the nature of pedagogy (Giroux and McLaren 1989.). Through this comparison they indicate that pedagogy 'is defined largely by instrumental terms', it 'transmits the language, codes, and values of the dominant culture'. In the comparison they further indicate that pedagogy 'authorizes the voices of the adult world, the world

of the teachers and the school administrators'. For e-learning and learning objects, the same will apply: they will also authorize and legitimize the voices of the employers, business and industry if job training is the driving force behind the commercialization of these technologies.

They recognise that pedagogy is a 'complex and extensive term', whose 'concern includes the integration of the practice of particular curriculum content and design, classroom strategies and techniques, and evaluation purposes and methods'. And indeed instructional design would fall within this scope, especially the design part. An obvious implication is that it means that a particular style of (instructional) design within the classroom will always reflect the bigger issues of what pedagogy is prevalent within that particular classroom.

They also recognize that the discourse of pedagogy 'stresses that the realities of what happens in the classroom organize a view of how teachers work within an institutional context and specifies a particular version of 'what knowledge is of most worth, in what direction we should desire, what it means to know something, and how we might construct representations of ourselves, others, and our physical and social environment'. They round up this extensive definition of pedagogy as it stands in the dominant discourse by arguing that 'in this sense, to oppose a pedagogy is to construct a political vision'.

They go on to present what questions the education organised by 'critical pedagogy' must raise. These include 'how we can work for the reconstruction of social imagination in the service of human freedom', what notions of knowing and what forms of learning are required by such a project?' This pedagogy should be 'rooted in a view of human freedom as the understanding of necessity and the transformation of necessity', a pedagogy 'whose standards and achievement objectives are determined in relation to goals of critique and the enhancement of human capabilities and social possibilities'. They conclude by saying, 'this means that teaching and learning must be linked to the goals of educating students to

understand why things are the way they are and how they got to be that way'. But even more the goal should be 'to make the familiar look strange and the strange look familiar', to take risks and to struggle with ongoing relations of power from within a life-affirming moral culture'. In the post apartheid South Africa, this type of pedagogy offers opportunities for teaching and learning that will go beyond the technical transfer of skills for the labour market.

As it is in the case of constructivism, one challenge raised is that it is not easy to translate critical theory into classroom practice. For constructivism, progress has been made in terms of identifying methods like PBL (problem based learning) for classroom interaction. It is still a challenge for critical theory to do precisely the same. As Brandon quips: 'because the rubber has to meet the road somewhere, pristine theory must inevitably be drawn into contact with squalid practice'(Brandon 2005).

Travers and Decker call is useful though limited in some sense (Travers and Decker 1999). They call on post-secondary teachers to confront ways in which technologies are likely to add to the construction of boundaries on campus. However they emphasise the 're-tooling of the social'. In taking critical theory to the level of the classroom, teachers have to question and render suspect ways of teaching that suppress the human potential for learning and avoid methodologies that are dehumanizing. For example, using technology to teach for 'response strengthening' (Clark and Mayer 2003) will not be compatible with approaches which embrace critical theory. Instead of teaching to manipulate the human behaviour and mind to produce specific responses and foster social engineering, critical theory will work towards empowering learners to determine in what ways to respond in a liberating manner

2.4. Designing Learning Environments

Research on learning environments has highlighted a number of issues when it comes to improving student learning. Bransford, Brown and Cocking (eds) (2000) argue that new developments in the science of learning raise important questions

about learning environments and these questions suggest a rethinking of what is taught, how it is taught and how it is assessed. A major contribution in this type of work is that learning environments do not exist on their own, they have to be designed. Technological advances afford the designers opportunities of doing what would otherwise not be ordinarily possible. They (Bransford, Brown et al. 2000) further expose (common) misconceptions about the interactions that exist between disciplinary knowledge and pedagogical knowledge. They explain,

> *The misconceptions are that teaching consists only of a set of general methods that a good teacher can teach any subject, or that content knowledge alone is sufficient. Subject-matter expertise requires well-organized knowledge of concepts and inquiry procedures. Similarly, studies of teaching conclude that expertise consists of more than a set of general methods that can be applied across all subject matter (ideas about what good teaching is and acts/correct actions to lead to good teaching). These two sets of research-based findings contradict the common misconception about what teachers need to know in order to design effective learning environments for students. Both subject-matter knowledge and pedagogical knowledge are important for expert teaching because knowledge domains have unique structures and methods of inquiry associated with them. (p242)*

Their work does not only locate the teacher's role at the centre of designing effective learning environments, it also centres the role that pedagogy plays. Alexander gives pedagogy a fair treatment in terms of defining what it entails. His words are worth quoting (Alexander 2008):

> *Pedagogy is the observable act of teaching together with its attendant discourse of educational theories, values, evidence and justifications. It is what one needs to know, and the skills one needs to command, in order to make and justify the many different kinds of decisions of which teaching is constituted. (p29)*

He (Alexander 2008) defines pedagogy in two terms: as ideas and as an act or as practice. His definition strengthens the angle from which to investigate pedagogical considerations in the use of e-learning, to look at the ideas teachers have about teaching and learning and then to investigate the actions they take as they support student learning. If the ideas are founded on weak or wrong foundations it can then be argued that practice will be skewed and student

learning will be less successful, what Merill calls 'learning decrement' (Merill 2002). Alexander (2008) strongly argues that even though pedagogy is so central to the quality of learning, it is 'so palpably the missing ingredient in the international debate about educational quality'. He goes on to argue that 'we have no alternative but to find ways of remedying the deficiency'.

Bransford et al (2000) explore the design of learning environments from four perspectives that appear 'particularly important given current data about human learning': the degree to which learning environments are learner centered, knowledge centered, assessment centered and community centered. Each of these implores teachers to be in possession of well informed ideas and to command a high level set of skills in order to operate effectively. Their pedagogical knowledge has to be well grounded. Assessment of student learning alone can be a very complicated exercise as educational literature suggest. To be able to organise and administer it in such a way that it acquires all the useful features (or al least a number of them) as touted in literature can be a daunting task to both a novice and experienced teacher. These features include when it should be formative or summative, targeted on individual, peer or group, when and why it should be criterion- and not norm-referenced, and how to ensure that it is constructively aligned with the planned teaching and learning activities, learning outcomes and the allocated content (Biggs 2001). If the use of technology is added, assessment acquires yet another level of complexity. To be able to do one's job within this context requires a well founded set of skills, knowledge, values and attitudes.

Jonassen and many others have argued for constructivism in designing learning environments, leading to the concept of Constructivist Learning Environments (CLE) (Jonassen 1999). That alone, has not been that useful as demonstrated by the assertion that (Jonassen and Rohrer-Murphy 1999) made. Their words are worth quoting:

> *As with nearly every innovation, a problem with constructivism for instructional design has been that, while detailed conceptions and examples of the kinds of CLEs exist, less practical advice is available on how to construct them and especially how to perform the analysis phase of the design and development process for CLEs. Although design recommendations are forthcoming (Reigeluth, 1999), none explicate methods for needs or task analysis. If we agree that the epistemic beliefs of constructivist learning approaches are fundamentally different from those of traditional instruction, classical methods of needs and task analysis are inappropriate for designing CLEs. …Therefore, designers committed to designing and implementing CLEs need an appropriate set of design methods for analyzing learning outcomes and designing CLEs that are consistent with the fundamental assumptions of those environments.*

Alonso, López et al articulate more criticism in terms of difficulties in the implementation of constructivism in teaching and learning (Alonso, López et al. 2008). They assert,

> *… the translation of pure constructivism into practice has some drawbacks: (1) the evident autonomy of learners in knowledge construction makes it very difficult to predict how learners will learn or how to plan learning activities; (2) it is extremely difficult to set standards to assess the meaningfulness of the learning, and (3) learners might construct wrong knowledge because they have almost unlimited freedom of choice to select what to and how to study from among available resources.*

As Jonassen and Rohler-Murphy (1999) demonstrate, constructivism is brought to the level of practice (from the level of theory and epistemic foundation) through Problem Based Learning (PBL). What this means is that PBL gives constructivism an 'operational face' in order to deal with the existing criticisms levelled against it. It becomes clear that it is not enough to espouse what can be highly regarded as sound epistemic foundations (ideas); those should be accompanied by applicable methods and techniques in answer to the 'how to' question (acts).

Merill in his 'First Principles' argue that 'many current instructional models suggest that the most effective learning environments are those that are problem-based' (Merill 2002). A problem based approach takes centre stage in many other approaches that are named differently, as Jonassen and Rohler-Murphy (1999) indicate:

> *… anchored instruction (Cognition and Technology Group at Vanderbilt, 1994), problem-based learning (Savery & Duffy, 1995), open-ended learning environments (Land & Hannafin, 1996), constructivist learning environments (Jonassen, 1998), goal-based scenarios (Schank, Fano, Bell, & Jona, 1993).*

Designing learning environments in such a way that they qualify to be called CLEs calls for 'several interdependent components: a problem-project space, related cases, information resources, cognitive tools, and conversation and collaboration tools' (Jonassen and Rohler-Murphy 1999). Later work by Jonassen and colleagues clearly indicate the demands that such a design places on the role players (Jonassen 2002, (Hong, Jonassen et al. 2003). Their work give much weight to the claim that Weigel (2002) made, the point that without technology it will be impossible to achieve the desired level of success in higher education, that is, as far as student learning is concerned. The affordances that technology brings are indispensable in this context. What is also forthcoming out of this type of work is an attempt to address the legacy of the objectives movement. It is argued by many of these authors that learning objectives have to be reconceptualised and to be written differently.

It is worth reiterating that designing learning environments that aim at meaningful learning make at least three demands on teachers: sound epistemic foundations, well informed methods and techniques that will result in good practice and the (calculated) use of technology. There is emerging literature that indicates how reasonably supported well identified (and labeled) methods like Inquiry/Enquiry Based Learning are in terms of their foundations and accompanying methods and techniques (Brew 2006), (Hutchings 2007) (Hutchings 2006; Hutchings January 2006). Approaches and methods like these give value to what it means to design learning environments. Though their bias towards problem solving is sometimes questioned and viewed with skepticism, literature so far indicates that these methods are applicable across all disciplines; from language and arts to physics and astronomy.

Jonassen strongly argues that the only 'legitimate professional education' in universities or in cooperate settings is problem solving (Jonassen 2002). He puts it in this way:

> *Telling students about the world and quizzing their recall of what we told them is not only an insult to our learners, … but that pedagogy retards epistemological development, preventing them from developing knowledge-seeking skills needed to know how to do something useful.*

He makes these claims in a context where he argues that teaching online has to be innovative and emulate learning in the real world where people learn '*how* to do things and not *about* things' (his emphasis). According to him, all instruction should focus on problem solving. An important point he is making is that pedagogy can retard learning and not enhance it, if founded on wrong conceptions. In this context, there should not be talk about learning objectives, but what problems students need to solve in order for them to learn.

2.5. Emerging 'Design' considerations

It can be observed at this stage that there are some specific 'design' considerations that are necessary to guide successful student learning in higher education. Though it has been argued that there has been not been enough talk on pedagogy as technology invades the education scene, recent developments, past the learning object movement seem to be mobilising around a new focal area, that of 'educational' or 'learning' design(s). It can be observed that research on designing learning environments has been pivotal and has pushed thinking in these new directions. Though in its early days, this area opens up new avenues to ensure that pedagogy takes centre stage in conversations about the use of technology in education. It signals a move from the content and technology focus of learning objects to a focus on the process of learning (Van Es and Koper 2006), (Filho and Derycke 2006; Filho and Derycke undated). There is a need to pay closer attention to this movement to ensure optimal benefits.

The concept *Learning Design* is derived from Instructional Design and as Tattersall, Manderveld et al indicate it is preferred and used to emphasise 'the

variety of approaches to learning above and beyond the "teaching, imparting knowledge" perhaps associated with instructional design' (Tattersall, Manderveld et al. 2003). An important point to note is that e-learning is an emerging field and it seems to be far from reaching a point of stabilisation; room for these developments is still vast. Rohse and Anderson argue that literature in this field shows that the 'discipline of learning' is struggling to cope with complexity' and these developments are efforts in that struggle (Rohse and Anderson 2006).

Goodyear clarifies these many shifts of focus and justifies why the focus has to move to 'educational design', which he defines as 'the set of practices involved in constructing representations of how to support learning in particular cases' (Goodyear 2005). He argues that there is a great need to see 'educational design' as a problem of great magnitude because existing practices are not leading 'smoothly to optimal learning outcomes'. There is ample evidence that success rates in higher education are not optimal, both locally and internationally. The Council for Higher Education publication (Scott, Yeld et al. 2007) provides useful data on how the South African higher education is failing to deliver on the expected outcomes. The American Center for Public Policy and Higher Education attests to the same (The-National-Center-for-Public-Policy-and-Higher-Education 2008).

Goodyear (2005) is specific in terms of why not instructional but educational design. He says,

> It (educational design) focuses on practice rather than theory, while recognising that practice embodies experiential and theoretical knowledge. Within this framework, it can be seen as a reworking of instructional design, but without the narrow pedagogical repertoire that the term 'instruction' is often taken to connote

His work together with others like Oliver (Oliver and Herrington 2001) (Oliver 2004) (Oliver 1999) forms the basis on which a new focus area that is now commonly referred to as 'learning design' is being developed. It is a clear indication that ID is receiving a 'reworking' since it has to be instrumental in bringing about the envisaged revolution that was supposed to come along with

advancements in learning technologies. Sims operates within this new design environment and his argument is that we do not need instructional design as traditionally practiced (Sims 2006). He goes on to state,

> However, we continue to need a comprehensive understanding of how people learn and the way learners can best be engaged in online environments. Where conventional instructional design models and processes fail to effectively address these factors, we need to consider new models that integrate the pedagogies of online, learner-centred environments.

This new focus promises to bring back pedagogy to the centre and this might then make it transparent what pedagogical considerations need to be made for successful student learning, that is, in the presence of these technological advances. There is a tension though that this field emerges under the concept of learning and not pedagogical design, even though the aim is to foreground the use of technology on sound pedagogical principles.

2.5.1. Principles behind 'Learning Design' movement

In order to understand what this emerging area of focus aims to achieve, it is important to first highlight the (epistemic) foundations the area is building on. Brown (2006) draws from the work of Goodyear (2005) and identifies the two strands of this emerging science of educational design, namely, the conceptual and the procedural. The conceptual is associated with philosophy and what Goodyear (2005) calls high 'pedagogy'; the procedural with pedagogical strategy and tactics. Another important distinction is between 'runnable' and 'inspirational or exemplary designs (Griffiths 2006), (Barrett-Baxendale and MacNeill 2008). Runnable designs are of a technical nature meant to provide information for system implementation whereas inspirational designs are used to inform and facilitate pedagogical design.

Merill's work (Merill 2002) on 'First Principles of instruction' is relevant here even if he (Merill) was operating in a context still embedded within instructional design as a field. He looked at theories and models of instructional design over time in order to answer these questions:

Do these design theories and models have fundamental underlying principles in common? If so what are these underlying first principles?

His analysis suggests that the most effective learning environments are those that are problem-based and involve the student in four distinct phases of learning. The phases should occur within a problem based context, where the overriding assumption is that learning is facilitated when learners are engaged in solving real-world problems. The following table summarises his contribution:

Phase	Prescription
Activation	Learning is facilitated when relevant previous experience is activated.
Demonstration	Learning is facilitated when the instruction demonstrates what is to be learned rather than merely telling information about what is to be learned. …
Application	Learning is facilitated when learners are required to use their new knowledge or skill to solve problems.
Integration	Learning is facilitated when learners are encouraged to integrate (transfer) the new knowledge or skill into their everyday life.

Table 5: Summary of Merill (2002) First Principles

The principles are useful in that they do not only talk to what student learning should be like, they articulate well to the 'how' question. There is however missing ingredients in his summary that are significant, such as aspects of collaborative learning that have been so well established in literature. The works of Vygotsky and Piaget have been instrumental in this regard, that is, in establishing learning as a social rather than an individual act. Ignoring such well founded principles will misinform any design. Merill's work has nevertheless been influential in this area of improving educational design.

Boud and Prosser (2002) also sketch out four key areas that they consider fundamental to enhancing students' experiences of their learning activities. They further argue that these are particularly important when considering the 'somewhat decontextualized use of learning objects'. The four areas they have identified are learner engagement, acknowledgement of context, challenging the learner and providing/involving practice. The areas compare closely to Merill's

phases. What is problematic is that in this same context of sketching these areas, they (Boud and Prosser 2002) claim to be taking 'an exclusively learner-focused perspective' which results in the view that learning arises from what students experience, not what teachers do (and what they do with technology). This is an extreme view of learner-centered approaches. The danger lies in sidelining what teachers do in the whole equation and that might diminish the role that pedagogy has to play in 'learning design'; this is if pedagogy is conceptualised as 'ideas' and 'act' of the teacher. The four areas (Boud and Prosser 2002) do not directly talk to collaborative learning (the same as those of Merill as pointed out) though it is somehow implied in the questions that they pose in association with each area. They acknowledge that learning is socially and culturally constructed and that it does not occur in isolation.

These principles are general and should apply across disciplines. They are not conclusive though, as there are other useful contributions that should be used to expand on these broad outlines. However, they do cover key contributions from educational theories and models so far. The construct of constructive alignment offers a possible line of expansion and it will not be useful to leave it out. Biggs hints on the danger of such exclusion as he states,

> *In aligned teaching, where all components support each other, students are "trapped" into engaging in the appropriate learning activities, or as Cowan (1998) puts it, teaching is "the purposeful creation of situations from which motivated learners should not be able to escape without learning or developing" (p. 112). A lack of alignment somewhere in the system allows students to escape with inadequate learning. (Biggs 2001)*

It should be noted that the general principles aim at ensuring that there is optimal student learning and that the learning does not suffer any decrement. Adding the construct of constructive alignment will help to minimise chances of inadequate student learning. Together the principles are useful in supporting epistemic foundations for teaching and learning. They have potential to inform the 'ideas' a teacher can work with so that the 'act' of teaching yields the desired outcomes for student learning.

The principles discussed so far can be summarised into the following areas:

1. Learning occurs in the context of problem solving

2. Learner engagement and practice can be achieved when there is activation, demonstration, application and integration (in the process of teaching and learning)

3. Learning occurs when learners are challenged

4. Learning is a social act

5. Alignment in teaching and learning ensures that student learning is optimised

6. The teacher's ideas and act(s) are a significant factor to student learning

2.5.2. How 'Learning Design' is shaping

With the principles purporting active student engagement in problem solving and authentic learning environments, the learning design movement goes on to look for tools that can enable these conceptualisations. These tools range from conceptual to technical and operate at different levels. There are at least four distinguishable directions in which research and development in 'Learning Design' is taking at this stage. Mapping out the directions should serve another purpose; that of exposing the definition of learning design associated with each direction.

Oliver, Harper et al confirm the point that the work on designing learning environments forms the basis for this new development (Oliver, Harper et al. 2002). Together with Jonassen (2000) they reveal that 'contemporary learning theory' emphasises that learning is not just knowledge acquisition but active knowledge construction by learners. The focus is on teaching and learning strategies in the class of problem based learning approaches and methods. As noted earlier, there are many of these strategies and problem solving is the

common denominator, to an extent that it is argued that problems should replace learning objectives as we traditionally know them. Their other distinctive feature is that they (problem based approaches, strategies and methods) are meant to operationalise what it means to design constructive learning environments (CLEs).

The various methods in this class can be seen as variations of problem based learning where 'problem' can be replaced by 'case', 'inquiry' or 'project'. Designing in this context means isolating problems, cases, projects or any other such focal area so as to plan and develop teaching, learning and assessment (TLA) activities. The design of activities centres around the chosen focus and it is very much the teacher's responsibility. The use of technology is seen as a high priority to enable the planned activities. Brown (2006) remarks that in this context where there are 'permutations and combinations of ICT tools, networks and communities', learning environment design is less likely to remain the work of an individual academic. Within this context designing learning environments is treated as being synonymous with 'learning design' and marks the first direction in the movement of these developments.

The work of Oliver (1999, 2004) and Goodyear (2005) are amongst those cited as providing the foundation for the second direction. Their work and that of colleagues was strengthened by an Australian funded project entitled *Information and Communication Technologies and Their Role in Flexible Learning* (Agostinho, Oliver, Harper, Hedberg and Wills 2002). For the project, Boud and Prosser's (2002) four areas were endorsed and three key elements that comprise a learning design were identified as (i) tasks or activities learners have to perform, (ii) the content or resources learners interact with and (iii) the support mechanisms provided to learners. It is in this context where Brown's (2006) remark is situated, that the teacher alone cannot do all the work.

The teacher's work, supported by a team, is to ensure that:

- The espoused principles are not violated

- Learners' tasks are designed

- Content and resources are identified and

- Technology is brought in to enable and support the planned activities.

The struggle in this second direction is to search for common, agreed-upon and standard forms of representation for learning designs (Oliver, Herrington et al. 2007).

The work of Koper and colleagues (EML 2000) at the Open University of the Netherlands led to processes in facilitating the development of technology specifications for learning designs. Their Educational Modelling Language (EML) was a forerunner to IMS Learning Design specification, which aims 'to represent the 'learning design' of 'units of learning' (UOL) in a semantic, formal and machine readable way' (Koper 2006) In this context a learning design is defined as 'the description of the teaching-learning process that takes place in a unit of learning' (Koper 2006).
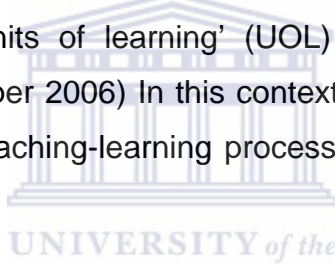
Developments in the IMS Learning Design (LD) specification has led to the design of a conceptual model or an ontology (van Es and Koper 2006, Koper 2006) that is based on a 'pedagogical meta-model' (Van Es and Koper 2006). The key features of the ontology include the roles, activities and environments (learning objects and services provided through technology). The meta-model is described as an abstraction of commonalities found in several pedagogical models and is expressed as a Unit of Learning (UOL) schema containing elements and restrictions of their usage. Van Es and Koper (2006) report that the use of this specification was able to express a number of lesson plans; providing them with evidence that it is reasonably sufficient for the purpose it is meant to serve. McAndrew, Weller et al describe a project (SLeD) which 'sought to develop a Learning Design player that would utilise the service-oriented approach' (McAndrew, Weller et al. 2006). The thrust of developments in this direction is the use and development of ontologies and system tools including

LAMS (Learning Activity Management System), and "pedagogy planners". In this context 'learning design' takes a technical or tool focus.

A fourth and different direction is evident in an emerging field looking at 'pedagogical patterns' and providing textual representations of descriptions of pedagogical strategies in use by practising teachers. The work of architect Christopher Alexander on patterns and pattern language is used as the basis in these circles (Rohse and Anderson 2006, de Moura Filho and Derycke, 2006, Bergin, Eckstein, Manns and Sharp, 2001). There is an attempt to create a link between the patterns approach and the developments on specifications (of learning designs). If the struggle in the third direction is to produce machine 'runnable' designs, the pattern movement can be seen to be struggling with representing 'inspirational' designs.

What the *Pedagogical Patterns* approach aims to contribute is to address the full context within which problems for learning have to be solved. In this way, the approach will provide descriptions of 'workarounds to constraints of learners, instructors or even learning environments' (de Moura Filho and Derycke, 2006). The essence of these 'workarounds' is a repository of best practices. Two more significant contributions are on 'anti-patterns' (worst practices) and 'QWAN' (Quality without a Name), an explanation why some designs are considered unique, insightful, aesthetical and really useful'. Rohse and Anderson (2006) remarks that while 'a pattern approach suggests a methodology for learner-instigated design, it lacks a strategy for operational implementation. The thrust in this direction is to capture 'expert practice' (Bergin, Eckstein, Manns and Sharp, 2001). A further aim, as they state is to provide a method for capturing and communicating pedagogical knowledge.

A uniting feature in the first two directions is the view that learning is a process comprised of activities; a major shift for e-learning- from content to process as Filho and Derycke (2006) put it. The shift alone is a major contribution in terms of addressing the two questions raised earlier: what is learning and how do people

learn? An earlier view (prevalent in ID models) on learning stopped at content, and the question as far as technology was concerned was how can technology provide better access to content? At this stage the main drive is how to use technology to support the execution of tasks and activities that the learning process is comprised of? The patterns approach is meant to provide a comprehensive view of how these activities should be structured, based on what experienced teachers do. The pattern approach and efforts in the second direction (working towards standard forms of representing learning design) seem to be developing parallel to each other, attempting to do the same thing in different ways.

2.6. Locating the study within a conceptual framework

From the literature reviewed, it has been established that the incorporation of e-learning was supported by the techno-hype at the dawn of the new millennium. Higher education was pressurized to seize opportunities that were often touted as e-learning benefits. In exploring e-learning definitions, there is some convergence that seems to emerge around learning in the corporate as well as the academic sectors. By scrutinizing the means and ends of learning in both the sectors, critical distinctions come to the surface, distinguishing information acquisition from response strengthening and from knowledge construction (Clark & Mayer, 2003); and training from instruction, knowledge management and performance support (Rosenberg 2002). From this point, it is established that e-learning has the potential to support deep learning, beyond the acquisition of information and job skills. It has the potential to support performance, both in business and in higher education where the mission is to nurture thought.

The potential that e-learning has, is, as yet, not enough to make it useful and meaningful for those who want to benefit. In fact so far there are many accounts of failure associated with e-learning. The proclaimed revolution that was to come with e-learning was supposed to be evident in the learning object movement. As discussed in this literature review, the movement has experienced failure rather

than having made the revolution a reality. Any success that has been experienced so far has to do with content management. Learning is somehow reduced to a technical level, that of transporting units or chunks of knowledge from whatever source into the head of the learner. As argued in this chapter the challenge is to move away from such a technisist and mechanistic approach and take a critical stance from which the incorporation of e-learning can be used to drive a quality agenda in higher education.

The Learning Design movement is a significant response to this challenge, offering a move away from this limited view of learning. The developments mapped above offer promise for the next generation of technology systems that should support learning. To realise this promise, a more critical alignment and integration of answers to the three established questions should be developed. The questions are (1) what is learning, (2) how do people learn and (3) how can technology with its potential and advances be used to support learning. This alignment and integration should be the basis for a meta-model to ground further developments. The move from behaviourism to cognitivism and then to constructivism has not been fully successful as an attempt to shrug off the logic of objectivism. As Giroux and McLaren (1989) have argued, the journey from theory to pedagogical possibility is not easy or straightforward. The same applies to the translation of constructivism and critical pedagogy into classroom practice, these are challenging tasks.

The question at this stage is whether the knowledge arrived at so far as far as educational theory is concerned has been fully synthesised to ground any further developments. The answer is not completely on the affirmative if one has to scrutinise the emerging LD movement. Van Es and Koper (2006) reveal that the meta-model and the ontology on which IMS LD specification is built are meant to be neutral with respect to different approaches to learning and instruction. This should not be confused with the neutrality towards tools McAndrew, Weller and Barrett-Baxendale (2006) endorse, as they argue for mutual dependency

between service-oriented architectures and Learning Design specification. The meta-model raises a number of problematic issues.

It has already been argued that there is ample confirmation that the designing of constructive learning environments is a basic tenet on which learning design developments are founded. The conflicting epistemic assumptions that exist between empiricist or behaviorist and constructivist approaches are well established (Rohler-Murphy and Jonassen 1999). This is important to note because it translates into different and contradictory views on knowledge, teaching, learning, assessment and motivation. To design a meta-model that is neutral to both is to compromise on features demanded by either of the approaches.

The meta-model on which the IMS LD is based makes a useful shift from the content to the activity view of learning and then makes another stop. Defining learning as a set of activities and then outlining what is needed as support (for the activities) and identifying what roles are involved does not give a complete picture. It is important to be thoroughly analytic about the nature of learning if useful systems have to be designed to support such processes, that is from an ontological point of view (both in a philosophical and software engineering sense). There should be an 'explicit specification of a conceptualization' (Gruber 2008) of what learning and learning design is.

To understand the problematic basis on which the learning design movement is building on at this stage, it is important to revisit the acknowledged tenets which are supposed to be in place (the ideal), that is, not what has turned out to be (the actual). The six principles discussed in section 2.5.1 provide epistemic foundations to ground developments in learning design. Problem based learning and its related approaches do not just offer an activity view to learning. A closer look at these approaches suggests that an abstraction to capture essential features will move beyond activities. For the purposes of this thesis, these

approaches will be labeled as P/?(B)L, where P is for problem, (?) for case, project, inquiry, action, scenario or any such focal point, B for based (and is left out in others like Action Learning) and L for learning. If the principles already discussed constitute the well grounded ideas of pedagogy, then the P/?(B)L frame presents scope for the 'act' that makes pedagogy visible.

2.6.1. Conceptualising learning and learning design

A further aspect is to redefine learning to expose the evolutionary understanding that has emerged; that learning is not just content acquisition, where content is seen as facts, concepts, principles and procedures (FCPP) in a subject area. Learning is the process of integration and interaction of content (FCPP) and various skills, leading to end products or performance that can be measured, an understanding coming out of the P/?(B)L approaches. A look at the epistemic foundations for P/?(B)L and traditional approaches reveal that one can reasonably differentiate between a number of existing 'learning designs' Traditional approaches are those where subject specific content is the main (and only essential) feature. The goal of teaching and learning is then conceptualised as transfer of content from expert sources (teachers and books) to the novice learner. The lecture method in its basic form has been one of the main tools in this learning design (to be referred to as LD1).

Bloom's taxonomy (Bloom 1956) has been influential for the last fifty years (Pickard 2007) on what to teach and how to assess learners. Some of the effects engrossed into teaching and learning by the taxonomy is the hierarchical and the one dimensional view to knowledge and thinking skills. The limited view to learning, i.e., the transfer of content knowledge from experts to learners and how to assess the learning thereof was underwritten by rules coming out of the taxonomy. The revision by Anderson and Krathwohl confirm that the intention of the taxonomy is to 'help educators clarify and communicate what they intended students to learn as a result of instruction' (Anderson and Krathwohl 2001). Over

these years, there has been a lot of confusion rather than the intended clarification.

What is problematic with the taxonomy is that 'knowledge' was put in the same class as thinking or intellectual skills. The concept 'knowledge' was later replaced by 'remembering' or recall (Pickard 2007). This added to the confusion in teaching; content knowledge was conflated with intellectual or cognitive skills and knowing was seen as recall. With these later developments the taxonomy was rewritten into a two dimensional view, to separate the factual, conceptual, procedural and (metacognitive) dimension of knowledge from the cognitive processing (cognitive skill) domain. This revision is highly useful even though the old view is still very persistent. Gagné refers to the first dimension as 'verbalizable knowledge' and confesses that his work has contributed to the confusion in conflating that with cognitive strategies (Gagné 1965). This clarifies the point that the content knowledge of a subject area, that is the facts, concepts, principles and procedures (FCPP) is one thing and the cognitive operations needed to process the knowledge is something separate. Information processing theories have strengthened this distinction. The teaching and learning process does not involve content (FCPP) only; the development of cognitive skills needed to process the content becomes a recognised key component.

For those who recognise this second key component, apart from the content the design of learning becomes different. Designing for learning in this context means ensuring that learners actively engage with the content knowledge, not just in terms of receiving and storing, but meaningful processing involving analysis, application, evaluation and such related cognitive operations. This begins to open up for an activity based view of learning and can be classified as LD2 with an addition to content knowledge (FCPP+). It has to be noted though that learning goes beyond this addition of cognitive skills. Collaborative skills have been a prominent addition that is, beyond the cognitive, signifying recognition for the social nature of learning (FCPP++). A further addition of

collaborative skills can be associated with another level of LD2, where learners are expected to participate in activities not as individuals, but in collaboration with peers.

The affective, conative and psychomotor domains remain as literature in this area has established and those suggest more additions to learning designs. Taking into consideration these other domains has also come to be understood as an integration of knowledge, skills, values and attitudes (Pickard 2007) in the learning process and adds to the level of complexity. It has come to be known that the operations learners perform in the process of learning extend well beyond the use of the individual mind. For example learning design can be taken to a third level (LD3) where these other significant additions are made. For this third level, the additional aspects can include the values and attitudes needed in this context of learning, the different literacies that are seen as significant like digital, information, academic, research, scientific etc (and can be represented as FCPP+++). This notation can be useful in demonstrating the level of complexity and comprehensiveness of a learning design. It can also make explicit how learning is conceptualised in a specific design. The following figure illustrates the different levels.
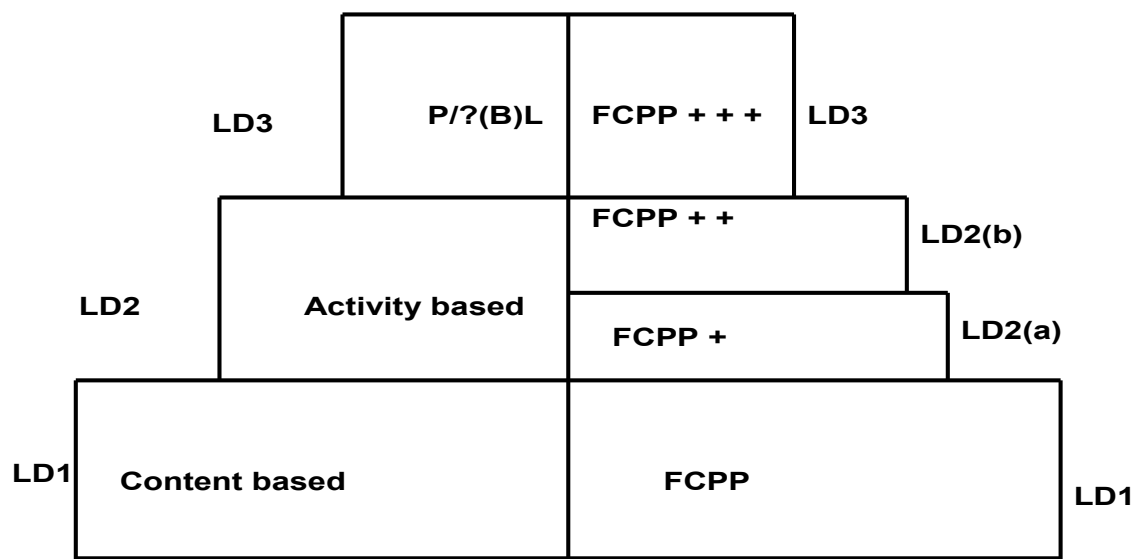
Figure 7: Different levels of learning designs

P/?(B)L approaches embrace the LD3 view and reveal that learning is multidimensional. The skills required to acquire and construct knowledge are also multifaceted, making the process very complex. The interplay among the different domains, the cognitive, affective, psychomotor, conative and meta-cognitive raises many challenges for educators and learners. This is the reason why it is often touted that a good knowledge of the discipline and subject matter does not necessarily lead good teaching (Filho and Derycke (2006) and good learning. To take learners through a process where they have to solve an authentic problem and end up with a recognised product will require far much more than content knowledge, cognitive and collaborative skills.

Research and implementation of these approaches (P/?(B)L has also revealed another important attribute, that the hierarchical view of learning is also flawed, at least in the way that relates to Bloom's taxonomy and the work of Gagné. It is not a matter of order as far as cognitive operations are concerned, what matters is the increase in the levels of complexity. It is not necessarily correct to allocate 'recall and understanding' as learning outcomes in the lower grades and evaluation and design to higher classes. These approaches (P/?(B)L) have demonstrated that problem solving can (and should) be taught and learned from primary school to higher education with differentiated levels of complexity.

The work of Jonassen (over time and to date, alone and with colleagues) in particular reveals that learning is facilitated when there is an envisaged end product and the process towards achieving that is embedded within a meaningful context. His (Jonassen) work and that of colleagues further exposes the necessary components like causal reasoning, analysis, interpretation as cognitive operations and collaborative learning and how these help to facilitate the process of learning towards the end product/solution to a problem. His work has led to the analysis of different types of problems and cases that inform different subject areas. A thread that runs through in this type of work is that 'meaningful learning is necessarily social, collaborative, intentional, authentic,

and active'. Oliver, Herrington, Herrington and Reeves (2007) echo the same, that these are the necessary features in a learning design.

2.6.2. The learning design gap

It has to be noted that LD1 lacks these features associated with meaningful learning whereas LD2 begins to incorporate some but not all of them. LD3 distinguishes itself from the others in that learners are not just kept busy with activities, they have to produce artifacts or solve problems. The activity nature of the design calls for context and end product as key elements. With this analysis and framework it can then become easier to identify what technology is needed to enhance learning. LD1 with its content based view to knowledge has led to development of a generation of tools in the class of learning management systems and learning objects. At this stage the learning design movement is experimenting with tools that will enable the activity based view (LD2) of learning (e.g., Learning Activity Management Systems). There is a need to push development further to cater for LD3. The following figure illustrates the gap.
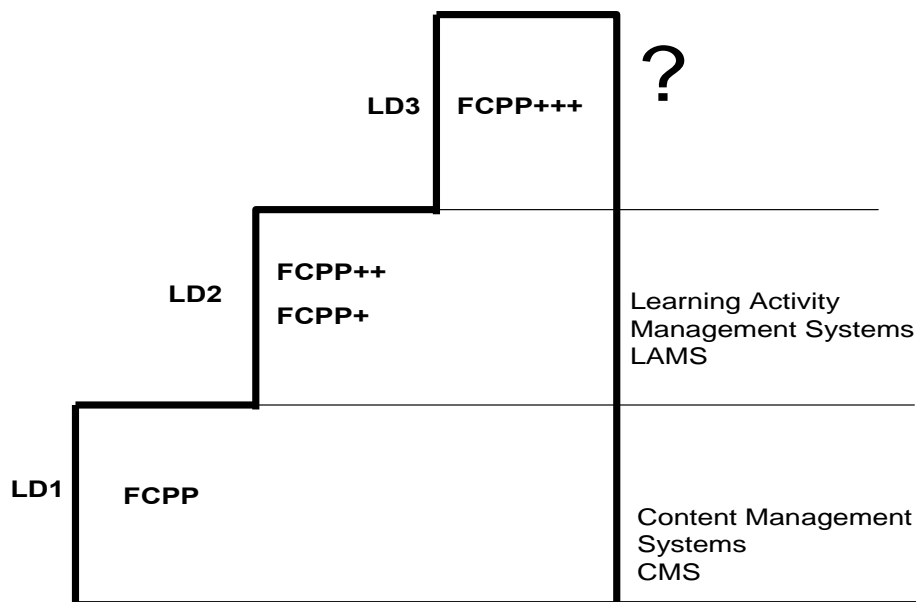
Figure 8: The learning design gap

The notation with its LD levels provides a conceptual framework to work with in investigating pedagogical design. The following table summarises the three learning designs exposed so far, with their differences.

	LD1: Traditional approach	LD2: Activity Based (limited view)	P/?(B)L approaches
Knowledge is	Same as recall	Processed content	Evident in the artifacts learners construct, not what experts tell or give them
Learning is	Transfer of content from experts to novice learners	Performing the required cognitive activities	Using FCPP as raw materials to design solutions to problems
What to learn	FCPP (content)	FCPP+ & FCPP++ (plus cognitive operations & collaborative skills)	FCPP+++ (problem embedded within a context and process leading to end product)
Design features	Content and presentation	Content, cognitive and collaborative activities	Context, problem, content, process, end product

Table 6: Different views to learning

P/?(B)L provides a conceptual basis on which to frame learning design though not without limitations. For example, there are a variety of interpretations and translations of what these individual approaches within the bigger frame of P/?(B)L are when it comes to actual practice. The overriding assumption here is that what is offered within these approaches incorporates what is touted as desirable features as far as learning is concerned: active, contextual, authentic, meaningful and outcome focused. There is much that these approaches have to offer to LD specification, beyond what the IMS LD has incorporated so far. One of the strongest features is the link to curriculum and assessment. At this stage, this linkage is not strongly conceptualised in the current specification, most so that a unit of learning (uol) can be read as a single lesson plan away from the curriculum and the associated assessment events and processes. The current conceptualization rests prominently within the activity view as already argued.

2.7. Conclusion

An analysis of proposed papers to be read at 2009 European LAMS & Learning Design conference at the Open University in the UK reveals that the latest developments in the learning design movement are not necessarily focussed on addressing the gap identified in this study. The challenges the movement is working on at this stage is not what will articulate to LD3. What emerges out of the proposed presentations shows that though conception of learning is at LD2 in the movement, creating 'technology enhanced collaborative learning activities remains a difficult task' (Ferraris, Vignollet et al. 2009). One of the pressing problems seems to be that terminology in these circles is not yet standardised. Another is the impasse between building infrastructure focused on interoperabilioty at the expense of the integration of rich services (Griffith 2009).

What seems to be insightful to this study from these latest developments is an indication that the evaluation of learning designs is a necessary focus. This alludes to issues of quality as pointed out in the problem statement and earlier on in this literature review. One of the questions asked is whether learning patterns can be represented in terms of 'formal computational metrics for the quality of a learning design' to advise designers (Laurillard and Ljubojevic 2009). It has to be reiterated that the use of technology in teaching and learning is providing a way to make explicit the ideas and acts of teachers and this is opens up ways to enable investigation not only into pedagogy but the quality thereof.

It is important to note that there have been other attempts to facilitate design in teaching and learning. The South African outcomes based (OBE) approach as endorsed by the work of the South African Qualifications Authority (SAQA (South-African-Qualifications-Authority 2001; South-African-Qualifications-Authority 2005) (South-African-Qualifications-Authority 2000) is one of such attempts. Embedded within curriculum design the starting point is basically the identification of exit level outcomes and associated assessment criteria. Once the outcomes are identified a 'design down process' (SAQA 2005) follows, leading to

learning and assessment activities. There has been ample evidence in literature about how problematic the implementation of this approach has been in the country. It has not been to translate the design process from the macro to the micro level of the classroom.

Understanding by Design (UbD) is another attempt in this class. It is described as a 'methodology to design or redesign any curriculum to increase student understanding' (McTighe and Wiggins 2004). It is also seen as a conceptual framework, design process and template, and an accompanying set of design principles' (McTighe and Wiggins 2004). Placing 'understanding' at the center makes the framework to operate in the lower levels of the developed framework in this study (LD1 and LD2). The 'six facets' that describe what understanding is, namely, explain, interpret, apply, perspective, empathize and self knowledge recognise a few of the cognitive operations and seem to include some values. By limiting understanding to the six facets the framework leaves out other significant additions (e.g., as argued in FCPP+++).

The work of McTighe and Wiggins (2004) has been useful in taking 'curriculum mapping' to a level closer to what the learning design movement is attempting to do. As an area of activity, curriculum mapping originated in the work of Fenwick English (English 1980) (English 1992) and the focus was on documenting the 'delivered' curriculum, making it easy to compare it to the intended (what appears in official documents) and the 'assessed' curriculum. A major impact was in strengthening quality assurance in education. His (English) work was also focused on conducting 'curriculum audits'. The field grew further through the work of Jacobs (Jacobs 2004) (Jacobs 1997) for example, to a level where it was seen as a key activity to 'transform and revitalise teaching and learning' (Udelhofen 2005). It is regrettable that experience in the development and use of software packages for curriculum mapping has gone unnoticed in the current circles of the learning design movement. There is potential for cross pollination, an aspect that is being neglected at this stage. The main strength of curriculum

mapping is that is brings curriculum issues in close contact with the classroom, serving as a bridge between the macro and micro levels of curriculum delivery. .

This study set out to focus on course design and to investigate what considerations teachers have to make when employing e-learning technologies in their course delivery; and therefore a central question the study sought to answer was:

> *"What pedagogical considerations are necessary for successful course design when using e-learning?"*

The conceptual framework developed in this literature review will provide a lens through which courses are investigated. Chapter 3 lays the foundation upon which a systematic approach to inquiry has unfolded in this study. The inquiry led to a collection of two sets of data and a four-pronged approach to analysis.

Chapter 3: Research Methodology

3.1. Introduction

This chapter spells out the overall methodology employed in this research project in terms of the approach the design has used and the philosophical underpinnings behind the approach. It describes the theory of knowledge and its validation (epistemology) associated with the chosen design, what is seen as the nature of being and the study of existence (ontology), how interpretation is managed (hermeneutics), and the instruments chosen together with their design for data collection and analysis. The reasons why the specific approach has been chosen are presented and the appropriateness of this approach is argued as a way to address questions of methodology: will the chosen methods help achieve the aims of the study and what evaluative criteria are suitable for the chosen qualitative approach?
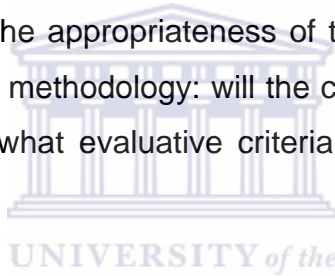
The research design adopts a qualitative approach and explores the research question guided by the aims set for the study. Institutional web sites and in-depth interviews are the main data sets collected for this study. Within this research design, the researcher is seen as part of the research instrument, (as Janesick (2000) argues). Through the project the researcher seeks to unravel ideological codings (assumptions, ideas and considerations) embedded in the courses (treated as cultural representations) that are delivered using e-learning technologies. The following discussions explore the philosophical underpinnings as well as the practical choices that have shaped the research design.

Costelloe highlights the role of philosophy in social science. In the same way he acknowledges that to those "in the field" it might seem a matter of "just doing philosophy" (Costelloe 1998). He argues that a defining feature of the social sciences has been the task of pursuing 'self-scrutiny'. It is this self-scrutiny that

attends to the issues of validity; reliability and credibility from a different angle from that of the natural sciences, as it explores the underpinning beliefs and thought systems that informs social inquiry. The 'self-scrutiny' also helps in clarifying the nature of the 'object of inquiry'. This chapter aims to attend to this 'self-scrutiny' for the study at hand as well as identify the object of inquiry. .

In an attempt to position relevant methods within social inquiry, Costelloe (1998) indicates the core of what is involved in social scientific investigation and pinpoints the kind of issues involved. His words are worth quoting

> *Whether debated as Natur- versus Geisteswissenschaft, framed in the terms of "understanding", couched as an investigation of "reflexivity", or deposited in the wake of the "linguistic turn", the essential issue which defines the identity of social investigation has a tendency to remain constant: it involves reflecting upon the relationship between method and subject matter where the latter is composed of human practice rather than the natural world.*

This study sought out to investigate course design which is an instance of 'human practice'. The concept of 'the object of study' is an area of contestation especially when research methodology is an area under investigation. This contestation is fuelled amongst others, by the departure that social inquiry seeks to move away from the 'empiricist clutch'. Understanding the 'object of study' in the social sciences has impact on all aspects of the research process: the focus of the study, the methods chosen, how the analysis will be done and what use the final product will be subjected to. Outhwaite sheds light on this issue as he argues that 'the social scientist directs his or her attention to an object of inquiry which is already defined in certain ways in the world of everyday life and ordinary language' (Outhwaite 1987), p56). He contrasts 'natural objects' with 'social objects' as he indicates that natural objects 'do not have concepts of what they are doing when they fall, collide, melt, die and so forth' whereas for social objects that is already defined. In extending his argument, Outhwaite (1987) spells out the relationship between the conceptions of the object of inquiry and the sorts of methods appropriate for investigation. He gives the following useful examples:

> *The ethnomethodological approach of conversation analysis will not help us to understand the rate of profit in a capitalist economy, nor will the law of value explain how one can terminate a telephone conversation without embarrassment. Historical analysis may or may not be relevant to the study of a particular contemporary situation. In other words, the question of what is needed to explain an observable social phenomenon will receive a contextually specific answer. (p57)*

He argues that this provides a 'redefinition' of objects of social inquiry and before any methods can be discussed questions of social ontology need attention. He clearly spells out these questions as

> *What sort of object are we trying to investigate? To what extent is it a product of the interpretations of human beings, and to what extent is it structured by 'deeper causes which are opaque to human consciousness'? (p57)*

The object of study in this study includes courses that are offered through e-learning technologies. As these are products of social activity, they are accessible for inquiry and defined through language that can only be considered ordinary in the context in which they exist. The context in this case is higher education in South Africa.

3.2. Locating the study within the qualitative research approach

The overall approach that this study employs is qualitative in nature. In their book Denzin & Lincoln (2000) describe the history of qualitative research as 'long, distinguished and sometimes anguished'. In tracing the history of qualitative research they indicate that it has its origins in the fields of sociology and anthropology from as early as the 1920s and (the) 1930s, and later it came to be employed in other disciplines such as education and business. What is of interest is the definition they provide for qualitative research, which serves as a working definition in this study, that

> *Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level,*

> *qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them (p3)*

This definition implies a number of things in terms of what qualitative research is and what it aims to do. Amongst the issues it raises is the activity of turning the world into 'a series of representations'. This is indeed a mechanism through which qualitative research advances its cause - that of finding a way into the world in order to make sense of it. The second important issue in the definition is about the attempt to interpret 'phenomena in terms of the meanings people bring to them'. Seen together, these two issues draw out and bring to light the essence of activity involved in what is termed qualitative research: to reduce the world to a series of representations and within this environment lean on the meanings people bring to phenomena in order to arrive at their interpretations. These two issues frame the actual research activity in which this project has engaged.

An earlier definition provided by Berg (in a book that he claims does something more for qualitative research than earlier publications have done) is short of this revealing nature of qualitative research that Denzin & Lincoln (2000) provide (Berg 1998). Berg (1998) briefly describes qualitative research as referring to 'the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things'. What strengthens their (Denzin & Lincoln 2000) definition is that it does not simply arise from a comparison with quantitative research, which is the case in many such definitions which are aimed at revealing the rivalry between these two broad approaches to research. Their definition is informed by the historical roots they have traced. In their historical analysis of the evolutionary path qualitative research has taken to come to its present position, they are able to define it as involving 'representations' and 'meanings', and they usefully identify 'seven historical moments' that crosscut the field of qualitative research. The moments are labelled sequentially as

- The traditional (1900-1950)

- The modernist or golden age (1950-1970)

- The blurred genres (1970-1986)

- The crisis of representation (1986-1990)

- The post modern - a period of experimental and new ethnographies (1990-1995)

- Post experimental inquiry (1995-2000) and

- The future (2000-)

Denzin & Lincoln's (2000) synthesis of the history of qualitative research sets the current scope of activity and somehow uses the historical pointers to spell out what the latest agenda for qualitative research will look like. In their analysis the current work in qualitative research involves effort to turn the social sciences and humanities into sites for 'critical conversations' about such issues as 'democracy, race, gender, class, nation-states, globalization, freedom and community'. By this they are saying these are the current issues, those that have to be wrestled with at this stage. Their own words are worth capturing at length here to elaborate on the current scope for qualitative research. They state

> "By now, at the beginning of the 21st century, the narrative turn has been taken. Many have learned how to write differently, including how to locate themselves in their texts. We now struggle to connect qualitative research to the hopes, needs, goals and promises of a free society."

It is this 'struggle' that makes the qualitative research approach appealing in this study - the struggle to 'connect to the hopes, needs, goals and promises of a free society'. This becomes a worthy cause to follow as a call for such action has already been alluded to in the previous chapter. By drawing from critical theory, the discourse within which pedagogy is discussed becomes different and non-traditional, opening up opportunities for broadening the pedagogy. Giroux (1983) argues that traditionalists amongst others have failed to develop a radical theory of pedagogy because there is 'no room in their discourse for the fundamental categories of praxis: categories such as subjectivity, mediation, class, struggle,

and emancipation'. The approach in this study embraces the 'struggle' for qualitative research as a way to explore avenues to create room for a discourse that is inclusive of such 'fundamental categories' as subjectivity and emancipation. The argument here is that taking the qualitative route will help attend to such an agenda. Without declaring the usual 'anti-quantitative design' in what has become a popular campaign in most research methodologies, this study recognizes that the positivist nature of the quantitative approach on its own will not serve its purpose within this framework, especially as argued in chapter two. There is good reason to free our thinking from the technocratic and technicist way of looking at the world as this has not proved to be very useful as far as social inquiry (and pedagogy) is concerned.

3.2.1. Epistemological waves

A separate but equally important aspect that comes along with the useful definition and historical analysis that Denzin & Lincoln (2000) have provided is to map out the 'successive waves of epistemological theorising' as they call them, the kind of waves that move across the seven identified moments in the evolution of the qualitative research paradigm. It is worth noting that the epistemological move starts with the positivist paradigm, as it is almost the oldest and most dominant for the time associated with the first moment - what they labelled as traditional, covering the period 1900 -1950. A similar reference can be made to the development of learning theories and the dominance that behaviourism played, as portrayed in chapter two.

A point worth noting is that behaviourism is built strongly upon positivistic notions. Qualitative research matured and moved out of this paradigm, situating itself relevantly with time within the new paradigms. The moment labelled as the future, which is actually the now, is seen as located within a paradigm where amongst others, a serious move has taken place, away from 'the foundational and quasi-foundational criteria, to a paradigm where 'alternative evaluative

criteria' that are 'evocative, moral, critical, and rooted in local understanding' Denzin & Lincoln (2000) have been sought.

The well traced 'successive waves of epistemological theorising' Denzin & Lincoln (2000) help raise the issue of epistemological influence on research approaches to the surface so usefully, and this can be extended to learning theories. It is important to note that as much as the behaviourist influence on learning theories can be traced to the present day, together with the "damage" that it has caused, the positivist clutch on research approaches has been equally great. Social research has managed to engage more radical approaches and shrug off the clutch, to a certain extent. This can be seen in the kind of data collection methods involved, like the focus group method which is collectivist and not individualistic in nature (Madriz 2000). The same (influences) can also be seen in the manner in which research reports are written and presented.

An area that reveals a limited release from the dominant positivistic paradigm clutch though is analysis of research data. Janesick has named this particular failure 'methodolatry' (Janesick 2000). She defines the concept as 'a combination of method and idolatry, to describe a preoccupation with selecting and defending methods to the exclusion of the actual substance of the story being told' (p390). A close reading of the argument she presents attest to this positivistic clutch. She further moans about 'a constant obsession with the trinity of validity, reliability, and generalizability', and about a 'dissertation that contains 30 *t* tests or more about no particular issue … but with very little reflection'. She then rails against 'depersonalising the most personal events, education and human services' as she argues that in that way 'we have lost our way'. The points raised here are useful in terms of comparing the seven historical moments in the evolution of qualitative research with the evolution that learning theories have been through. There are a number of insights that such a comparison may reveal, and these have influenced the research design in this study.

The evolutionary moments in the history of qualitative research provide useful insights for the research design and methodology in this study. From the first moment named the 'traditional' the belief is that reality is objective, and that it can be described objectively. In the evolution of qualitative research, this assertion has been argued against. By looking at this evolutionary thread that unwinds up to the point where questions around gender, class and race are raised, Denzin and Lincoln (2000) reveal how in the seventh moment of the history of qualitative research, 'postexperential writers seek to connect their writings to the needs of a free democratic society'. They then describe qualitative research as a process that encapsulates three interconnected generic activities: (1) the theory/ontology that the 'gendered multiculturally situated researcher' brings along, (2) 'the set of questions (epistemology) to be examined in (3) some specific ways (methodology and analysis). These are the three areas that should be addressed for this research in order to situate its rationale within a reasonably founded research framework.
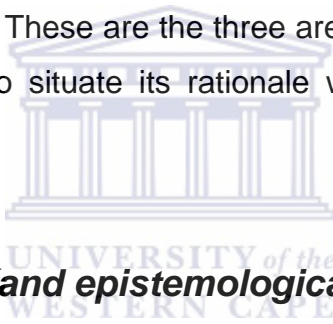
3.2.2. The ontological (and epistemological) foundations

Outhwaite (1987) explains ontological issues as issues about what exists. He further cautions about the error of reducing ontology to epistemology, questions 'about being to questions about our knowledge of being' (p32). It gets more confusing with the third component in a research project, questions about methodology. It is so easy to confuse all these three components - because of their interrelatedness and interdependence. And because of this, it is impossible to discuss ontological issues in isolation, they are always tied to the other two components, that of epistemological concern and methodology. The discussion throughout this section is mindful of such interrelatedness.

In his scholarly discussion of what he calls the 'new philosophies of science: realism, hermeneutics and critical theory' Outhwaite (1987) demonstrates how

closely associated are the issues of philosophy, tradition and methodology in research, and how confusing they can be. What comes out of his discussion, that which is illuminating to this study is that these three philosophical positions, namely, realism, hermeneutics and critical theory have contributed to the evolution of the social science movement, a point that resonates well with the historical analysis that Denzin and Lincoln (2000) have attested to. What this says is that for qualitative research the foundations of understanding the issues of being, as a way of understanding the world (through qualitative research) have their underpinnings in the three philosophies mentioned by Outhwaite (1987).

It is important to note that in the seventh moment described by Lincoln (Lincoln and Denzin 2000) which is the now, qualitative research is at a highly developed form and not necessarily at a hybridized eclectic stage, though the two authors do not see this development as a 'clear, evolutionary, progressive movement', but as defined by 'breaks and ruptures'. What has happened with time is that social scientists have engaged with philosophies, traditions and paradigms; they have learned and taken from them to carve out ways of understanding the world. The initial drive has been to 'deal with the alleged greater complexity of social reality, the virtual impossibility of experimentation and the severe limitations on prediction, the problems of ideology and objectivity' (Outhwaite, 1987). This was a struggle to free social science from the empiricist or positivist philosophy of science and a lot is written about how important it is to succeed in this struggle.

With the rise of critical theorists the struggle intensified as they (critical theorists) argued that the positivist rationale has done more harm than was perceived at the time. It has infiltrated academia, breeding an academic discourse that has been far from useful. The words of Aronowitz and Giroux and are worth quoting

> *'The theoretical tenets of the natural sciences began to provide the model for dominant academic discourse and inquiry in the social sciences. This move tended to reduce critical thought and reason to its technical dimensions. Within this positivistically oriented discourse, research techniques became increasingly freed from value judgements, useful knowledge was measured next to its managerial capabilities, and science became synonymous with the*

search for trans-historical laws. Theory was required to explain rather than constitute or determine the object under analysis   (Aronowitz and Giroux 1987)(p26).

Schwandt discusses qualitative inquiry as a 'movement that encompassed multiple epistemological, methodological, political, and ethical criticisms of social scientific research in the fields and disciplines that favoured experimental, quasi-experimental, correctional, and survey research strategies' (Schwandt 2000) (p189). Adding to the list of what the struggle in the movement entails (but also as a restatement) he sees scholars in this movement as sharing a ' general rejection of the blend of scientism, foundationalist epistemology, instrumental reasoning, and philosophical anthropology of disengagement that has marked mainstream social science' (p190). He goes on to indicate that the movement has drawn on 'intellectual developments in feminism, postmodernism, and poststructuralism'. With a slight shift from the work of Outhwaite (1987), Schwandt (2000) focuses on what he calls 'three philosophies that in various forms are assumed in the many books that explain the aims and methods of qualitative inquiry' (p190). Unlike Outhwaite's (1987) three, which are realism, hermeneutics and critical theory, his (Shwandt's) are interpretivism, hermeneutics and social construtionism.

As a further evolutionary move, Lincoln and Denzin (2000) indicate that there are new articulations on the qualitative scene. These (articulations) come from feminists and critical researchers that speak about their relationship with postpositivism, poststructuralism and critical paradigms. These, the two authors claim, refocus and redefine, amongst others, previous ontologies. Those in qualitative research are always faced with the task of discussing their anti-foundational formulations. Quoting Smith and Deemer Denzin and Lincoln (2000) they affirm that the 'demise of empiricism created a new space for human interpretation.' As part of the affirmation they go further, using Smith's and Deemer's words, and state that

'…relativism is not about paradigm choice; it is about the way we are in the world, about living contingent lives, about having to find new rationales for the judgements we make, because absolutes and foundationalist principles are little more than smoke and mirrors.' (1049) (emphasis inserted)

Schwandt's (2000) contribution to the understanding of what qualitative inquiry is all about is largely in mapping out the moves from the premise that human sciences aim to 'understand human action' (p191) as a way of rejecting the view that the aim of 'any science (if it is indeed to be called a science) is to offer causal explanations of social, behavioural, and physical phenomena'. Emphasis has to be placed on the point that social science is about understanding human action. He points out that 'from an interpretivist point of view, what distinguishes human (social) action from the movement of physical objects is that the former is inherently meaningful. …to understand social action, the inquirer must grasp the meanings that constitute that action'. From his discussion on philosophical hermeneutics and social construtionism, Schwandt (2000) points out that what qualitative inquiry has gained is

'… the broad critique of meaning as an object, …the affinity with the notion of the coming into being of meaning. Both philosophies endorse an expressivist-constructivist theory of language, in which, broadly conceived, language is understood as a range of activities in which we express and realize a certain way of being in the world. Language is seen neither as primarily a tool for gaining knowledge of the world as an objective process nor "as an instrument whereby we order the things in our world, but as what allows us to have the world we have. Language makes possible the disclosure of the human world'. (p198)

As this is not the end of the evolutionary thread, up to this point language is seen to be central in social inquiry as Schwandt (2000) further asserts that 'much of contemporary social science practice continues to be informed by the idea that meaning and knowledge are best explicated by means of some kind of epistemology of representation'. Another important milestone in the evolutionary move is brought by Longino's contribution, according to Schwandt (2000). From a feminist context Longino assumes and builds on an ontology of knowing that is

concretely situated and more interactive, relational, dialogic than representational' (p199).

In wrapping up his discussion of the philosophies that have influenced qualitative inquiry, Schwandt (2000) provides a summary that contains what has really evolved as far as social science is concerned, and what issues are involved in an informed project that seeks to identify with a movement of this nature. His words are worth quoting at length

> *'The qualitative movement is built on a profound concern with understanding what other human beings are doing or saying. …Yet cutting across (these three) philosophies are several issues that every qualitative inquirer must come to terms with using the resources of these (and other) philosophies. Three of the most salient issues are (a) how to define what "understanding" actually means and how to justify claims "to understand"; (b) how to frame the interpretive project broadly conceived; and (c) how to envision and occupy the ethical space where researchers and researched (subjects, informants, respondents, participants, core researchers) relate to one another on the sociotemporal occasion or event that is "research," and consequently, how to determine the role, status, responsibility, and obligations the researcher has in and to the society he or she researches'. (p201)*

The 'three salient issues' in Schwandt's (2000) summary take us back to the three components of a research project as mentioned in the concluding part of the previous section, namely, ontology, epistemology and methodology. What this project takes on board from the discussion alluded to by various authors is that in this qualitative paradigm in which the project is embedded, meaning and understanding are what matters as a way of understanding what the world is all about, including the understanding of human action. It is worth mentioning that as part of the informing ontology, the study recognizes that what is sought is meaning that is constructed, it is not what objectively exist. In order to gain this meaning and arrive at an understanding, we need to accept the claim that 'we are self-interpreting beings and that language constitutes this being (or that we dwell in language)' as Schwandt (2000) puts it. But especially from the third part of the salient points, Schwandt (2000) alludes to the point that as part of methodology in a research project, what has to be taken care of is the research

design. But before it (the research design) becomes the next focal point for discussion in this chapter, an important part of the discussion is to address the role critical theory has to play in this qualitative project as well as the researcher and her role.

3.2.3. The researcher

Given the paradigm within which this research project is located, there are a number of issues that affect the role that the researcher plays. There are issues of agency and representation, and the question of the 'other'. Critical research has, broadly speaking, raised the issue of agency, human agency to be exact, as a critical factor towards understanding how the world and its social forms are constituted through our constructions of what those forms become. About the subject of human agency, Kincheloe and McLaren (2000) highlight the following

> *'New poststructuralist conceptualizations of human agency and their promise that men and women can at least partly determine their own existence offered new hope for emancipatory forms of social research when compared with orthodox Marxism's assertion of the iron laws of history, the irrevocable evil of capitalism, and the proletariat as the privileged subject and anticipated agent of social transformation'* (p280)

Following on the 'new conceptualizations' within critical theory, high expectations are set for the researcher. The research project within this paradigm is linked to a notion that research, like pedagogy should operate within a 'discourse of possibility', that it should aim at 'critical empowerment rather than subjugation'. Through 'critical research', the researcher makes attempts 'to expose the forces that prevent individuals and groups from shaping the decisions that crucially affect their lives'. 'In this way', argue Kincheloe and McLaren (2000) 'greater degrees of autonomy and human agency can be achieved'. And in the same vein, they sound a (critical) caution about 'emancipation'. What makes the caution even more serious is the reference to a 'form of arrogance' that some critical (or critical theory oriented) researchers may suffer, a weakness in their approach - the belief that they are capable of emancipating 'others'. This should

help the qualitative researcher who is informed by critical theory to be wary of such arrogance.

Well equipped critical researchers will use relevant tools 'to rethink the interplay between various axes of power, identity, libido, rationality and emotionality' (Kincheloe and McLaren 2000). This 'rethinking' is not only about the effects of those desires on others, but also about the same effects on the self. Self-criticism is a virtue that the researcher should possess. 'A critical perspective', write Kincheloe and McLaren (2000) as they quote Antonio Gramsci, 'involves the ability of its adherents to criticise the ideological frames that they use to make sense of the world' (p288). What this suggests to the researcher who aspires to operate within this framework is that in trying to investigate the 'forms of life' as manifested in the site of her research, the researcher should be mindful that her own constructions that she brings to the site to participate in 'facilitating an understanding of the hidden structures and tacit dynamics that insidiously inscribe social meanings and values' are also suspect. Kincheloe and McLaren (2000) advice that such an aspirant should 'inject critical social theory into the hermeneutical circle' in order to succeed, because, they argue further, such work 'involves the unravelling of the ideological codings embedded in these cultural representations'. In this project the challenge is that as the researcher seeks to unravel the ideological codings (ideas and considerations) embedded in the courses (cultural representations) that are delivered she should be critical of her own constructions.

On issues of representation and the controversy of researching the 'other' Denzin and Lincoln (2000) remind us of the irony that 'qualitative research in sociology and anthropology was "born out of a concern to understand the 'other'"'. They go on to indicate that the 'other' was exotic, primitive, non-white and from a foreign less civilised culture'. In their words 'the dark-skinned other' was turned into the 'object of the ethnographer's gaze'. The notion of the researcher in that context would be that of the white male who is also an

authority. With the evolution that has taken place in the qualitative movement, all these notions have been forced to change. This change is also evident in some of the research strategies within this movement, for example participatory approaches. And of course for the project at hand, the researcher is in everyway different from the one in the original context of sociology and anthropology as described above. She is black and female, and her sites of research include the researched and co-researchers who are white and male, and who, in some cases occupy higher levels of authority than hers within the different institutions. The power relations of the researcher in this project are radically different from one in the early stages of qualitative research. This introduces interesting challenges to the project.

Another interesting role for the researcher within this approach is that she is part of the research instrument. Using her metaphor of dance and choreography Janesick equates the researcher to 'the research instrument' in the same way that 'the body is the instrument of dance' (Janesick 2000) (p380). In identifying the role of the researcher and placing that role within phenomenology (which has contributed to the evolution in qualitative inquiry as argued for in this project), Donalek (2004) argues that from the choice of the topic, we as researchers should acknowledge 'our already meaning-endowed relationships' as she quotes Drew (2001, p19). She further argues

> The researchers' thoughts, responses, and decision-making process should be acknowledged and explicated throughout the entire process. For phenomenologic research to be credible, documentation of this process must exist from selection of the topic to all phases of the collection and analysis of the data and creation of the essential description of the phenomenon. Why did the researcher choose the topic, respond to a participant's narrative in a particular way, be drawn to a particular passage in a transcript, see a particular pattern? (p516)

Though her (Donalek 2004) argument is about 'what makes phenomenologic research really phenomenological', and yet without making this dogma in qualitative inquiry, responding to these questions will help the 'subjectiveness'

(especially in terms of the role of the researcher) of social inquiry to be 'transparent'. For example, it should provide some insight into how the researcher in this project approaches the topic, the questions she pursues and how she relates to the researched data, as well as how she handles it. In this project it has to be acknowledged that influence comes from the point that the researcher is working within a staff development unit in a higher education institution where issues of course design and their relation to teaching and learning are high on the agenda. Now that technology has come to be part of the context, there are new challenges to be faced and new conceptualisations of what staff development and course design entail. The choice of the topic itself is an indication of the particular struggle the researcher faces in her day to day work, that of understanding the 'pedagogical design issues' that influence how courses are designed and taught, especially in this 'e' era, where information and communication technologies add to the highly turbulent waters of higher education.

Janesick (2000) alludes to the passion the researcher has to possess and recognises it as a useful resource in qualitative research. She affirms that it adds value to the research practice. In criticising the way research is 'depersonalised' in a different paradigm she puts it in this way

> *'Becoming immersed in the study requires passion: passion for people, passion for communication, and passion for understanding people. This is the contribution of qualitative research, and it can only enhance educational and human services practice. In the other paradigm, people are taken out of the formula and worse, are often lumped together in some undefinable aggregate as if they were not individuals. In qualitative arena the individual is not only inserted into the study, the individual is the backbone of the study.' (p394)*

The kinds of networks and interactions developed with different role players proved to be highly useful. The passion the researcher has was identified and affirmed in the many interactions that were part of this research journey. The identification of this passion led to special invitations where the researcher delivered key addresses based on her work-in-progress. This was also a

valuable time to listen more attentively and more deeply to stories of course design from the different role players.

3.3. Research design

According to Denzin and Lincoln (2000) a research design should involve 'a clear focus on the (main) research question, the purpose of the study, what information will answer specific research questions most appropriately, and which strategies are most effective for obtaining answers to the questions. They further describe a research design as a 'flexible set of guidelines that connect theoretical paradigms' firstly to strategies of inquiry and secondly, to 'methods of collecting empirical material'. This part of the chapter will discuss these aspects.

A challenge that faces any research design is that once the research question has been posed, a further methodological argument ensues: in what ways will material be best accessed and from what sources to answer the posed question. The identification of sources of data and how the data will be accessed is not always very obvious. It is never that clear how the researcher should get going, especially during the first phase that Janesick (2000) has identified: 'warm up, preparation and prechoreographic stage' of the design. It is not easy to clarify what really matters at this (early) stage, what is important as against what is trivial, what has potential to contribute to answers and what do not. And yet, decisions have to be taken even at this early stage to drive the process. Some of these decisions are bound to change as the project matures or is refined; this was the experience in this project.

3.3.1. Revisiting the aims of the study

The question that this study sought to answer is:

> "What pedagogical considerations are necessary for successful course design when using e-learning?"

Given this question, part of the aim in this chapter is to map out strategies and methods for data collection that will lead to an understanding of what pedagogical considerations are of essence in the design of courses delivered through the use of the new learning technologies, that is, if student learning is to be promoted. In the words of Associate professor Daphne Pan (Pan 2004), what is to be determined is: 'How, and how well, we are using the new media and tools that are available, and in what way we are adding value beyond the traditional delivery methods'. But, the 'how' is only part of the question, the other part is the 'what'. What is it that we are doing as we endeavour to maximise the capabilities of these new technologies? The purpose of this study is to pursue the 'how' and 'what' questions as far as learning technologies are concerned.

At the start of this project (in the pre-design phase) the aim was broken down into four components, namely,

to investigate e-learning and which of its components are used in the design of courses;

to investigate the whole notion of learning and learning theories as applied in the design of courses when (components of) e-learning are used;
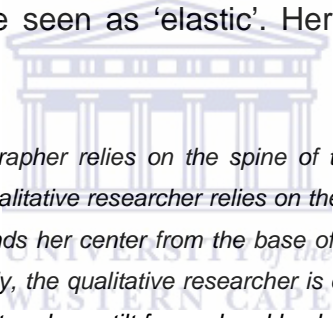
to investigate specific role players within an institution in terms of how they have designed courses or influenced the design of courses that have incorporated e-learning and how the institutions experience benefits and opportunities that e-learning brings,

to investigate not only the change, but also the competition and competencies that these learning technologies bring to institutional practices.

Given the leading question as the backdrop, it became an interesting journey to travel in pursuit of answers. As Strauss and Corbin indicate, doing research is 'a messy process', the journey was not a straight forward one (Strauss and Corbin 1998). They indicate that though research is planned and designed, it is hardly ever 'neatly carried out'. And yet, (to strike the necessary balance) they mention

that 'that does not mean that research results are dubious or useless; rather, it means that research rarely proceeds as planned' (p32). As the study matured, the aims also matured, and were modified and then separated into two (categories), academic and strategic, as pointed out in chapter one.

Instead of just viewing the research process as 'a messy affair', Janesick (2000) is helpful in putting this matter into perspective. Using a powerful metaphor of choreography and dance, she outlines three stages in research design, namely, warming up and preparation - this is where design decisions are taken; stretching exercises and background work; and lastly the cooling down stage, where illumination and formulation takes place. Within this metaphor, the research process is not necessarily seen as a 'messy affair'; rather both the researcher and the research design are seen as 'elastic'. Her words are worth quoting at length

> *"Likewise, just as the choreographer relies on the spine of the dancer for the power and coherence of the dance, the qualitative researcher relies on the design of the study. Both are elastic. Like the dancer who finds her center from the base of the spine and the connection between the spine and the body, the qualitative researcher is centered by a series of design decisions. A dancer who is centered may tilt forward and backward and from side to side, yet always return to the center, the core of the dancer's strength. If one thinks of the design of the study as spine, and the base of the spine as the beginning of the warm-up in dance, one can see that the beginning decisions in a study are very much like the warm-up for the dancer and the predesign decisions made by the choreograper' (383)*

This explains why changes were introduced into the research design during the process of conducting this research. Elasticity and flexibility became the guiding principles. For example, instead of sticking to a focus group as planned in the pre-design stage, it turned out that this kind of collectiveness is not yet a reality in this field, as e-learning is fairy new to the South African higher education scene. Even in those institutions where those in the support unit attracted a group of lecturers to form communities of practice, there was still a lot individualistic thinking. Through website information, interviews and various ways of analysing the data a specific research design emerged.

3.3.2. The object of study

The main question to be answered in the study places the focus on the courses that currently use e-learning in their design and delivery. South African higher education provides a context in which to investigate these questions. It is not just the institutions that have to be investigated, but more specifically courses that have incorporated e-learning in their design and delivery. At the core of the investigation is the question, are courses delivered through e-learning designed in such a way as to promote student learning? What features will characterise such courses? Providing answers to these questions will then help to investigate three further questions that surfaced:

- What underpins teachers' ideas and acts as they use e-learning in their courses?
- Can e-learning promote student learning?
- How should the quality agenda in teaching and learning be driven?

Since courses are located within institutions both (institution and course) will constitute the main components in the investigation. There are other related components that are part of this environment. The following figure is a representation of the initial components involved in the study.
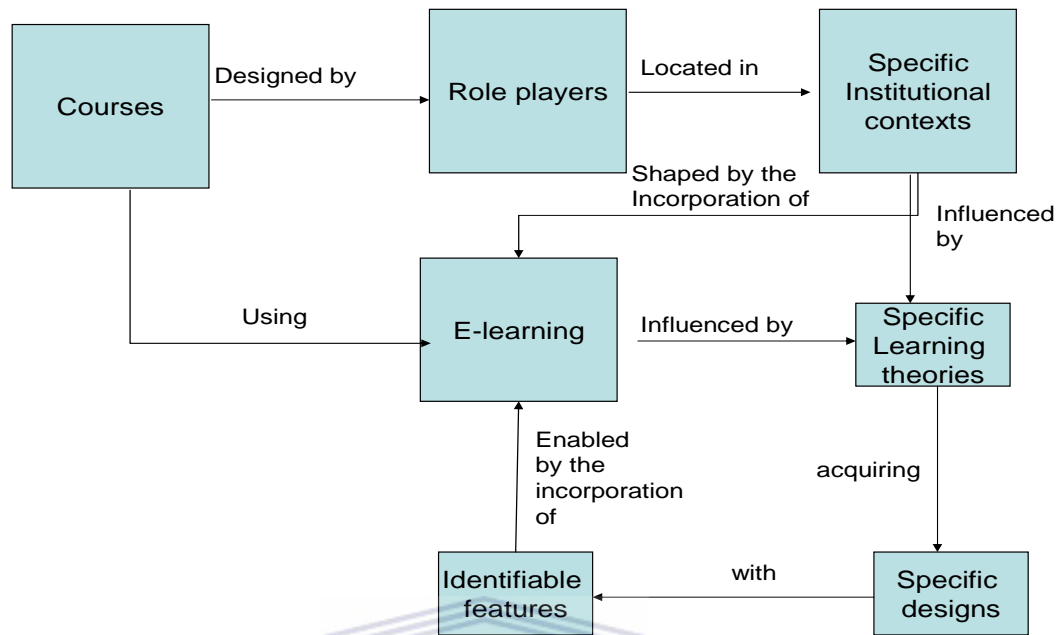
Figure 9: Object of study

3.4. Sets of and sites for data collection

Two sets of data were collected. The first set was collected from the websites of all higher education institutions in South African. Information that indicated the level of activity, as far as the use of learning technologies was concerned, was collected and processed through an Access data base. The information was woven into a 'quilt' (Denzin & Lincoln 2000) which helped to paint a bigger picture of what South African higher education was up to, and the directions that it was moving towards as far as e-learning was concerned. Chapter 4 gives a full treatment of this data. The second set of data was collected from interviews.

The website data was instrumental in identifying further sites of data. Useful information was gained in terms of identifying institutions with a reasonable level of e-learning activity. Reasonable in this case included information that indicated which institutions had an established unit dedicated to the support of e-learning implementation, the number of people involved and what institutions were aiming

to achieve through such units. All South African higher Education institutions were included at this initial stage.

3.4.1. Web site Data

Qualitative procedures for data collection provide a means of accessing unquantifiable facts about the actual people researchers observe and talk to or people represented by their personal traces (such as letters, photographs, newspaper accounts, diaries, and so on) as Berg (1998) asserts. The website information served as institutional traces for e-learning activity in the same way that newspaper accounts or letters might serve as (personal) traces. Besides serving as 'institutional traces', website research is unobtrusive, a feature that was very useful during the early stages of this project.

Part of the challenges of doing research in an area that is significantly new (in terms of involving some new tools as in e-learning) is that role players may be over burdened by researchers who populate the field in an attempt to research and report on what is happening around this new activity. Intrusive methods, as in a case where role players feel the (physical) presence of the researcher, can be less fruitful. Berg (1998) indicates that though intrusive techniques such as direct observation frequently find their way into most conventional research method books, unobtrusive strategies do so less regularly. He further argues, "however, unobtrusive measures actually make up a particularly interesting and innovative strategy for collecting and accessing data." (p177). And as he (Berg 1998) has argued in the introduction to his book, human or personal 'traces' provide useful research material. This was the case with the websites that served as institutional traces for this research project.

Denzin(1989, p39) remarks that 'while unobtrusive strategies are quite good at identifying surface-level structures of life, most are not adequate for uncovering deep level life structures' as quoted in Berg (1998). This was the experience in this study; institutional information from websites could only take its place in the

research project at a very low level, in terms of uncovering pertinent issues that the study was pursuing. The information was only relevant and useful in as far as laying the foundation for further work was concerned. It provided the necessary pointers that allowed the study to grow to more significant levels.

From what was learned from the websites, it was possible to tease out meanings that fostered an understanding of the level of activity that existed generally within the country, as well as within the individual institutions. National and international conferences confirmed the level of activity as the buzz around what people were doing about learning technologies increased. By attending some of these conferences, the researcher became exposed to informants that provided more valuable information and helped bring more meaning that added to website information. The phenomenon of 'researcher as instrument' manifested itself conspicuously as interaction at conferences and other meetings were used to add to information already gleaned. This part of the research happened in many ways that can only be described as informal. It is not easy to pin down the specific pieces of information collected. It should suffice to say that it became a significant section of the research that ran parallel to other activities. Because of that it then became easy to make sense of the website data and then trace a number of role players and listen to their stories about what it was that they were doing in the design of their courses using e-learning technologies. These role players included teaching staff as well as people who were involved in running the e-learning units within the different institutions. It became necessary to interact with role players in these ways and listen to their definitions of e-learning and what they were doing within their everyday world and through their ordinary language as Outhwaite (1987) argues.

3.4.2 The Interviews

As indicated earlier, a parallel activity in the project, parallel to the website data collection and analysis, involved identifying and attending national conferences that served as platforms to showcase what people in institutions were doing with

e-learning technologies. These conferences were pivotal (together with the website data) in identifying participants for the interviews in terms of which institutions to focus in on. Most of the interviewees were heard presenting papers about their work at these conferences or their work and activities were referred to in (conference) presentations. What became more valuable to the project is how the interviews complemented the website data to fully illuminate e-learning activity in this context, especially in relation to institutional arrangements that were in place.

The identification of participants for interviews, which provided the second set of data, was guided by the website data and the other informal interactions provided by such forums as the aforementioned conferences and meetings. Six institutions served as sites for the interviews and the number of participants involved was sixteen. Appendix 2 provides these details. Different techniques for data collection had to be employed for the study to grow in the necessary directions. The two sets of data were subjected to various methods of analysis.

3.4.3. Resolving the tensions and the crisis of validity

Gergen & Gergen reflect on the contradictions in qualitative inquiry and discuss the crisis of validity(Gergen and Gergen 2000). They indicate that reflexivity and multiple voicing are among emerging innovations in methodology as far as evaluative criteria are concerned. By reflexivity they refer to the researchers' investments (biases they bring and choices they make). Multiple voicing refers to the removal of the single voice of the researcher and includes multi voices in the report. In this study the role of the researcher has been discussed in 2.4 with indications of the biases and changes that the researcher made along the journey. This is an admission that the role of the researcher was not neutral.

Reflexivity also refers to self-exposure (Gergen and Gergen 2000) and in this study it was mainly through interactions also referred to in section 2.4 of this

chapter. Proposal for this project was submitted to the NRF (National Research Foundation) for funding. Exposing the project to such national systems not only lead to the approval of a research grant, but the peer evaluation and feedback received as part of grant application also served as affirmation that the project was well designed. Throughout the period of the research project, the researcher contributed 16 public presentations based on work-in-progress in this project. The first presentation was a keynote and joint presentation at the 2003 TABEISA conference. The second was a poster (Figure 11) at the WWW 2003 conference organized by the then RAU (Rand Afrikaanse Universiteit, now University of Johannesburg). The poster was a summary of the data gathered and analysed from institutional websites, what came to be referred as the 'quilt' in this study. Subsequently three papers were presented at ELEARN 2003, 2004 and 2005, organized by Association for the Advancement of Computing in Education (AACE). The conferences provided a good forum to announce the research project to the academic community both locally and internationally. The E-Learn papers were published in peer reviewed conference proceedings (Madiba 2003; Madiba 2004; Madiba and Cross 2005). The feedback received was encouraging and the project received recognition. The latter was invited into a journal.

Six more papers were presented annually at SAADA (South African association for Academic development), now HELTASA (Higher Education Learning and teaching Association of South Africa) from 2003-2008. Another paper was presented at HERDSA (Higher Education Research and Development) 2007, Adelaide, Australia. The year-to-year momentum was deliberately maintained to present each major section of the work as it was progressing. The feedback received was used to reflect on the work and make the necessary improvements; making reflexivity a prominent feature of the research journey. Three other presentations were invited papers at internal (or local) conferences. Two of these were in the institution where the researcher worked and the third was at a different institution. Another presentation took the form of a group workshop in collaboration with a research group from Wits University. The workshop was

presented at EDEN 2005 (European Distance E-learning Network) in Helsinki, Finland. The workshop was one of the outcomes of a Swedish-South African collaborative project aimed at a comparative study of e-learning in the two countries. In 2008 the researcher presented her work-in-progress at a seminar at the Open University (UK) funded by the British Council.

There were other conferences that became targeted for attendance even if the researcher did not present any paper. These were considered special events that were instrumental in tracking the movements and directions towards which e-learning was moving. The conferences include four of the biennial WebCT (now Blackboard) Users conferences organised by Eiffel Corp in South Africa (2002, 2004, 2006 and 2009); the 2004 eLearning Guild conference in San Francisco, Elliot Masie's 2005 TechLearn in New York and Learning 2006 in Orlando, Florida, USA.

The interactions were not limited to presenting papers, another huge impact they laid on this project was attending pre-conference workshops and meeting key role players and authors in the field. These are people who would deliver keynote and invited papers like Curtis Bonk, Tom Reeves, Allison Rosett, Elliot Masie, Mark Rosenberg, Wayne Hodgins, Ellen Wagner, Ruth Clark and Patti Shank. A special feature at E-learn conferences was 'Conversation with the keynote speaker', a session where delegates got to talk to the keynote after the address. As these would normally be authors and significant role players in the field, it was always an opportunity for the researcher to question and follow up ideas picked up from the authors' individual works. It was also a time to test one's work against the thinking of these high profile authors. The pre-conference workshops were also very useful in increasing (the content) knowledge in specific areas. The learning object workshops that the researcher had an opportunity to attend are of particular reference.

An attempt to allow for multiple voicing was made in several ways. It was important for this project to engage with participants from both the support units and those in teaching. As the data later revealed, there were different levels at which these voices where speaking in the e-learning environment. There were those who were operating with practitioner authority, either in support or teaching, and those who were operating with management authority. The accounts given by people in those different roles were illuminating. The web site data collected early in the study gave an indication of the varied levels from which people in the institutions were writing and talking about e-learning. In the interviews, some participants revealed 'polyvocality' (Gergen and Gergen 2000) in that their accounts carried 'the multiplicity of identities' that constituted them as individuals. In some cases, it was that of being technical experts (or rather technocrats) as well as teachers, and others carried identities of managers and were able to voice the attitudes carried by the top management of the institution. In some cases these multiple identities led to contradictions.

It was not only in data collection that multiple voicing and polyvocality was evident, it was also in the data analysis. The four strategies used, that is, the Access database, discourse analysis, the use of NVIVO as a qualitative data analysis software and a case study approach allowed different 'reflections and refractions' if the metaphor of the crystal is to be employed (Denzin and Lincoln 2000).

3.6. Analysis of data

This section of the chapter will investigate how tension manifests itself in qualitative data analysis. It is clear that as far as analysis of qualitative data is concerned, shrugging off the positivist hold remains a serious challenge. Polit and Beck assert that qualitative data 'take the form of loosely structured, narrative material' and they provide a number of sources as examples from which such data can be generated (Polit and Beck 2004). They further argue that to analyse the data, which involves organising, providing structure and eliciting

meaning from the data is a highly challenging enterprise if it is within the qualitative paradigm. The reasons for this, as they state are because (1) there are no universal rules to guide the process, (2) it is an enormous amount of work, and (3) to reduce the data for reporting purposes is a big challenge.

3.6.1. Paradigmatic influences and choices

It is important at this stage to give indications of how the issues of ontology, epistemology, methodology, theory and meta-theory influenced analysis of data in this study. It is important to recall the kind of social ontology adopted in this study, that is, how social entities or objects of study come to exist before they are subjected to inquiry. The other question that follows is that of epistemology, how we arrive at the knowledge of these objects of study. Bhaskar (in Outwaite 1987, p60) argues that language 'stands to the conceptual aspect of social science as geometry stands to physics'. By that he places language at the centre of social inquiry activity. The two sets of data in this study are treated as 'texts' and language provides a way to engage with the 'texts'. Because language is so central to social inquiry, understanding is key in the social sciences. It is Habermas who showed how 'hermeneutics should be placed at the starting point of social theory' (Outhwaite 1987, p61).

In the social sciences the aim is to understand as against the natural sciences whose aim is to explain. Kincheloe and McLaren (2000) draw in 'criticalism' within this context and argue that 'from a critical perspective, linguistic descriptions are not simply about the world, but serve to construct it' (p282). What this means is that beingness (ontology) in social inquiry is seen as a product of language and we come to know (epistemology) that beingness through a hermeneutic understanding. The 'texts' in this study are understood as products of language and a critical hermeneutic approach will be employed to analyse them.

In talking about the 'interpretive turn' in qualitative research, defined as a turn towards 'contextual' research which is less immediately concerned with discovering universal, law-like patterns of human behaviour' and 'is more concerned with making sense of human experience from within the context and perspective of human experience', Kelly highlights the starting point of qualitative research as 'the belief that we cannot apprehend human experience without understanding the social, linguistic and historical features which give it shape' (Kelly 2002) (p398). A good demonstration of this can be traced back to the work of Habermas, (Holub 1991).a critical theorist that asserted the role of hermeneutics to be at the heart of social science. Besides contributing at a theoretical level what the role of hermeneutics should be, his work demonstrates the need for such a theoretical underpinning. The essays and arguments around his understanding of the holocaust for example draw meaning from the social, linguistic as well as the historical contexts of the related events, as a means to develop understanding of the same, as captured in Holub (1991).

It is a matter of concern that qualitative data analysis is viewed as 'the most difficult', 'arduous', 'complex' and yet as a 'contested part of the research process that has received limited theoretical attention' (Basit 2003), (Savage 2000). Savage (2000) further asserts that it is 'only recently that social scientists have begun to reflect on the way they produce texts and the way that these are read'. He associates this recent move with the rise of post-modernism, the period identified as the fifth by Denzin and Lincoln (2000). This moment marks the period of the experimental and new ethnographies and covers the years 1990-1995. He also associates the move with 'the interpretive turn' that has come to define qualitative inquiry. And yet, there are a number of other turns that have occurred in qualitative research that have yielded the kind of practices that are evident on the qualitative scene (more) recently. The other 'turns' include the 'linguistic turn' and the 'narrative turn'. These 'turns', together with a number of traditions that have informed, deformed, touched and tinted qualitative inquiry have given rise to a variety of types and techniques in data collection and

analysis. With the introduction of qualitative data analysis software packages especially, a new 'technological turn' has come on stage to join the rest (of the turns).

Going back to the theoretical underpinnings that this study has adopted, it has already been argued that the qualitative research approach as conceived here has developed from a number of traditions as Outhwaite (1987) and Schwandt (2000) have discussed in their 'threesomeness', namely, realism, hermeneutics and critical theory on one hand and interpretivism, hermeneutics and social construtionism on the other. Denzin and Lincoln (2000) have demonstrated how poststructuralism and postmodernism have contributed to the evolution. A point to be emphasised here is that qualitative research within this paradigm is argued to be not 'wantonly eclectic' to use Kincheloe's and McLaren's (2000) words. This is to recall that the paradigm has evolved, absorbing different influences along the way, to come to a place where it is at the seventh historical moment, as has been identified.

3.6.2. Styles of Qualitative Analysis: A continuum

The analysis from these Polit and Beck (2004) clearly lays out the challenges that this study faced. They further list three of what they see as 'prototypical styles' in qualitative analysis, an identification taken from the work of Crabtree and Miller (1999) as they indicate. The three styles are (1) template analysis style, (2) editing analysis style and (3) immersion crystallization style. They usefully indicate that even though three different styles are identified, they fall along a continuum where at one end 'is a style that is more systematic and standardised, and at the other is a style that is intuitive, subjective and interpretive' (p571). This study will fall more towards the one end that is 'intuitive, subjective and interpretive', maintaining an understanding that this is a continuum.

The analysis that Polit and Beck (2004) provide places traditions such as grounded theory, phenomenology, hermeneutics, and ethnomethodology within the editing style. Whether all those traditions should belong to the same grouping can be highly contested and yet this is no place for such deliberations. What is of interest here is that what differentiates the editing from the immersion/crystallization style is developing 'a categorization scheme' as against 'total immersion in and reflection of the text material'. And since it is highly undesirable in this study to confine the analysis strictly within one of these classifications, both the developing of 'a categorization scheme' and 'total immersion/crystallization in and reflection' type articulate closely to what the study did as far as the analysis of the data was concerned.

3.6.3. Content and thematic analysis

'Qualitative content analysis' is described as the 'analysis of narrative data to identify prominent themes and patterns among the themes - primarily using an analysis style that can be characterised as either template analysis or editing analysis,' (Polit and Beck 2004, p580). It is also seen as a flexible way to analyse qualitative data without 'a formal affiliation to a specific research tradition' like phenomenology, grounded theory and ethnography. According to the treatment that Berg (1998) gives, one realizes that content analysis is more loosely defined, even less formulaic than the other approaches to qualitative research. That is why Polit & Beck (2004) give the advice that if a researcher does not want to be confined to any of the formal traditions, then content analysis will give the required freedom. But just like grounded theory, content analysis should be adopted with a level of caution, so that the positivistic clutch that dominates most research techniques is not given prevalence. Content analysis is however viewed by a number of authors (Silverman, 1993) as 'reductionist and ostensibly a more positivistic approach' (Berg 1998, p225).

Berg (1998) attempts to rescue content analysis from the reductionist and positivistic approach; he does this by arguing that 'counts of textual elements merely provide a means for identifying, organizing, indexing, and retrieving data'. He (Berg (1998) further argues that analysis of data 'once organized according to content elements should involve consideration of the literal words in the text being analysed, including the manner in which these words are offered'. In this way, he asserts, content analysis provides a method for obtaining good access of the text or transcribed accounts offered by subjects'. He further asserts that 'content analysis is a passport to listening to the words of the text and understanding better the perspective(s) of the producer of these words'. He finally admits that he is striving for 'a blend of qualitative and quantitative emphasis'. It is not only that he (Berg) presents content analysis as a part of a 'blended quantitative/qualitative emphasis' to data analysis, it is also that the organizing, indexing and retrieving to be done as a starting point in content analysis is really 'objective, systematic and quantitative' as Berelson (1952) (quoted in Berg, 1998) brands it.
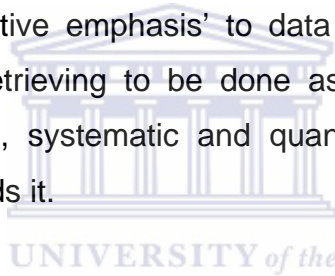
In their contrast of grounded theory with 'classical content analysis' Ryan and Bernard (2000) assert that 'grounded theory is concerned with the discovery of data-induced hypotheses, classical content analysis comprises techniques for reducing texts to a unit-by-variable matrix and analyzing that matrix quantitatively to test hypothesis' (p785).This description strengthens the quantitative in nature. For a more qualitative design, the quantitative aspects do not have to from part of the adopted procedures. Thematic analysis can also lean more to the quantitative side. It is associated with 'a realist approach in which it is assumed that there will be some fit between the outcome of data analysis and some external or overarching reality' as Savage (2000, p1493) indicates. Its roots are both 'realist' and 'empiricist'. A view adopted in this study is that meaning and whatever is conceived as reality is not external, but constructed within specific contexts.

Ryan and Bernard (2000) distinguish between the 'linguistic tradition, which treats text as an object of analysis in itself and the sociological tradition, which treats text as a window into human experience' (p769). In their treatment the sociological tradition includes 'free-flowing texts, such as narratives, discourse, and responses to open-ended interview questions'. They go on to indicate how content analysis (and thematic analysis) would then fall within what they call the 'social tradition', which treats text as a window into human experience.

The naming of the traditions is not much of a concern, what matters is the distinction between 'text as an object of analysis' and text as 'a window to human experience'. There is a huge epistemological difference between the two. Though Silverman (2000) argues that both positions are 'entirely legitimate', he, Silverman (2000) elaborates on the assumptions associated with seeing text as a window to human experience and highlights a number of issues involved. Talking specifically about text from interviews he says

> For the qualitative–minded researcher, the open-ended interview apparently offers the opportunity for an authentic gaze into the soul of another, or even for a politically correct dialogue in which the researcher and researched offer mutual understanding and support. The rhetoric of interviewing "in-depth" repeatedly hints at such a collection of assumptions. Here we see a stubbornly persistent romantic impulse in contemporary sociology: the elevation of the experiential as the authentic - the selfsame gambit that make TV talk-show or news interviews so appealing. Such qualitative researchers share survey researchers' assumption that interview responses index some external reality (p823)

He goes on to suggest an alternative approach, one that treats the interview as 'accessing various stories or narratives through which people describe their world'. He then indicates that this narrative approach 'claims that, by abandoning the attempt to treat respondents' accounts as potentially "true" pictures of "reality", we open up for analysis the culturally rich methods through which interviewers and interviewees, in concert, generate plausible accounts of the world'. This is in line with the thinking that reality does not objectively exist; it is constituted through the texts produced by both the researcher and the

researched. And as such, this form the basis on which text becomes the object of analysis within this rationale.

What Silverman (2000) argues for is an analysis that does not stop at coding and the development of a category or theoretical scheme. He sees this (coding) as a starting point, not the end of the analysis process. Unfortunately there are instances where content and thematic analysis are used as procedures and where coding is seen as the actual analysis. The chores that are described: sampling, identifying themes, building codebooks, marking texts, constructing models (relationships among models) and testing these models against empirical data as Ryan and Bernard (2000, p780) outline describe the complete analysis process. They argue that 'coding is the heart and soul of whole-text analysis'. By quoting Miles and Huberman (1994) they further affirm this thinking and emphasise that 'coding is analysis'. This is in stark contrast to what Silverman (2000) calls for, that coding should be seen as organization of data only, not anything 'more' or 'further'. This project has adopted this stance of using coding as a means and not an end in itself, enabling a more qualitative treatment of the texts to be analysed. Coding is limited to organisation of the data.

3.6.4. Computer Software in Qualitative Data analysis:

This argument of whether 'coding is analysis' or 'the starting point in analysis' introduces the role of computer software in the process of qualitative data analysis. There are a number of interesting points to note here. The first point is that Weitzman (2000) and Ryan and Bernard (2000) identify the chores that are mainly involved in coding as the same chores that Qualitative Data Analysis (QDA) is all about when the relevant programmes and packages are employed. These include such programmes or packages as ATLAS/ti and NUD·IST/NVIVO. These packages are useful as far as organization of data is concerned. The researcher has the duty to take the process to the end. Though Weitzman (Weitzman 2000) keeps on emphasising that the packages do not do the

analysis - that they only help in the process - the advice will not be regarded as sound by those who are happy to stop at coding.

The second point is that these software packages are based 'loosely on a grounded theory type to qualitative analysis', and many 'have recently folded in techniques from classical content analysis' as Ryan and Bernard (2000, p792) assert.

Another important note to make is that the elevation of coding to the status argued for in the other paradigm is a dangerous one as far as the handling of data is concerned. It will be useful to quote Silverman's (2000) words on this point, that

> *'As Atkinson (1992, p429) points out, one of the disadvantages of the coding schemes used in both interview and text-based analysis is that, because they are based upon sets of categories, they furnish "a powerful conceptual grid" from which it is difficult to escape. Although this grid is very helpful for organising the data analysis, it also deflects attention away from the uncategorised activities' (p825).*

It is this deflection that is a serious weakness that lies within approaches that depend on building a category scheme, mainly through the process of coding and then limit data to that scheme. Silverman (Silverman 2000) gives another point of criticism to content analysis, elaborating on the contribution from Atkinson. He argues that the problem with content analysis (and 'its relatives') is not only about the 'overlooked categories' or the 'uncategorised activities', it is 'how analysts trade off their tacit members' knowledge in coining and applying whatever categories they do use' (p826).

With the emphasis on a guiding principle such as 'the social scientist data are the already constituted meanings of active participants in the social world', then, as Schutz would insist (quoted in Outhwaite, 1987, p68) questions still remain as to what are the actual procedures involved in the data analysis process, that is beyond coding. Silverman's advice is worth taking in this regard, that the

researcher should have 'a clear analytic approach.' His words are worth quoting at length as he further outlines the motivation behind the advice. He says

> *Successful textual studies recognize the value of working with a clearly defined approach. Having chosen your approach (e.g., Foucauldian discourse analysis, Saussurian semiotics, Sacks's analysis of membership categorizations), treat it as a "toolbox" providing a set of concepts and methods to select your data and to illuminate your analysis. (p829)*

Ryan and Bernard's (Ryan and Bernard 2000) discussion alluded to earlier is helpful in that it further indicates how different approaches in qualitative data analysis are classified in terms of association to the linguistic or social tradition discussed above. The linguistic tradition is associated with such procedures as 'narrative analysis, conversation (or discourse) analysis, performance analysis, and formal linguistics analysis', whereas the social tradition is associated with techniques such as 'componential analysis, taxonomies, and mental maps' for analysis of words and phrases. The latter includes key-words-in-context, word counts, semantic network analysis and cognitive maps, as well as grounded theory, schema analysis, classical content analysis, content dictionaries, analytic induction and ethnographic decision models.

To make a choice within this long list is a manageable challenge if one keeps the guiding principles and theoretical underpinnings in the background. Gubrium and Holstein (2000) provide a useful list of 'canonical sources' for 'qualitative research interested in the social accomplishment of meaning and order' (Gubrium and Holstein 2000) (p487) and with Outhwaite's (1987) contribution a connecting thread can be pulled through to trace where the different 'toolboxes' for qualitative analysis come from. Outhwaite's (1987) focus is on 'the different sources' for what he calls 'the hermeneutic critique' and Gubrium and Holstein (2000) trace the evolution from the angle of those interested in 'documenting the processes by which social reality' comes to be constituted. Holub also offers a useful contribution in this regard, though his focus concentrates on Jürgen Habermas's work (Holub 1991). The three contributions, if followed closely yield the evolutionary thread as traced here and give an exposé of the types of

analysis that fall within the 'social tradition', and 'the toolboxes' that evolved out of this movement. The following figure is an attempt to represent the evolutionary thread. It has to be noted though that the history of ideas does not necessarily evolve in a neat fashion.

Dilthey's — Hermeneutic theory to

Wittgenstein's — Language Games to

Weber's — Verstehen to

Heidegger's — Phenomenological philosophy to

Gadamer's — Radicalised hermeneutics to

Habermas's — Linguistic turn to

Husserl's — Philosophical phenomenology to

Schutz's — Social phenomenology and the 'life-world' to

Blumer's — Symbolic interactionism to

Saussure's — Linguistic structuralism to

Garfinkel's — Ethnomethodology to

Foucalt's — Discourse analysis to

Sacks's — Membership categorizations analysis to

Labov's — Narrative analysis

Figure 10: The evolutionary thread of analysis styles

The discussion of the array of tools that Ryan and Bernard (2000) provide is in a context where they argue that 'the pragmatics of research will lessen the distinction between qualitative and quantitative data and analysis'. The intention in this study is not an attempt to lessen such a distinction; instead it is more inclined to the qualitative side. Software tools for example, are used only as far as they make access to the data more manageable. In outlining the chores involved in the process of data analysis, they (Ryan and Bernard 2000) indicate that the use of software tools will make it easier 'for researchers to identify themes, build codebooks, mark text, create memos, and develop theoretical models' (p792).

Following on the advice that Silverman (2000) provides it is useful to choose what approaches one would want to employ in the analysis of data cautiously. That conscious choice is helpful for a number of reasons. One of them is that one will be able to learn from others who have used the approaches before. The other reason is that if the choice of procedures and techniques is not done with caution, the quality of the end product will be compromised. For example, not being aware that the chosen approach can (mis)lead the process to stop at coding analysis might be incomplete without the researcher not even realising it.

A look at the work of Savage (2000) and that of Woods, Priest and Roberts suggest an interesting way to enrich the understandings of qualitative data analysis (Woods, Priest et al. 2002). Their work includes a dual analysis in one work, and a triple analysis in the other. Their experiences in applying multiple (dual and triple) analysis types have given birth to a curiosity within this project to do the same. Though their reasons are different, all of them make sense. In the one work by Woods et al (2000), theirs is to 'illustrate, using the generic interview extract, the practical application of these three different approaches (namely, grounded theory, qualitative content analysis and narrative analysis) to a common data set' (p43). Their aim is to show how the three types handle that same data. For Savage (2000) the suggestion is that 'the use of more than one analytic method by the same researcher may be a useful (if limited) response' to the dilemma of the post modern "multivocality' nature of meaning. Savage (2000) is confident that 're-analysis using different approaches, and even bringing together different paradigms, may offer a way of opening up the process of interpretation'.

The manner in which Savage (2000) describes multivocality is interesting and informative. After endorsing a number of questions for the way the qualitative researcher has to look at texts and the 'sets of relations that bring them into production', such as 'who speaks? who writes/ when and where? with or to

whom? under what constraints?' Savage (2000) addresses the issue of multiplicity of voices. His words are worth quoting at length that

'Post-modern approaches in particular have 'recognised the multiplicity of voices, views, and methods present in any representation or analysis of any aspect of reality, ….There are those who suggest that the same informant may provide different accounts of the same event at different times and to different people, or that people may mean more than one thing when they speak. Others warn against confusing what people say with what they know, on the premise that different kinds of knowledge may be organized in different ways, with each kind of knowledge having a specific relationship to language'. (p1494)

It is this dilemma of multiplicity of meaning that he attempts to address by multiple analyses of the same data. This approach is what informed this study to adopt a four-pronged style to data analysis. The two sets of data were subjected to discourse analysis.

3.6.5. Contextualising Discourse analysis

In a review of Johnstone's (2002) book, 'Discourse Analysis' Gogglin (Gogglin 2003) defines discourse analysis as a methodology 'that is useful in answering many questions, both questions that linguists traditionally ask and questions asked by people in other humanistic and social-scientific disciplines.' (p94). Tracing the historical chain that led to the development and practice that is known as discourse analysis is a challenging project. What complicates it more is that in some sectors it is seen as theory whereas in others it is both method and perspective (Anderson 2004).

A distinguishing characteristic of discourse analysis is that it has its roots in the traditions of linguistics and was further developed and used by other disciplines. McHoul and Grace identify three types of approaches to discourse analysis, namely, 'formal', 'empirical' and 'critical' (McHoul and Grace 1993). They argue that the formal approach 'considers discourse in terms of text' and trace the roots back to the work of structuralist linguists such as Saussre and Levi-Strauss. They

indicate that this approach sometimes goes under the label 'text linguistics' or 'text grammars'. The empirical approach is linked to 'sociological forms of analysis' (p29). Here they posit, discourse means 'human conversation'. This approach is connected to the work of Garfinkel's 'ethnography of speaking'. They link the critical approach mainly to the work of Foucault, and argue that to theorists in this class, discourse does not mean language or social interaction, but 'well-bounded areas of social knowledge', which is also referred to as 'disciplines'.

In an attempt to appropriate discourse analysis as an approach for his study (of 'understanding the cycles of re-design of IT in organizations)', Kaasgaard confirms the three differentiated approaches in this field (Kaasgaard 1998). He argues that the notion of discourse is used to refer to (1) 'talk-in-context' in linguistic research practice, (2) 'symbolic interaction' in sociology as well as (3) 'cognitive and social as well as material conditions for meaningful human interaction' in what he claims to be based on the work of Foucault.

Silverman traces the roots of discourse analysis to 'a common intellectual ancestor in the Oxford philosopher J.L Austin' (Silverman 2001), common to both discourse analysis and conversation analysis. Austin's speech act theory is widely acknowledged as having influence in this field and is seen as a theory that foregrounds 'the social actional aspects of all language use' (Slembrouck 1998-2004). Potter shows how Wittgenstein and Austin have laid ground for discourse analysis: Wittgenstein with his language games that rejected and was highly critical of 'a cognitivist interpretation of words' and Austin with his speech act theory (Potter 2004). Wittgenstein rejected the possibility of a private language that resided in a private psychological space called 'mind'.

Willig's discussion of what discourse analysis is exposes the factors that made it a preferred method in mainstream psychology (Willig 1999). This preference

gave birth to another version of discourse analysis known as discursive psychology. The following words are worth quoting at length in this regard,

> *Discourse analysts conceptualize language as constitutive of experience rather than representational or reflective. They argue that the linguistic categories we use in order to 'describe' reality are not in fact reflections of intrinsic and defining features of entities. Instead they bring into being objects they describe. Furthermore there is always more than one way of describing something and our choice of how to use words to package perceptions and experiences gives rise to particular versions of events and of reality. It is in this sense that language can be said to construct reality. Discourse analysis, therefore, provides a clear alternative to the categorization of behaviours, measurement of variables and attempts to develop predictive models of human behaviour, which constitute mainstream psychology.*

Willig (1999) further points out a prominent differentiation between a focus on discourse practices, i.e. a concern with what people do with their talk and writing (the action orientation of discourse) and a focus on the discursive resources that people draw on (the interpretive repertoires or discourses). The latter focuses on the work of Foucault and is popular in cultural studies. The former draws on Sacks and is popular in psychology. The distinction is a useful one in this study as it helps to demonstrate the 'what' and the 'how' of what is achieved through discourse.

3.6.6. 'The what and the how' of Discourse analysis

Gubruin and Holstein (2002) look broadly at qualitative research and argue that 'an analytic pendulum is constantly in motion' (p487). They argue that there was a time when a detailed description of social worlds was the goal and times when analysis shifted toward the processes by which these worlds are socially constructed. In their discussion they concentrate on what they see as an expanding social constructionist move appropriated by analysts concerned with 'ethnomethodological sensibilities' as well as those in poststructuralist discourse analysis concerned with 'cultural, institutional and historical concerns'. What is

worth noting in their work is that they see an intersection in the two approaches, and that both have taken a constructionist move.

Schwandt (2002) reminds us that social science practice 'continues to be informed by the idea that meaning and knowledge are best explicated by means of some kind of epistemology of representation' whereas social constructionist 'epistemologies aim to "overcome" the representationalist epistemologies in a variety of ways' (p197). The words of Potter (1996) as quoted in Schwandt (2002) capture the constructionist argument very well that "the world …is constituted in one way or the other as people talk it, write it and argue it'. The same is expressed by the famous quotation from Foucault when he defines discourse as 'practices that systematically form the object of which they speak' (Baxter 2003). Analysts that take the constructionist move believe in the 'constitutive power' of discourse.

In what they call an 'analytics of interpretive practice' Gubruin and Holstein speak about 'conceptual foundations' of the constructionist move that range from the work of Schutz's phenomenology to Garfinkel's ethnomedology and to Foucault's work on institutional and historical discourses (Gubruin and Holstein 2002). Through this discussion they come to treat the ethnomedologically inclined approaches, mainly in the form of conversation analysis (CA) and Foucauldian discourse analysis (DA) as closely comparative. They however identify this main difference: Foucualdian Discourse Analysis focuses on the 'whats that discourse constitutes as it is' whereas Conversation Analysis related approaches focus on the 'hows of discursive technology' (Gubruin and Holstein 2002). Their argument is that both the 'what' and the 'how' are important; and they see analysis in this context as more like a skilled juggling act, concentrating alternately on the 'myriad hows and whats of everyday life' (p499). They further argue for 'analytic bracketing' as a new technique to respond to the challenges of the juggling act, that is juggling between the 'whats' and the 'hows' in analysis. This distinction relates closely to the Willig (1999) discussion mentioned earlier.

What is more enlightening in the Gubriun and Holstein (2002) discussion is that they differentiate between what Foucault documents historically as 'discourse-in-practice' in varied institutional or cultural sites and what ethnomethodologists trace as 'discursive-practice'. 'Discourses-in-practice' is associated with the 'whats' and 'discursive practice' with the 'hows'. They further illustrate the parallel in the following words,

> *Several commentators have pointed to the striking parallel between what Foucault (1980) refers to as systems of 'power/knowledge" (or discourses) and ethnomethodology's formulation of the constitutive power of language use …The apparent correspondence suggests that what Foucault documents historically as "discourse-in practice" in varied institutional or cultural sites may be likened to ethnomethodology traces as "discursive-practice" in varied forms of social interaction. (p494)*

The differentiation of the "whats" and the "hows" leads to another significant difference in the two approaches, that which relates to the notion of 'critical'. In order to understand how discourse analysis becomes critical it is important to turn to the legacy that comes out of the work of Foucault (Foucault 1972; Foucault 1982). Andersen acknowledges that more than anyone, Michel Foucault has developed and created an agenda for discourse analysis and has received the widest recognition within social sciences (Andersen 2003). The discussions in this chapter so far attest to that. McHoul and Grace (1993) advocate that Foucault's discourse analysis should be seen as a 'critical approach'. They reason that his approach is 'geared towards a counter-reading of historical and social conditions and offers possibilities for social critique and renewal' (p27). To them, that is the essence of 'criticalness' in his approach. Zavos affirms that it is this counter-reading that makes discourse analysis what it should be as he argues, 'discourse is always by virtue of its being a discourse, unavoidably located in local and global matrices of power, the exploration of which is what discourse ought to be about', and then declares, using Parker (1992, p28) that 'Discourse analysis is implicit ideology critique' (Zavos 2004).

Van Dijk traces the roots of discourse analysis from the time of the 'structural and generative grammars', to the time of the 'analysis of actual language use in the social context' (Van Dijk 1997). He argues that 'the critical dimension' was 'still lacking in most studies, which remained safely descriptive' (p16). He goes on to indicate that 'a new "discourse-in-the-social-context" paradigm of language studies of the 1970s' saw paradigmatic change towards critical linguists and discourse analysis, and argues that this paradigm is inspired by a critical analysis of relevant, structural problems in society and culture. What emerges here is that as much as structural linguists are seen to have initiated discourse analysis, critical linguists shifted the paradigm, the focus moved from language use to a focus on societal problems.

Titscher, Meyer, Wodak, and Vetter recognise two approaches to critical discourse analysis (Titscher, Meyer et al. 2000). They connect the one to the work of Norman Fairclough and the other to Ruth Wodak (Fairclough 1989; Fairclough and Wodak 1997) which they label the discourse-historical method. They trace the roots in this theoretical framework back to Althusser's theories of ideology, Bhaktin's genre theory and the philosophical traditions of Gramsci and the Frankfurt school (Titscher, Meyer et al. 2000). Michel Foucault is also recognised as a major influence in this framework. Their discussions link Fairclough's critical discourse analysis to Halliday's systemic functional linguistics whereas Ruth Wodak's and Teun van Dijk's approaches are seen to have been influenced by cognitive models of text planning. They argue that critical discourse analysis is 'critical' in two senses: the one sense springs from the ideas of the Frankfurt school (in particular the work of Habermas) and the other on a shared tradition with so-called critical linguistics (Halliday as the key reference). The term 'critical linguistics' first appeared in connection with Hallidayan studies of the 'use of language in orgainizations' (Titscher, Meyer et al. 2000) (p144).

Wetherell, Taylor and Yates see discourse analysis 'as a way of finding out how consequential bits of social life are done and this is relevant to the process of

building knowledge and theory in the social sciences' (Wetherell, Taylor et al. 2001) (p2). A well cited statement from this work is that 'discourse is the study of human meaning-making'. They expose a number of implications which are worth reiterating; that discourse builds objects, worlds, minds and social relations, it doesn't just reflect them. Words are about the world but they also form the world as they represent it. What reality is only emerges through human meaning-making. The account enters the discursive economy to be circulated, exchanged, stifled, marginalised or perhaps comes to dominate other possible accounts and is thus marked as the 'definitive truth'. As people speak, a formulation of the world comes into being. As accounts and discourses become available and widely shared, they become social realities to be reckoned with; they become efficacious in future events. The birth and history of e-learning so far demonstrates how relevant these implications can be.

Discourse analysis offers this study an addition to the analysis tools to be used and in that way serves a number of purposes. It helps to reveal the role the e-learning hype played in shaping adoption and implementation by exposing the constitutive power words have. It further helps to provide a critical outlook at the adoption and use of these technologies, creating room for reflection.

3.6.7. The Technological Turn

A qualitative data analysis software package, namely, NVIVO was used as the second style, especially with the interviews. The case study approach was finally used were institutional and individual cases of e-learning course design were analysed. The software package gave this study the experience of 'the technological turn'. Froggatt describes NVIVO as the latest development from NUD*IST (Non-numerical, Unstructured Data, Indexing Searching Theorizing) programmers, available since 1999, and mentions that it seeks to overcome some of the limitations of the NUD*IST package (Froggatt 2001). NVIVO is

founded on the same theoretical analytical principles which are underpinned by grounded theory.

Richards and Richards argued in their presentation of NUD*IST, that what they are attempting to do through the software is to 'explore ways of using the power of the computer to remove barriers to the creation and modification of complex conceptual constructs, and to support the emergence and testing of theory grounded in data' (Richards and Richards 1991). It is this promise of support for the creation and modification of complex conceptual constructs that was an attraction in this study. As a further development from NUD*IST, NVIVO is positioned to be more accommodative of a variety of methods associated with qualitative research; and claims to have tools to support a variety of methods. The tools include those for recording and linking of ideas; for searching and exploring the patterns of data and ideas developed and for model building. The version used in this project is QSR NVIVO 2.0.

The software does not only provide storage space for the data, but accommodates many other aspects of the overall research project. A useful contribution to qualitative research is that it helps to keep the context within which the research is taking place visible. Analysis takes place within the living context of the data - hence 'in vivo'. The concept 'data' is usefully stretched beyond, say, the interviews conducted. All the relevant information that is created in the process of the research extends the part that is commonly referred to as data and this is managed through three systems in the form of documents, nodes and attributes (QSR-International 2002). It is this creation and extension of data that adds the necessary richness to the process of meaning making. As you link, code, shape and model data, the software helps you to manage and synthesize your ideas, constructing and testing answers to research questions, (QSR-International, 2002), processes that became of significant relevance to this study. The creation of memos and databites (links from a document to an external file,

web site or an internal annotation) added to the richness. The details of how this project benefited from such tools will be discussed in the following sections.

There are different attitudes toward the use of computers when both the hardware and software are used to support processes that are viewed as human processes. In reviewing literature on a field that has come to be known as CAQDAS (Computer Assisted Qualitative Data Analysis Software) a number of authors reveal common fears and hopes that affect the use of such tools in qualitative research (Barry 1998), (Buston 1997), (Morrison and Moir 1998). The common fear is the view that CAQDAS is an over determining monster whereas to others it is a neutral tool. These authors argue that packages such as NUD*IST are neither of the two, but acknowledge that they 'affect some moderate degree of influence' on the process of analysis (Buston 1997).

Froggatt (2001) identifies three concerns in this area. The first is that computers will change the nature of qualitative data analysis, homogenizing the process and losing the element of scholarship that is required to inductively work with data to develop categories and conceptual frameworks. The second has to do with blurring the distinctions between qualitative and quantitative research because of the ability to handle large amounts of data. The fear is that this will seductively tempt the researchers to focus on the quantity and do a superficial analysis rather than an in-depth one. The third has to do with considering the categories that are identified as 'concrete variables' and that more interpretive understandings will not be sought. There is agreement at this stage from a number of authors that some of these concerns reflect misconceptions and lack of familiarity with the tools and their capabilities. With this, advice is given in terms of being aware of the 'epistemological effects' of using particular software (Buston 1997). In the words of Morisson and Moir (1998, 115),

> *It is also possible for a researcher to underutilize software with higher order capabilities, such*
> *as …theory building. When inappropriately used even the best designed software can be a*

Trojan horse if the mode of its use threatens the validity of the study's findings and contradicts the epistemological and ontological axioms underpinning the chosen approach.

Quoting Agar(1993,p2) the authors indicate that the danger of using the computer is that the means become the end. They indicate that Agar (1993) sees computers mutating from an item in the context to the context itself. It is posited by the two authors (Morisson and Moir 1998) that the nature of the role that the computer software can play is a function not only of the inherent properties and capabilities of the software itself but also of its use by the researcher. The notion of the means becoming the end affects many other contexts where computers are part of the environment. When the means are confused and conflated with the ends, whatever was pursued results in major failures by the users. This will be explored in other areas of this work, as it also relates to the use of computers to support teaching and learning, the main part of this thesis.

Though the software was adopted at quite a late stage in the project, there are major benefits that were experienced. The adoption of the software developed from the process to map out the methodology for this project. Interest was on an in-depth analysis of the data created and collected rather than investigating a wide spectrum of data. NVIVO was then identified and purchased. At this stage there were already a number of files that had been created as part of the research process. These included Microsoft Access reports that summarized the web site data used in the preliminary stage of the research, the audio files of the interviews collected, transcriptions of these interviews, and documents on the background of the project, literature review, conceptual framework and methodology as well as posters and papers presented at various conferences as part of the work-in-progress.

As part of creating a project in NVIVO, all the files in their various formats were either fully imported into the NVIVO environment or direct links to the files were created. Importing these artefacts into the software at this stage helped with 'stock taking'- with determining what had happened so far? It became part of the

mapping out of the journey in search for new knowledge in this project. It was also a time to reflect on key questions to which the project should seek answers. The following picture imported from the NVIVO project gives a snapshot of the journey so far.
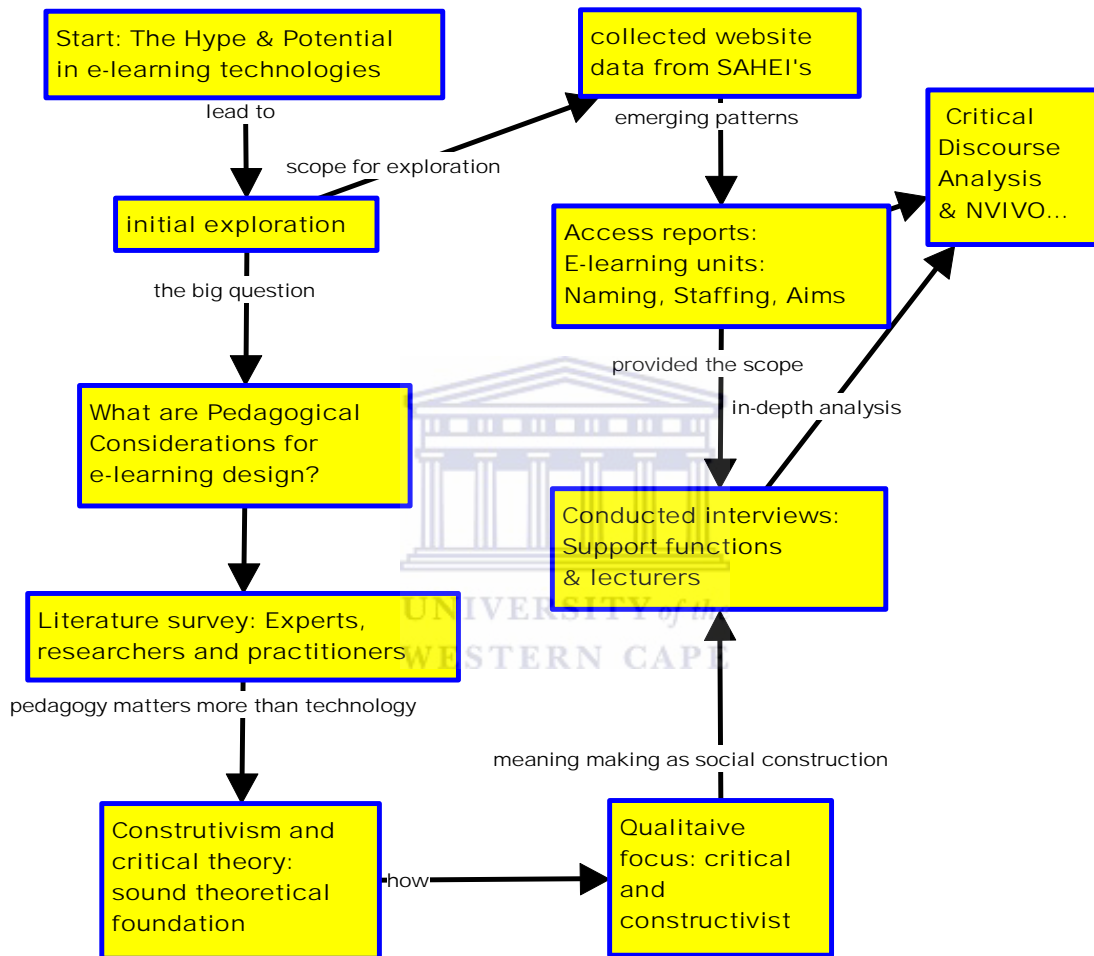
Figure 11: Revisiting the journey

A major activity was then to start the coding process of the data, which occurred alongside the creation of memos and annotations by the researcher. These sideline activities extended the existing data through reflections, comparisons and the testing of the emerging interpretations against the existing literature review. As Smith and Short assert, the coding process is made more meaningful

and accurate because multiple "listenings" and "viewings" of the data bring the researcher even closer to the data (Smith and Short 2001). In their case the benefit was to avoid transcribing, by working with audio files and as such save time. In the case of this project, the benefits were seen from both audio files and the transcriptions. They all facilitated the reliable and accurate return to the segments of original data that gave rise to specific interpretations, and allowed for a continuous review of the context. It was possible to continually weigh the developing theoretical notions against the data before they could be considered as matured.

Besides that the system allowed for the codes to be changed, restructured, renamed and regrouped throughout the analysis process, the ideas recorded in the memos and the annotations could also be challenged and allowed to progress to maturity as the raw data was revisited. Unlike claims by others that computer analysis may alienate the researcher from that data and create a distance that might result in sterility, for this project the opposite was true. The software allowed for continuous interaction and amplified the chances for access to the data that did not just allow for familiarity, but the in-depth analysis that was to be the main target.

Further than linking and coding, and the creation of nodes and attributes, the software allowed for the shaping and modelling of data, so as to synthesize ideas, construct and test answers to research questions. As it emerged from the literature on CAQDAS, it is important to be careful not to allow the software to confuse and cause a clash between method and approach to epistemology and explanation favoured by the broader qualitative paradigm. One has to remain conscious of those underpinnings adopted in the methodology of the project and guard against careless compromise. For example, the matrices and matrix tables in NVIVO are numerically inclined and aim at facilitating importation into statistical packages like SPSS and Microsoft Excel. The text based data is hidden from immediate display. This was not very helpful for this study. The

model builder was helpful to a certain extent, but in some cases it was better to revert to the use of Microsoft Word tables. The aim here was to move away from the focus on counts at the expense of conceptual and theoretical explanations, as Barry warns

> *Counting occurrences, giving more weight to more frequent events, ignoring isolated incidences, and formulating and testing rigid hypothesis are not sensible ways to analyze qualitative data. (Barry 1998)*

One can add that even counting the numbers on demographic information to show the patterns of such attributes as gender and age does not add the depth of analysis required, unless the specifics are used to highlight the contextual aspects around the issues being explored. On the whole, the software made it possible to explore and re-examine the data with a degree of flexibility that facilitated knowledge construction. The system paved the way for the human intellectual labour. The labour to complete the process could not have been replaced in any way, by any aspect of the tool. And as many other authors have indicated, analysis of data itself is always done by a human interpreter.

3.6.8. Emergent case study design

The two sets of data and analysis conducted in the study led to the emergence of specific case studies. Stake (2000) gives a fair treatment of what case studies are within the qualitative paradigm. He argues that 'as a form of research, case study is defined by interest in individual cases'. He differentiates between intrinsic and instrumental interest in cases, and identifies the third type of case study as involving collective cases. He identifies a number of features that can guide a researcher in gathering information about a case. What is helpful from his discussion is the point he makes about case study as a method that 'has been too little honoured as the intrinsic study of a valued particular' (p439). In this project besides having collective cases in the form of different institutions, one institution ended up receiving more attention as it turned out to be 'a valued particular'. Case studies aim at the understanding of the uniqueness and the

idiosyncrasy of a particular case in all (or most) of its complexity (Huysamen 1994). The objective is to investigate the dynamics of a single bounded system, typically of a social nature, for example, an institution as Huysamen (1994) illustrates. Its purpose is not to examine the effect of some or other intervention, as would be the case in research that involves programme evaluation, for example. It would be uselessly dogmatic to think of case studies only where the researched are either highly representative or extremely atypical. Something in the middle ground can still provide a valuable case. Various methods are acceptable in collecting data in a case study design. Both Stake's (2000) and Huysamen's (1994) definitions of what a case study is provide the basis how the design in this project was conceived.

While (Stake 2000) complains about case study as a method that 'has been too little honoured', Huysamen (1994) uses examples from the work of theorists from the ranks of Piaget and Freud. This is an indication that case study as a way of doing research has contributed significantly to our knowledge; it can be relied upon. Huysamen (1994) cautions that the concern in case study approach should not be with mere description of what is being studied or observed, no matter what techniques are used for data collection; his advice is that it should instead be about an inductive search for 'recurring patterns and consistent regularities' (p187). The aim is not only to limit the search to 'recurring patterns and consistent regularities' as Huysamen advises, but to look beyond those and find unique patterns and irregularities that will help provide meaningful insights into the case.

For clarity it is worth mentioning that in this study the case study design was conceptualised from a number of perspectives. From one perspective, website information was used to investigate South African public higher education institutions as collective cases to help understand what demands the introduction of new learning technologies associated with the internet has laid on education and pedagogy. From a different perspective, one institution emerged out of the

data as a 'valued particular' to further understand the issues under investigation. The course cases acted as a collective in exposing design features and one course served as an instrumental case in demonstrating what features showed more depth of character in terms of design. The case study design in this project benefits from this double loop.

3.7. Conclusion: Beyond triangulation to crystallization - research as bricolage

The use of the different sources of data is not so much to be in pursuit of a triangulation. Here the purpose is to engage in a 'crystallization process' (Denzin & Lincoln 2000). Richardson (2000) argues that the central image for qualitative research is the crystal and not (necessarily) the triangle. Just like a crystal that is allowed to glow and change, the object of study in qualitative research should be viewed from a variety of sides and angles. In that manner an almost infinite number of shapes and colours will be created from the reflections and refractions that result. The collection of the two sets of data and the four styles of analysis used in this project aimed at allowing for such multiple views. The following represents the sets of data collected and the different methods of analysis applied:
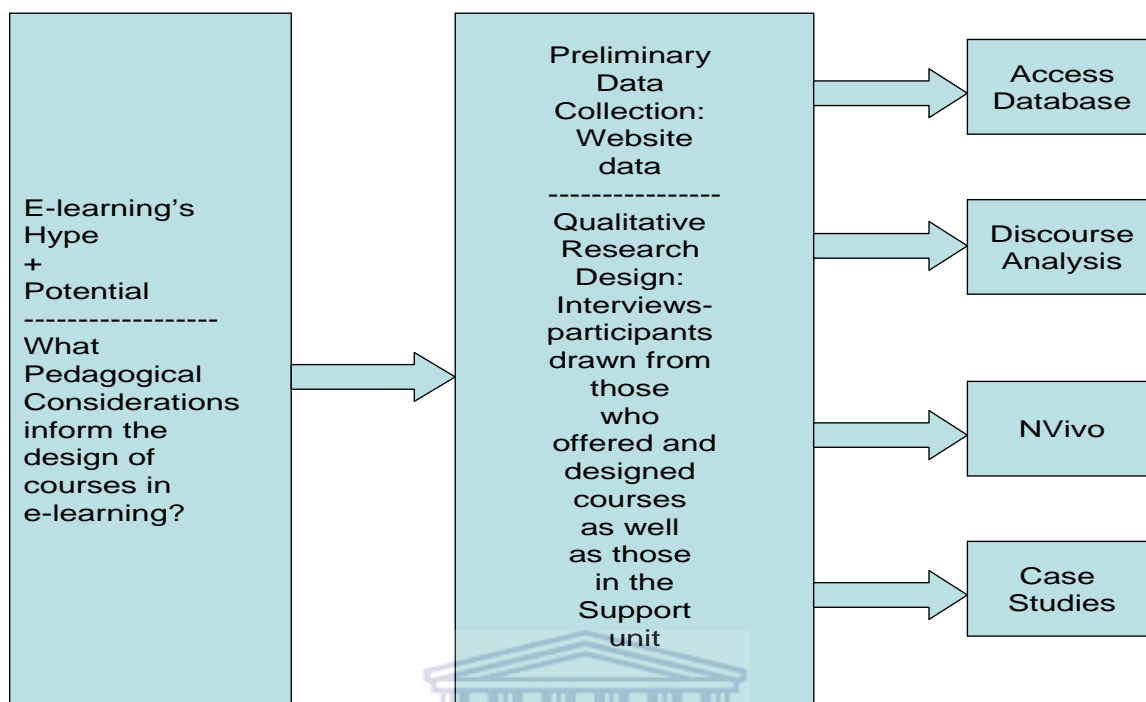
Figure 12: Sets of data and the methods of analysis

Using different tools to view the object of study from different sides and angles opens up opportunities for a multiperspectival orientation to research, what Kincheloe and Berry calls a 'bricolage' (Kincheloe and Berry 2004). This orientation allows a researcher to deal with the 'messy dynamics' of human experience, as he further argues. The idea of a 'bricolage' is embraced within the research design of this study. The use of the term to embrace research approaches that are multiperspectival can be traced back in the work of Kincheloe and Berry (2004) and Denzin and Lincoln (2000) to Lévi-Strauss's (1966) work. As Kincheloe and Berry (2004) describes, a 'bricoleur' as a person who makes a bricolage is a handyman or handywoman who makes use of available tools to complete a task. Some of these tools include analysis of discourse and power. The two (discourse and power) work together to create meaning. A researcher who is involved with the making of a bricolage will use a variety of tools to allow for multiple ways of seeing, what Giroux (1998) purports in critical pedagogy. Criticality becomes an important element of the research

approach, as and Berry (2004) puts it, where there is 'comfort with the existence of alternative ways of analysing and producing knowledge'. In this way the research project enjoys 'rigour, breadth, complexity, richness, and depth' (Denzin & Lincoln 2000); qualities that are essential to an inquiry of this nature.

Chapter 4: Emerging Patterns

4.1. Introduction

This chapter presents the first set of data collected in this study. The data were gleaned from institutional websites of South African higher education. The chapter aims to portray the emerging patterns of use as far as e-learning is concerned, especially at a time when these technologies where considered as new to the sector. This first set of data served a significant purpose in the study, to map out the context within which the use of e-learning in South African higher education was situated. Chapter three discussed the overall methodology employed in this whole study. This chapter discusses the specific details of how this set of data was collected and concentrates on the analysis, which draws from the relationship this set has with the second, which is comprised of interviews. It is worth noting that though the collection of the two sets of data followed one after the other, the analysis was not sequential and linear. As discussion of the analysis will reveal, the different methods of analysis used were interlinked and influenced one another.

All public higher education institutions in South Africa formed part of the initial investigation, which involved studying their websites from April to July 2003. The intention was to gather data to inform this study about the form of e-learning activity taking place in these institutions. The data were also to inform the study about what institutional arrangements were in place as far as e-learning was concerned. Out of a total of 35 that existed at that time in midst of the mergers, nineteen of the institutions had acquired a learning management system as part of the institutional infrastructure. Sixteen of these made use of WEBCT, a commercial Learning Management System (now acquired by Blackboard) and three had an internally developed system. Eiffel Corp, a company that sells e-learning applications listed the following as WebCT clients in South Africa:

Universities	Technikons
1. University of Cape Town	1.Mangosuthu Technikon
2. University of Durban Westville	2. Cape Technikon
3. University of Fort Hare	3. Durban Institute of Technology
4. University of Pretoria	4. Border Technikon
5. University of Natal	5. Free State Technikon
6. University of Stellenbosch	
7. University of The North	
8. University of Zululand	
9. RAU	
10. Wits University	
11. Orange Free State University	

(Htpp://www.eiffel-corp.co.za/clients_south-africa.htm/ 2003/07/26)

Table 7: 2003 WebCT clients

The University of Pochefstroom used a learning management system named 'Varsite'. The one that the University of the Western Cape (UWC) used was named 'KEWL' and Technikon South Africa (TSA) had one named 'COOL'. The University of Natal, which was later merged and became part of the University of Kwa-Zulu Natal changed from WebCT to an internally developed system named OLS (Open Learning Systems). What is interesting about these particular 19 institutions is that they were fairly representative of the higher education landscape in South Africa. There is an interesting mix of institutions from different historical backgrounds. The group includes historically advantaged, historically disadvantaged, formerly English, Afrikaans, distance, and residential institutions. This rich variety was advantageous in providing valuable information to help understand emerging patterns of use in e-learning. This study wanted to examine the patterns as a basis from which to investigate pedagogical considerations made in course design and delivery.

Even though this appears to be more than half of the whole public higher education sector in the country, there were still concerns about the rate at which institutions are seizing the available opportunities that e-learning seems to offer. An emerging concern internationally at that stage was that it appears that higher education was slow in implementing e-learning as a strategy in their institutions, and as such leaving opportunities for the corporate world to seize. Green (Green 2000) indicates that there is some absence of capacity in higher education. He asks the question: "Why so slow to dance?" in his metaphor of the "ballroom and the dance floor". Thus it became necessary to look for more information that could highlight how active institutions were in the deployment of e-learning.

Cheese asks a similar question to the one asked by Green (2000): "With all these potential benefits, and a willing and interested market, why has e-learning made so little apparent progress in the education market?" (Cheese 2003). In his analysis, he goes on to advance the following reasons why 'e-learning (has) made so little apparent progress in the education market?'

1. That it is not easy to know where to start with the implementation of e-learning within institutions as they (educational institutions) see themselves as more than content providers. They combine learning, research, teaching and professional development.
2. There is an absence of many of the technical skills needed as well as the experience in marketing and customer service necessary to support and develop the new market
3. Funding is a problem - how much should a university direct toward building the necessary capabilities in a new area where an outcome is unclear?
4. Universities are also suspicious of the corporate side of e-learning, the question of intellectual property on which universities have often disagreed with corporations as they (universities) resist the commoditization of knowledge.

He argues that what can contribute to success includes:

1. Sustainable government sponsorship,
2. Participation from major universities ensuring high quality content and strong branding,
3. Advanced technical skills,
4. Learning design expertise and
5. A full-time commercial management team.

Cheese (2003) concludes his argument by asserting that the benefits of e-learning in education are considerable for all parties, for individual learners, for universities themselves and for governments as they will have a new capability by which to raise the quality of life through skill development. The reasons that he advances for the little progress so far made in education can be summarised into four, namely: the multi-dimensionality of what happens in educational institutions (beyond content distribution); the absence of technical skills; scarce funding; and intellectual property rights (and commoditization of knowledge). The data gleaned from the websites were to shed light on some of these questions in terms of the South African context. It was an observation that at this stage the acquisition of a learning management system was considered a solution that could address a number of these concerns.

4.2. The LMS as a starting point

The acquisition of a learning management system (LMS) serves as a prominent indicator that an organization (in this context an institution) wants to participate in e-learning. It comes as a solution to address one of the problems Cheese (2003) raised, that of institutions not knowing where to start with the implementation of e-learning. (Völkl and Castelein 2002) provide an analysis of what they call the 'evolution of e-learning technologies'. They assert that the nature of technologies deployed during the mid- to late '90s in Europe was more 'enabling than transforming' and the focus was mostly tactical. During this era, 'companies had

to deal with many different and discrete solutions that were often not compatible with each other' (p67). The same applied to educational institutions where smaller groups or individuals in academia would experiment with different technologies.

After 2000 Völkl and Castelein (2002) assert, a new era started with the emergence of learning management systems (LMS's) amongst others. This is considered the 'strategic' as against the earlier 'tactical move'. As they spell out in their analysis, a feature of e-learning in this era is that it moved beyond the boundaries of the traditional training function and became part of the overall strategy of an organization. Learning management systems played a major role in giving e-learning a centre-place in organizational strategies. What these technologies were to do for learning is 'in a way similar to what e-business has done for general business processes' (Völkl and Castelein (2002). The same is echoed in Ward and Peppard (2002).

In an article entitled 'Learning management Systems: The wrong place to start learning' Siemens (Siemens 2004) acknowledges that learning management systems 'are often viewed as being the starting point (or critical component) of an e-learning or blended learning program.' He goes on to blame this on vendors who are attempting to position their tools as the center-point for e-learning - removing control from the system's end-users: the instructors and the learners. Though Siemens (2004) uses the word 'control', what he is referring to alludes to power relations as they play out in education and the use of e-learning technologies, especially learning management systems. It is critical to ask if they (learning management systems) allow teachers to be in control of their teaching and if students are in control of their learning.

Even though the article's focus is to criticise the high level of reliance on learning management systems, he concludes by saying,

> *While learning management systems have many disadvantages, Darren Cannell notes in 'Quit Slammin' the learning management system: we currently do not have a tool accessible to most educators that does what an LMS does. This creates a challenge in defining which path to take: work with LMS vendors to restructure their systems to reflect end-user needs, or walk away from LMS's altogether and develop an alternative based on decentralised, learner-in-control, piece-it-together tools? Until these questions are answered, learning management systems will continue to have a role in the overall structure of e-learning'. (p7)*

In the 'Quit Slammin' article (Cannell 2004) further argues that WebCT has become the number one LMS because it is not as restrictive as many people state who only glance at it. Cannell (2004) traces the attitudes towards LMS systems to David Jonassen's keynote at an ID (Instructional Design) conference, which led to a number of articles calling for 'E-learning adventures beyond the learning management system'. Parkin's (Parkin 2004) article, confirms the point that learning management systems are key to e-learning implementation in organizations as they mark the starting point and acknowledges that there are problems if implementation of e-learning ends there. He argues,

> *'To corporate decision-makers, the map of e-learning has an island in the centre, seductively illuminated by those clever marketing folks of the learning software industry, with a big X over the Learning Management System right in the middle. Outside of that island is blank space populated only by "here be dragons" warnings'.*

He goes on to do the 'slammin' that Canell rebukes. He continues,

> *'Given the marketing muscle behind the major LMS developers and their complete dominance of the e-learning space, it's hardly surprising that many people see an LMS as "the solution" to their future learning needs. But an LMS as available today, is not a universal solution for corporation's e-learning problems. In fact, an LMS is often the albatross around the neck of progress in technology-enhanced learning.'*

The 'slammin seeds' sown by Jonassen from the ID conference to articles and chapters in books can help explain why in the South African higher education sector there are a few 'home-grown' systems. With all the benefits of acquiring a commercial LMS argued extensively, there are still a lot of dissatisfactions about what can be achieved through it. The other issue is the commercial side and the

huge costs attached. It was interesting to pick up very harsh comments against WebCT in the interview part of this project. One interviewee, in responding to why it was necessary to go for an internally built system, gave the following answer,

'We have an institutional system yes. We had WebCT. We no longer have WebCT because I won't ever buy into American greed. They pushed the price up too high to what I considered to be appropriate payment for the price, and that's why we developed our own system'

And it has to be noted here that the "I" wields more power than that of the individual speaking, as the interviewee later affirmed,

'Yes, it was the university; I am the university in, ok. So I represent the university in those things. My job is to look after the technology in the university. It was the decision by the steering committee which is part of the university structures, to support my argument is that we replace WebCT with the alternative product because of the costs and because we wouldn't find an alternative one. We developed a new one ourselves to better suit our environment.'

The nineteen institutions with learning management systems became the participating institutions that were chosen for investigation for the purposes of this study. The next question is, beyond the acquisition of the learning management system, what happens?

4.3. A miniature information system

An Access database was created to collect data used to provide more information on e-learning activity in the nineteen participating institutions with a learning management system. The information was useful in spelling out what patterns of use are emerging as South African higher education incorporates e-learning in their overall university systems. Coronel (2000:286) defines a database as basically a 'carefully designed repository of facts'. He gives a further

explanation to make the link between a database and an information system clear:

> *"The fact repository is a part of a larger whole known as an information system. An information system provides for data collection, storage, and retrieval. It also facilitates the transformation of data into information, and the management of both data and information."*

The creation of this database involves a process of 'creating an information system known as systems development (Coronel 2000). He further argues that database design 'takes place within the confines of an information system,' and as such you cannot divorce it from other processes closely related to an information system like the systems development life cycle.

Though the process in this part of the project does not warrant the inclusion of all the processes in designing a complete information system (mainly because of the small size of the activity), it is important to take note of a number of issues that Coronel (2000) raises. These are, amongst others, issues of planning that include technical aspects and system costs. In terms of analysis in the systems development design the issues raised include a thorough 'audit of user requirements'. This is important in this project since there is a useful 'minimal data rule' and Coronel (2000: 297) insists that it should be kept in any venture that involves building a useful 'fact repository'. The rule is: "All that is needed is there, and all that is there is needed." The access database had to store all that was needed to identify e-learning activity.

The following are considerations to be made as argued by Coronel (2000), presented in the form of questions:

1. What kind of information is needed, that is, what output (reports and queries) must be generated by the system?
2. Who will use the information? How is the information to be used? What are the different end user data views?

3. Where is the information to be found? How is the information to be extracted once it is found?

4. What data elements are needed to produce the information? What are the data attributes? What relationships exist among the data? What is the data volume? How frequently are the data used? What data transformations are to be used to generate the required information?

The following entities of a table in the database proved to be the most useful and reveal what type of data was collected from the institutional websites:

1. The Institutions (names)
2. The name of the division that hosts e-learning
3. The aims of the e-learning division
4. Number of staff employed in the division
5. Positions of staff in the division
6. Year in which the unit became functional
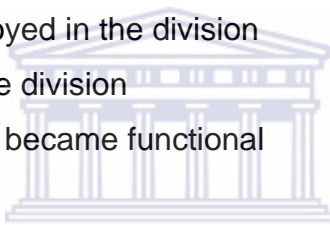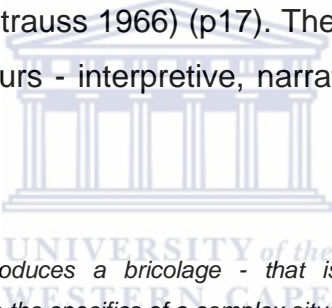
Appendices 1 is a report generated from the database, published in Microsoft Word format. There were instances were data were not available for some specific entities. These are instances where the institutional website did not have the necessary data, or in cases where the data was not made accessible to outsiders. The gaps created by such instances were minor and the report in Appendix 1 shows all the categories of the data that became useful to the study. It contains the institutions' names, the aims of the e-learning division and the staff designations, as well as the number of staff in the division.

The website data collection and the analysis that followed was part of the experience to the 'technological turn' as referred to in chapter three. Another feature of this experience, apart from its unobtrusiveness was that the technology allowed for easy access to the information and it was also economic to gather. This is in contrast to the labour intensive paper-based way where one would have to collect brochures and documents from all these institutions, or do

telephonic enquiries, which are dependent on finding the relevant person to provide the specific information needed. The downside though, was the rate at which the information could be changed or withdrawn. The Access database effectively helped to manage the information from the websites and the Access reports came handy in summarising the key aspects.

4.4. Research as 'quilt' making and bricolage

Denzin & Lincoln (2000) uses (and endorses) the metaphor of a bricoleur and quilt maker to demonstrate what the work of a qualitative researcher aims to achieve. In their words: 'The researcher may be seen as a bricoleur, as a maker of quilts, or, as in filmmaking, a person who assembles images into montages'. Quoting Levi-Strauss they explain a bricoleur as a 'Jack of all trades or a kind of do-it-yourself person' (Levi-Strauss 1966) (p17). They go on to indicate that there are different types of bricoleurs - interpretive, narrative, theoretical and political. They then state:

"The interpretive bricoleur produces a bricolage - that is, a pieced together set of representations that are fitted to the specifics of a complex situation".

The approach they purport for a qualitative researcher maps out what the research in this project set out to do:

The qualitative researcher as bricoleur or maker of quilts uses the aesthetic and material tools of his or her craft, deploying whatever strategies, methods, or empirical materials are at hand (and indeed the websites were at hand - unobtrusive materials to provide access to useful representations). If new tools or techniques have to be invented, or pieced together, then the researcher will do this. The choices as to which interpretive practices to employ are not necessarily set in advance. The choice of research practices depends upon the questions that are asked, and the questions depend on their context, what is available in the context, and what the researcher can do in that setting." (p4).

Within this ('bricoleur's) view, a researcher's product is seen as a 'bricolage', defined as a 'pieced-together set of representations that are fitted to the specifics

of a complex situation'. The product is also viewed as an 'emergent construction' (Denzin & Lincoln 2000). They point out that in qualitative research new tools or techniques can be useful to lead to a meaningful product when the researcher uses what is available in the context and within the setting of the research. For this project, institutional web sites specifically served this purpose - they were readily available in the context of the research and the setting within which it was situated. The following sections of the chapter focus on the analysis of the website information.

The website data produced a 'pieced-together set of representations' as Denzin & Lincoln (2000) put it. The figure that follows was initially created as a poster for a conference presentation and can be viewed as a quilt produced as an 'emergent construction' within a qualitative research process. Understanding the naming of the divisions that host e-learning in the South African higher education context, the designations allocated within them, and the published aims that institutions wanted to achieve with the deployment of e-learning, have provided this project with a construction that provides reasonable indicators of what was happening at a national level at this stage.

E-learning and emerging patterns of use in the South African Higher Education sector
Matete Madiba, Technikon Northern Gauteng
Is Higher Education in SA slow to come to the (e-learning) dancing floor?

An
Information **S**ystems
Approach:
An Access Database
developed
to host data on **19**
institutions
that have an LMS
(provisional data
Sourced from
Websites)

Within which
division
Is e-learning hosted?
Moving out of ICT
into Academic (Dev)
Support (T&L)- as
a trend

What **designations** are
part of the division?
Educational consultants/
advisors; Instructional
designers, graphic
designers; project managers,
Technology coordinators

How **many** people
man the division?
From 1-66!

What do Institutions **aim** to achieve with
e-learning?
Access to Materials; virtual classrooms;
Blended learning; dynamic interaction
Creation & deployment of modules;
Electronic presence for modules;
Infrastructure for utilization of technology
Web based learning environments;
Courses online; integration of ICT;
Integration into mainstream T,L & Training

Work-in-progress
For more info:
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Figure 13: The Quilt

4.5. Emerging patterns

Data collected from websites (from April to August 2003) of higher education institutions in South Africa were used to investigate implementation models for learning technologies in relation to a number of issues. It became clear that institutional organograms experienced significant changes as e-learning was being adopted. In some cases new units were established with reporting lines high up on the organograms and in others it was extensions (of existing units) that were made. These institutional arrangements had an impact on how e-learning was adopted and implemented in the institution.

Attention (in the website investigation) was paid to the naming of the unit, the aims, as well as the (numbers and the differences of) positions or designations. It was not only what information was available concerning those, but also the interplay in the factors that accompanied what was seen as e-learning activity in the institutions. The findings, which were later confirmed through interviews and

strategic and policy documents, revealed a number of things. It has to be acknowledged that it was not easy to confirm the website data as information changed rapidly. One of the issues that emerged was how active institutions were as far as e-learning implementation was concerned. For the fact that the primary source of information was the institutional website at this stage, the study concentrated on institution-wide indicators as against those attempts made by individuals in the institution.

Of the 19 participating institutions four did not have the name of their unit nor did the aims of the e-learning host division appear on the website (Group A in the table 4). All four used WebCT as their learning management system. A logical conclusion was that in those institutions WebCT activities were managed by academics in the departments where the learning management system was in use, and it was not necessary to mention the aims since those would be found in WebCT documents, like the manuals. Of the 15 that had their aims or the name of the division (or both) indicated, six (Group B) emerged as less active. Indicators included the fact that e-learning implementation was the responsibility of one person. Given the kind of activities that institutions included in the aims, it became clear that for those with only one person, there was not much that could be done. In some cases (of those six) the aims were focussed more on communicating with (distance) students, excluding other features that the e-learning infrastructure could offer. In contrast, in other institutions it was not just the number of staff members in the unit that suggested that there was activity, but also the varied designations that existed.

As the study progressed, focus was on the remaining nine. Three (Group C) of the nine shared a number of characteristics; they were seen as the biggest role players in terms of WebCT use in South Africa. The implementation process was highly supported by institutional management and impact was more visible in terms of the variety of posts and designations created and associated with the implementation. Significant effort and money was invested in putting the

infrastructure institution wide. A common feature was their upgrade from WebCT Campus Edition^{TM} to WebCT Vista^{TM} amidst complaints about the high upgrading fees. The prominent reason given for the huge spending on the upgrade was that there was a need to meet the growing demand for e-learning in their institutions. This should serve as an indicator that in these three institutions, the number of WebCT users had grown significantly.

In one (of the three) institution, where their e-learning strategy called for web presence for each course, the claim was that already more than 80% of the university's 22,000 students used the system. The university claimed to have experienced a tenfold increase within two years. The vision that would continue to nurture the growth involved the integration of the student portal and its information system with a single sign-on to various (academic and administrative) services; and the possibility of implementing an electronic grade book for all academic staff members to use. The three institutions have individually served as co-hosts (with Eiffel-Corp, the South African WebCT vendor) for the bi-annual WebCT users' conference, another indicator that their use of WebCT was recognised as having grown significantly. The implementation project was well funded and heavily supported by management. These three were all traditional and formerly Afrikaans speaking universities.

The remaining group of six (from the total of 19) became the sites used to gather the second set of data comprised of interviews. They had a few similarities and differences with those in Group C. Three of them used WebCT and though there was a struggle with growth in the number of users as the interviews later confirmed, activity was visible and the licence was sustained. There were conference papers coming from these institutions marking the level of activity at such forums as the WebCT users' forum. The other three had an internally (home) grown learning management system. In one of these three, WebCT was later replaced, and in another it was used alongside a home grown system.

What made these six to be distinguished from the 'big 3' were the challenges that accompanied the implementation project. It was not as smooth as it appeared to be in the other 3 institutions. It became a drawing point to follow up and understand the challenges these institutions were facing in their diverse contexts. Respondents in the interviews were drawn mainly from two groups: those in a support function; and those that offered courses using the available e-learning infrastructure. These six institutions form Group D in the study, as indicated in the next table.

Grouping of Institutions' e-learning activity

Grouping	Number of institutions in the group	Acquired status in the study	Prominent features
Group A	4	Almost no activity	No division and no aims from the website
Group B	6	Less Active	One staff member in the e-learning division
Group C	3	Big 3	License upgrades and the hosting of WebCT users' conference
Group D	6	Participated in the follow up interviews (2nd data set)	highlighted reasonable to significant level of activity with an indication of specific challenges
Total	19	All participated in the initial part of the study	All had acquired a learning management system

Table 8: Institutional e-learning activity

4.5.1. Naming of the divisions

There appears to be a relationship between the naming of the division and the area of focus. Institutions that have their divisions focussed on e-learning and activities of the LMS only would employ one of the following in their naming, 'e-learning', 'online learning', 'academic computing'. Those that focus on a number of areas and not just e-learning include the following in their naming: 'centre for' followed by 'teaching learning and/or 'academic support'. These would be divisions that incorporate general issues of academic development. For these institutions, e-learning activities are seen to be part of academic development. In such instances there are indications that e-learning activities enjoy influences from the mother division and stand a chance of focussing more on pedagogy as against the mere technology issues. The broader environment of teaching and learning development seem to exert some pedagogical pressure on the deployment of learning technologies. This was the case especially with institutions that had an established 'CHED' (Centre for higher Education development). For one university, it was part of the strategic plan to place the division within such a centre to give it 'a pedagogical focus'. The following expands on the reasoning in this regard:

> *'The implications of this policy statement are that the locus of educational initiatives …should be an educational development location, rather than a technological one such as ICTS. A new Centre for Educational Technology …would therefore be best located in the Centre for higher Education development, benefiting from the experiences, relationships and faculty partnerships which CHED specialises in. Educational technology initiatives should also be closely aligned with the development work undertaken by other units within CHED' (University-of-Cape-Town 2003), p5).*

It was around this time that a number of universities established such centres and they became the hosting divisions for e-learning.

There are three institutions that make use of the term 'telematics'. An interesting observation here is that e-learning is seen as directly linked to 'telematics', a concept that identifies technologies used where distance education is involved. In South Africa, the incorporation of the 'telematic strategy' in education was seized

as an opportunity by a few institutions and for some it was out of reach as the CHE (Council-for-Higher-Education 2004) report indicates. The report (CHE 2004) demonstrates how the national legislative context created gaps in the educational developments in the country and makes this revelation,

> *The 'significant developments' referred to had been driven by a set of interrelated factors….*
> *some HEIs seized market opportunities: historically advantaged institutions (HAIs) undertook*
> *a range of entrepreneurial initiatives to position themselves advantageously (e.g. distance*
> *education programmes utilising 'telematic' delivery; partnerships with private providers to tap*
> *into expanding markets; and increasing market shares of contract research and*
> *consultancies) (p27)*

The telematic delivery as a market positioning strategy is one of the characteristics that mark the implementation process of e-learning in South Africa. This type of a link between e-learning and distance education confirms Pollard and Hillage (2001) assertion drawn from the work of Urdan and Weggen (2000) that e-learning is seen as a subset of distance learning. The following diagram adapted from Pollard and Hillage (2001) demonstrates this relationship:
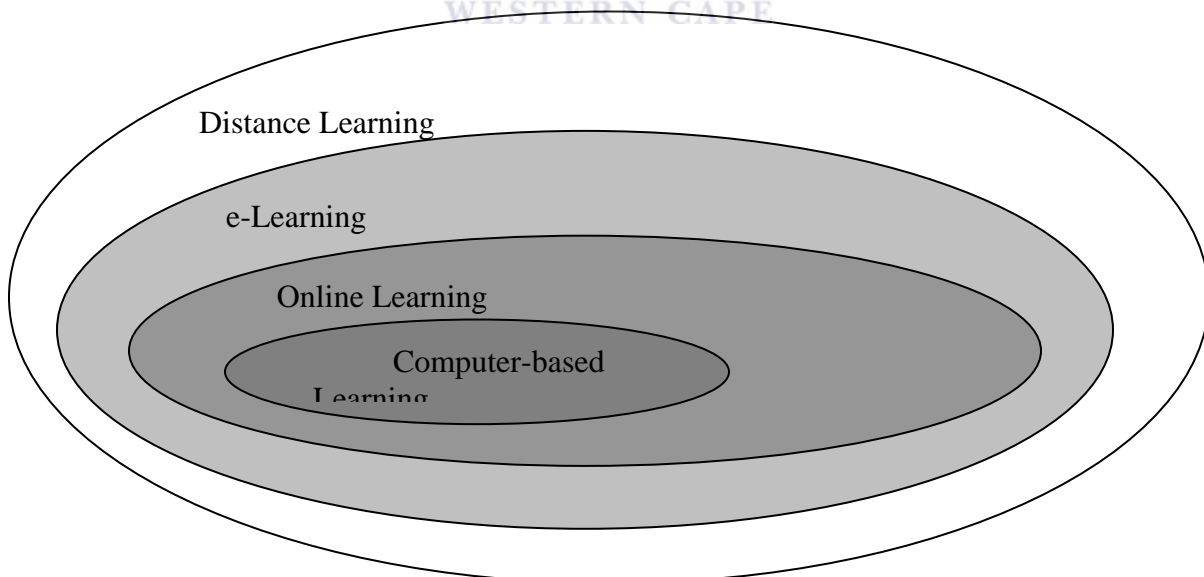
Figure 14: E-learning and associated views (Source: Pollard & Hillage (2001)

The CHE (2004) report reveals that some of the uses of e-learning in South African higher education can be associated with increasing student enrolments through distance education as well as consultancy opportunities, especially in those institutions that were previously only residential. Weigel (2002) uses the concept of 'trade-off between richness and reach', borrowed from Evans and Wurster (2000) to address the e-learning-distance education relationship in higher education internationally. After defining 'richness' as 'the overall quality of information' (including currency and relevance), and 'reach' as the overall number of people involved in the exchange of information as he argues,

> In stark contrast to Amazon.com and Dell Computer, institutions of higher education have fixated on the 'reach' side of the richness-reach trade-off. The distance education solution has been advanced as the means to accommodate the projected growth in student enrolments or extend the geographic reach of the marketplace for students.

A defining characteristic for those who sought such increase in numbers is that the quality of their e-learning programs became highly compromised. Weigel (2000) further accuses them of 'pedagogical neglect' in their deployment of Internet technologies. The CHE (2004) report charges them as those who undertook 'entrepreneurial initiatives to position themselves advantageously' and (this) led to another side effect, the dwindling numbers in historically black universities. The use of e-learning technologies in the South African context at a national level affected the distribution of student numbers, unfairly benefiting those who could afford the technologies. This is another way in which power relations played out.

4.5.2. The aims of the divisions

An interesting part of the data is what the institutions indicate as the aims of the divisions that host e-learning. There are four institutions (Group A) whose aims were not readily available on their websites. All of these make use of WebCT as their LMS. They appear not to have had special divisions dedicated to the implementation of e-learning whereas for others it was because of the restructuring of the division. It is not that every institution clearly put their aims

under a clear label and this made the analysis a challenging exercise. Some of the aims are embedded within what the acquired infrastructure is meant to do and others were associated with what the unit is all about or the duties of those in the support unit.

The displaying of the aims served different purposes - adding to the analysis challenge - like educating the institutional community about what the acquired infrastructure is all about and what it can be used for. In some cases publicising the aims was a way to justify the establishment and existence of the new division and in others it was to clarify the myths associated with e-learning. A case in point here is the emphasis that some institutions laid on enhancement of existing courses and commitment to blended learning as a way of dissociating themselves from e-learning implementation that is purely online, without the face to face interactions facilitated by lecturers.

The following is a compilation of the aims as they appeared on the websites (and in Appendix 1). The emphases have been inserted to highlight the range of issues that were included:

1. Virtual learning environment …to use web technology with a range of supporting aids **to create a dynamic interaction** process between role players

2. E-education… the **integration of various information and communication technologies** including www, interactive media delivered on CD, computer based assessment, television broadcasting via satellite and video conferencing

3. The e-learning coordinator is responsible for the **development and integration of e-learning into mainstream** teaching, learning and training

4. WebCT … to assist lecturers with the **design, delivery and management of web based learning** environments. You might use it to supplement

current courses or develop and deliver materials intended for distributed learning.

5. That all modules should have an **electronic presence**

6. To support and assist … to use ICT's in ways that **enhance the quality** of teaching and learning

7. The core of OLS revolves around the **creation, development and deployment of online modules**

8. The telematic and Open learning Office was established to **integrate the previous CAI with the latest ICT**

9. …**ensure a necessary infrastructure** for the utilization of technology, apply instructional design principles and become involved in research

10. The philosophy of COOL is to take the distance out of distance education. It aims to **facilitate communication** and learning among learners, lecturers, tutors and … administrative staff

11. Enables to **access learning materials**, **interac**t with fellow students, interact with lecturer or tutor, and assessment

12. E-learning is to be phased in as an **enhancement of normal face to face** programme delivery on campus. We are committed to a blended learning model …

13. Focuses on staff **development in the use of educational technologies**, particularly in the area of computer-mediated open learning systems via www. The centre develops and hosts virtual classrooms and websites, as well as web content and multi-media courses

Communication is one of the prominent uses of Information communication Technologies (ICTs), but for e-learning there are many other features involved. In one institution there are claims that their e-learning infrastructure is used to 'create a dynamic interaction process between role-players'. Two more also tabulate the same as an aim for their e-leaning activities, the interaction among learners, lecturers, tutors and administrative staff.

Content delivery appears as another prominent aim of institutions that have embraced e-learning. "Access to learning materials', 'web content', 'develop and deliver materials' are concepts used to state the aims in a number of institutions. It has to be noted that there are huge criticisms against this approach, not only in the literature abroad but also locally. Though institutions see that as noble, one interviewee sees that as a waste of time,

> *Many people want to just put their notes online on the web, which is just a waste of time as far as I'm concerned. I mean print them, put them on a CD and get the CD to the students. Why do you want to put them online and waste bandwidth. For what I have no idea. But anyway some people believe that that's the way online learning is. We are trying to change that thinking but it is very hard to change people's thinking.*

Besides content delivery or making learning materials readily available, two institutions specifically speak about the 'creation, development and deployment of online learning modules'. The following plan is indicated in one of the two:

> *"That all modules should have a minimum electronic presence within three years - 30% at the end of 2002, 40% at the end of 2003 and 30% at the end of 2004. Electronic presence is defined as having a module framework available in one or the other electronic form."*

The 'minimum presence' concept has been an interesting one not only in terms of the popularity it acquired, but also in the 'constituting power' it possessed. In some institutions as already cited, it became the modus operandi for e-learning implementation. It resulted in institutional effort mobilised on creating that 'presence' by capitalising on the administrative features of the learning management system. Creating this presence became an activity to mark and increase e-learning participation in this particular institution. It is one of the three institutions that upgraded their WebCT licences. The numbers sparked by the creation of the module presence were among the factors that signified growth and justified spending more on the infrastructure.

The discourse of 'presence' can be traced back to the mid 90's, when 'it became obvious to most publicly-traded companies that a public web presence was no

longer optional' (Wikipedia 2006). Later, the interviews shed more light on this aspect. The discourse of 'presence' has acquired different meanings, some more useful than others. Some of these, as implied in the quote above were heavily criticised amongst the role players. In one interview, the respondent had this to say,

We did not set a minimum web presence or minimum sort of activity to identify, you know, whether the people who are using that to the full extent because we acknowledge, especially if you look at the part of platform that we use, it is the collection of tools. So you can use any number of tools depending on what adds value to your specific.

The argument here is that the 'minimum presence' route was not chosen because the implementation initiative wanted to allow for some flexibility and choice, to avoid 'being prescriptive' as the interviewee later asserted.

Other meanings suggest that it is 'presence' that drives the use of learning technologies. In contrast to the 'minimum electronic presence' of the module framework, this time talk is about the 'strong presence' a lecturer can create on the system. As one interviewee put it,

'It's all well and good to have a course website up, but unless there's a presence from the lecturers and buying from them, students can quickly pick it up if they should take it seriously or not. So those lecturers who get involved and have a strong presence on the site and seek ways to integrate the site into their course, we feel a great deal of success. Others who just put up a course outline, and occasionally log in to see what's going on, have less of that, but then they might not necessarily wanting to be as much as what other lecturers want.'

In another institution, the interviewee speaks of the 'absence of a presence' as the main key to unlock the wonders of online learning. In her own words,

So, they come in and everything is romantic and they come to do this. The reality hits, the reality of this marriage, because online technology almost forces constructivism on the process, because there is no human teacher present, and it is that absence of presence that creates all the- eh, transforms possibilities as well the possibility for failure, inside the technology,'

The assertion made here is in the absence of a (live) lecturer online, referred to as 'absence of presence,' learners are forced to construct their learning. The positive claim comes with a warning that in the mix there might also be 'possibility for failure'. Further in the interview, the participant elaborated on what can go wrong , what can unleash possibilities of failure and mentions things such as 'the medium taking control of the teacher instead of the teacher taking control of the medium', again alluding to the power relations.

In another institution a 'policing presence' is created as the system helps to control students' flooding to lecturers' offices for consultation. This is how the participating interviewee put it,

> *'In the first semester we deal with about 200 students, in the second semester we can have up to 1200 students for instance, and there the system really helps in that eh, I can post messages easily to them, and we were not flooded and overwhelmed when it comes to consultation because, eh, there is a procedure that they are forced to come by (the system) before they come. Sure, we've got an open door policy but we encourage them first to go by (the system), not because- Students want the easy way, if they don't understand, go to the lecturer. No, no, no, you got to study, that's actually important, they don't appreciate this, they expect to sit in the class, and we explain and they don't understand- you've got a problem, go home study and then go to the problems on (the system) and then go…'*

The system helps to enforce the set rules. Because of tracking capabilities, lecturers only attend to those who did extra work on their own as a way of solving problems they might have in their learning. The system helps to monitor independent or self study work and hence the notion of a policing presence.

Further exploration to understand the concept of 'presence' in this study has led to other related concepts such as 'telepresence' and 'omnipresence'. The first relates to situations where e-learning deployment aims to reach those at a distance, a feature that motivated some of the early adopters of e-learning in South Africa.

Another prominent aim from the website data is the use of information and communication technologies for enhancement - to enhance the quality of teaching and learning and the existing courses or face to face programmes. Integration is also a target: to integrate the use of the different technologies into mainstream teaching and learning. What emerges is that these institutions aim to make e-learning part of their core business, to make it part of their everyday function. This confirms the assertion made in relation to internet business; that it will 'no longer be a cutting-edge idea. It will become 'one of the standard ways of doing business, even if not quite everyone is doing it yet' (Treese and Stewart 2003). The aim in these institutions is to set e-learning on such a road. As one interviewee in a support function put it, 'it is not a question of e-learning being sort of secret methodology that you may or may not use. It is more like a question of when are you going to be involved? So we got it build it into our strategic plan,' In this case the message is that everyone in the institution will have to toe the line and use the technologies.

Another interviewee argues that as an approach to support lecturers, they have developed a long programme as against the short workshops that others run, to ensure that the deployment of these technologies is not seen as new interventions but becomes part of their experience. Hers is almost the same as what Treese & Stewart (2003) argue for. Her full words in this context are,

> *Yah, yah, there's a kind of this come bitty, bitty intervention, you know, we throw workshops at educators and we expect they are going to weave it into their experience, but you know they are still surviving the cold phase, they are there, and have to survive every day under huge stress and pressure, and the fact that they don't weave new innovation into what they do is understandable, so my own feeling is that you have to, you have to accompany them long enough in their journey for the innovation to disappear.*

Integration was a prominent aim from the website data and it became clear that various strategies were employed by different institutions to ensure that in the long run e-learning is fully integrated into their day to day teaching and learning. These varied from 'minimum presence' strategy to '(building) it into the strategic

plan and to '(accompanying) them long enough in their journey'. These became forces to drive e-learning activity in the institutions.

A look at the aims collectively suggests three focal areas that reveal the level of complexity as far the use of the technologies are concerned. The three areas are: communication, the building of infrastructure, and integration and enhancement of teaching and learning. The following figure exemplifies the range of that development:

Communication →	The development of infrastructure →	Integration into and enhancement of mainstream teaching
Interaction	Integration of a range of technologies (e.g., Web technology and supporting aids, computer based assessment and video conferencing, previous CAI to latest ICT)	Creation, design, development and delivery of web based learning environments/ online learning modules

Figure 15: Three focal areas of implementation

4.5.3. The different positions in the divisions

This section of the data focuses on the different positions that form part of the division that hosts e-learning in the nineteen institutions. There is variety in terms of the nature and the number of positions in a division. In terms of the nature of positions the variety includes position(s) of instructional designer, graphic designer (artist), courseware designer, media developer, studio manager,

technical officer, educational IT consultants and web master. It has to be acknowledged that different institutions might be using different names for similar positions. An example for instance would be that what one institution calls 'courseware designer' might be doing the same job as what another calls 'instructional designer. The more common and administrative positions included secretary, manager, coordinator and director. Overall the positions revealed activities associated with these units that were meant to support institutions in the implementation of e-learning.

The number of staff members in the divisions varied from one to thirteen, and to sixty in one institution that has a comprehensive unit. Again here the naming of the positions raises an interesting issue. In one institution the number of positions appears to be big because the positions created are too specialized. In other instances the positions are inclusive of a number of activities. A good example of this is 'educational IT consultant'. It is beyond the scope of this study to do a thorough comparison of such instances. The differences may stabilize as institutions benchmark against each other.

The variety of posts that form part of the division that hosts e-learning is informative and suggestive. The information highlights the (new) skills demanded by the embracing of these new technologies in education. Though more information is still needed to establish what skills are most useful for successful implementation of e-learning in higher education, the information in this report reveals some trends, for example media development and graphic design are two of those skills that should be in demand in the near future. Already 'multi-skilling' is becoming a buzzword and familiarity with various and related softwares is necessary. The wide range of skills needed in e-learning endorses that kind of a move. This has implications for teacher training too. The new breed of the teaching corp should be prepared to be roleplayers in the e-learning arena and should enter the profession with the necessary skills.

The role of instructional designers to drive implemetation is a contested area as posited by the argument on instructional design systems in chapter two of this study. In the interviews, it is clear that in the South African context the contestation also exist. In some instances the participants in support functions had mixed feelings about whether they should assume the label or not. The following quote illustrates this point,

'I would like to think that we need to be instructional designers more than media development. I think lot of people place too much emphasis on media developers and I know that sometimes even within my own institution people think that we are designing nice web pages you know; content is not the major issue, content is only one fifth of e-learning. It is the effective use of communication and there we've got 5 or 6 tools. It is the use of content, it may be peer activities evaluation within the group for you start using your presentation tool, it maybe a combination of all this - so to be again you know I'm not trying to divert but I think what we need to do, we need to be instructional designers and what we always do we start with a needs analysis.'

In this argument, one of the reasons advanced in favour of seizing the label is to change perceptions about the role of those in the support function. Even further, the association to media development was seen as a factor to skew e-learning implementation of the institution in the direction of well-developed websites, with the desired 'bells and whistles'. Other important features like content, as argued in the cited interview might not be given the necessary attention. An indication from this interview was that the naming of the positions held by those in the support unit was not neutral. It had constitutive power to steer implementation in particular directions. The reasoning further raises questions about how instructional design is defined in this context. In another context, the interviewee argues that there is no need for more instructional designers because every lecturer is supposed to be one, and further than that the participant argues that she does have a problem with the concept. She complains about 'the handing over of responsibility'. In her words,

'Eh, if, I think that we've got 70 instructional designers in this institution, not two. We just happen to have two in this unit and that's me and (my colleague). Just so we're the seed instructional design, ok. I actually have a problem with instructional design and instructional

designers in the sense that when you're in a classroom, you've got to create instructional design; you've to create the design in that classroom. As soon as you hand out the control of that process to a course- or online Plato or something or whatever it is, you loose the control of the interactions that are actually teaching and learning, you hand over your responsibility to the instructional designer who may be sitting in some other department, we've never taught engineering or nursing management or what ever it is, ok. You understand the technology, as well, you do anything with technology. You're even maybe a good teacher. But, in this continent should we be good teachers, should we be asking for more instructional designers or should we be doing our own instructional design? Each one teach ten- so, no, that's the reason I wouldn't like more instructional designers.'

The issue of responsibility is important in the bigger argument within instructional design. Johnsen and Taylor (1995) contextualise the problem as they trace its historical roots. They show how responsibility for education was removed from the student to the teacher and then to instructional technology.

'Consequently, over the past 25 years, responsibility for education has moved away from an indefinite concept shared within a community web to an extant, particularised notion of an individuated possession. Further, instructional technologists claim this possession for themselves, removing the possibility of exercising responsibility from student, or any other agent in the community.' (p95)

They add, the 'new formulation presented by instructional technology shifts the locus of responsibility further away from the students. This time the shift is not on to the teacher but to the instructional technologist.' Their main bone of contention is that 'considering the history of instruction and particularly the rationales which have driven instructional technology over the past 25 years' we should not blame students when they think that it is someone's responsibility to make them educated'. Within this context the authors challenge a motto that 'emerged in the early 1960s,' that 'students don't fail, programs fail.' What is implied here is that the instructional technologist should redesign the stimulus material if students do not achieve the pre-specified level. It is even more interesting that the blame is removed from the human agent and thrown on the program, not the instructional designer. All these reveal how power relations play a role in the teaching and learning environment.

4.6. Emerging characteristics

By focusing on how the divisions or units were named, what the aims of institutions were in adopting e-learning and the different positions allocated to those in the support unit a number of features that characterised e-learning implementation in South African higher education emerged.

4.6.1. Stand-alone vs. incorporated divisions

Five of the nine that indicated some form of reasonable activity (Group C & D) had the host division as completely focussed on e-learning, that is, as a stand-alone unit. Four had their e-learning divisions incorporated as part of Academic/ Teaching and Learning development units. The stand-alone vs. incorporation characteristic is remarkable as it does not only have implications on the authority, the power and the freedom the division wields or enjoys as the interviews later confirmed, it is also an indication of the kinds of influences the unit is exposed to (or denied).

Another influential characteristic was whether it was top management in the institution that initiated and endorsed the adoption of e-learning. In such cases the unit was established as a stand-alone. What was further remarkable was how those characteristics affected the implementation strategies. Besides the power and the autonomy that a unit enjoyed because of its relationship with management, funding was not a problem as one interviewee puts it, 'So we were lucky in the sense that our top management had the vision at that stage, but not only to take that as part of strategic planning but also to then fund it, to support it to make it happen.' In another institution with a stand-alone unit the interviewee states,

> *'The investigation (of establishing the division) was started by the Rectorate, so in our case it*
> *started as top down approach where they were positive … Senate as well as Council*

accepted e-learning as part of core business. So it is not a question of e-learning being sort of secret methodology that you may or may not use. It is more like a question of when are you going to be involved?'

In this instance top management support also helps to enforce the use of the technologies. Accordingly the unit (in this instance) has to talk the language of management, that is, numbers. For them it is important to know how many lecturers and students are participating already and these figures are sometimes used as success indicators. These kinds of success indicators are then used to support more decisions in favour of the implementation, like the upgrading of licenses for instance. It has to be noted though, that it is not necessarily an either-or situation. In some institutions these (of stand-alone versus incorporated) distinctions are blurred.

4.6.2. Practitioner- versus management-led implementation

In the case of those divisions that are incorporated into the academic support units, it emerged that the division as well as the related e-learning activity is the initiative of practitioners, those who have special knowledge and skills and interest in the field- bottom up implementation. In one institution, the interviewee talks about what initiated e-learning activities in their institution, and puts it this way:

> *'Ok, it all began when I was working here running offline computer assisted education in 1994 and I signed up for Masters …that's when the internet really came in before WebCT and learning management systems and so on. I … (a) module on Internet in education and he got me into this World Wide Web stuff and I learnt as a learner on the World Wide Web in a constructivist manner. And got so hooked, and I knew it worked for me and I wanted some of that to happen to people because the lights just went on in my head.'*

In contrast to the top management supported initiative, the 'practitioner-led' one suffers in a number of ways. Poor funding and lack of resources is closely associated with this scenario. The practitioners not only complain about lack of support from management, they also regret the lack of recognition for their

achievements. And yet, this type of an initiative has its own strengths and gains. One of the strengths is that the practitioners take full responsibility and provide leadership on implementation, the kind that is not just based on technology. What is interesting in the broader South African landscape is that there are case studies of e-learning implementation which demonstrate how both initiatives have thrived, as different as they are. The case studies will be explored in later chapters.

One more difference between the management- vs. practitioner-led implementation is about whether the target is that all academic staff should participate in the implementation by a set date or whether there should be selection and limitation –the issue of numbers. As stated, the management-led approach is hungry for numbers as indicators of success; the bigger the numbers the more the implementation is seen to be meeting expectations. In contrast, the practitioner-led move aspires to protect the implementation from failure and limits participation as it closely nurtures the development. An interviewee in a support function within practitioner-led environment puts it in this way,

> So we have not taken on people who have big numbers and no labs. So it's a balancing aspect. You know it is quite easy like I said to the management; it is quite easy to pump the whole of … lecturers through WebCT but it is just going to give it a bad name, because they want to see the results. The students will just say it's not working.

The linking of success to what students will say emphasises a distinct characteristic of the practitioner-led approach, that success is viewed differently. From the interviews, especially in the context of practitioner–led initiatives, there are also strong discourses on pedagogy. Learning theories and approaches such as constructivism are part of institutional implementation debates. In contrast in an instance of a management-led initiative, blended learning is acknowledged as a pedagogical approach that drives implementation. The discourse in this environment is conspicuously void of commonly referred to learning theories and approaches. Some kind of pedagogical sterility is evident.

4.6.3. The technically- versus the pedagogically-supported environment

The drivers of e-learning in the institutions were characterised by specialised expertise. Those who were in stand-alone units who enjoyed management support were stronger on the technical side. Those in practitioner-led units coupled their technical skills with pedagogical expertise. They revealed a level of familiarity with learning theories. The technically inclined provided technical support and training to staff. The pedagogically inclined attended to broader issues in the design and development of programmes.

It has to be acknowledged that within the practitioner-led environment there are variations. In some institutions implementation is stronger on the technical/technology side, whereas for others it is the pedagogic side that is emphasised. The two have to co-exist side by side for e-learning to be implemented successfully in an organization and they often cause a tension if there is no proper balance. Looking at the implementation landscape in South African higher education it is remarkable to notice that strong management endorsement is associated with an implementation environment that is technologically strong. The pedagogically strong cases are at the mercy of practitioners and the influence of the hosting unit, since these are incorporated and not stand-alone units. A succinct point to note here is that in terms of quality indicators where activities within institutions are concerned, there are many issues that are considered, not only pedagogical standards. It then becomes easy for management to support a venture where big numbers of participation are produced as evidence.

The time taken to train and prepare staff for implementation differs considerably. A feature of the technically-inclined environment is that courses with a short duration (few hours to a few days) are advertised to staff. With the pedagogically-inclined initiative led by practitioners, training and support takes up to a full year.

The difference can be accounted for by the contrast in the views expressed by those in support functions. In one instance there is talk of accompanying the participants until they are able to take control of the medium. Within this environment, the rationale is that the participants should be brought to a place where they are in control of technology and not the reverse. This only happens when they have questioned their beliefs as far as teaching and learning is concerned and have undergone conceptual developments that become useful in this regard. In stark contrast is the view that 'how the hell they (the participants) use it (the technology)" does not matter, as long as they do use is, that is what matters. The duration characteristic ties in well with the numbers versus the limitation issue. Those with short duration will be able to repeat the sessions and the numbers will meet the criteria expected by top management.

It has to be pointed out that the distinctions are not that clearly cut. The factors discussed here develop in a more complex way and as role players get exposed to strategies used by their peers, they introduce changes to their models resulting in more complex (and) hybrid approaches. The following table is a compilation of all the patterns and associated characteristics:

	Practitioner-led: **Struggles to influence management decisions**	Management-Led: **Dictates what is important**
Stand-alone unit		Enjoys management support, funding, power and authority
Incorporated unit	Enjoys pedagogical influence (and pressure) from the mother unit	
Technically inclined		Specialised technical expertise & support, short training courses focused on large numbers
Pedagogically inclined	Rich in pedagogical discourses and concerned with broader issues in teaching and learning	
Infrastructure investments		Well resourced and enjoys updates & latest technology

Integration/ Enhancement focus	Long term professional development in support of staff, works with limited numbers	

Table 9: Emerging patterns and characteristic

The institutions with centres for higher education development or teaching and learning units aspire to pay special attention to the professionalization of the teaching of staff in their institutions, mainly through training, as the aims (and activities) displayed on the websites indicate. Such units play a central role in the integration of e-learning into teaching and learning and are able to provide the necessary influences. Rather than creating new units, the move to place e-earning within these units is all about forming internal strategic partnerships. It is not only economically sound, but it helps in uniting the workforce and unifying thinking around the vision and mission of the university. It is also economic on time, a rare commodity within academia. Duplication of roles is avoided and creation of the many time and money consuming projects is streamlined to benefit all. It is striking to notice that in some institutions units specially developed to support such initiatives, work in isolation, unconnected to academic and curriculum development units. This seemed to have a negative effect on the implementation process.

4.7. Conclusion

South African higher education has made a public announcement that it is willing to participate in e-learning through the acquisition of learning management systems. The question is how, as a sector, it is responding to the pressures in this environment. There are two types of pressures that are identifiable; one has to do with the sensational "hype" from e-learning advocates who extol its virtues and exaggerate its capabilities. The second has to do with pedagogical pressure; to ensure that the acquisition of the infrastructure will enhance teaching and learning. That 15 of the 19 institutions bought a commercially developed system says something about responding to the first "hype" type of pressure. In terms of

the pedagogical pressure, the incorporated units stand a better chance than those that are stand-alone. It is unfortunate that in some instances these are the units that do not have the support of management. A combination of the two scenarios is what can best benefit the institutional implementation project for e-learning. This is a situation where the e-learning unit is practitioner-led, exposed to the influences of a unit that has been dealing with teaching and learning issues over time and has management support. The combination of these factors can drive the implementation of e-learning successfully and maintain the pedagogy-technology tension good in balance.

The naming of units or divisions that supported e-learning implementation revealed what the institution's focus would be, especially if read together with the aims of the unit. One main focal area included exploiting the basic features of a learning management system: creating a communication system between different role players, mainly lecturers and students. In other institutions the focus of the unit was to create infrastructure, and this became a technical project that included expensive upgrading of LMS licenses, for example. The designations revealed what new skills were now required as part of the teaching profession.

Reading the website data together with what the interviews revealed led to emerging characteristics. These included whether units were stand-alone or incorporated, management or practitioner-led. These characteristics are instrumental in revealing the power relations at play in a context of implementing e-learning in the South African higher education. One of the major characteristics to emerge was whether implementation was being technically or pedagogically focussed.

As the discussions in this chapter have shown so far, the website data derived more meaning when seen in the light of the interviews. These different sources of data provided different voices, perspectives, points of view, and different

angles of vision. In this way the project has enjoyed viewing different reflections and refractions that emanate from the crystal view of e-learning practice in the South African higher education context. The naming of divisions, the aims and the designations allocated within the units availed different sources from which to view and read what was being seen as implementing e-learning in the institutions. The interviews added more dimensions.

It is important to take Silverman's (2002) cautionary remarks about how qualitative researchers should view texts and documents they analyse. What makes such remarks valuable is that using information from websites as data can be controversial for a number of reasons. One which is the most significant is the reliability of websites, because of the fact that they can be changed on a daily basis. Silverman (2002) comments that since the aim is to understand the participants categories and see how these are used in concrete activities, theoretical orientation (in this context) calls for concern with 'the processes through which texts depict "reality" (rather) than whether such texts are true or false statements'. He goes on to cite Atkinson and Coffey (1997) to stress that these materials are not 'transparent representations of organizational routines, decision-making processes, or professional diagnoses. They construct particular kinds of representations with their own conventions.'

These comments help to give the website data a firm place in this project. It is not whether they provide true or false information about what institutions are doing with e-learning, but that they provide useful 'categories' which construct specific institutional activities. The next chapter focuses on discourse analysis to provide other angles from which to view the data and institutional implementation models that emerged.

Chapter 5: Constitutive Discourses, Codes and Nodes

5.1. Introduction

Chapter four discussed the first set of data collected in this study in relation to the second set that is, the interviews. An Access database was used to initiate the analysis of the data. To take analysis to another level, discourse analysis as well as NVIVO, a qualitative data analysis software were employed. From the website data that were used to investigate institutional activity associated with e-learning and the interviews conducted, a number of concepts were identified as discourses that have come to constitute the 'what and how' institutions interpreted e-learning. This chapter explores the different discourses that are part of the implementation processes for e-learning in South African higher education and extends the discussion to cover the codes and nodes that were created when NVIVO was used. The use of NVIVO revealed the contrasts that existed in the implementation and use of e-learning in the different participating institutions.

5.2. Positioning and Power in Discourse analysis

From their work (Wetherell et al 2000) a number of important points about what informs the thinking in discourse analysis are made clear. Such thinking includes the point that texts are complex cultural and psychological products, constructed in ways which make things happen and which bring social worlds into being: that accounts construct a 'version' of social reality. The question is why is this version or this utterance chosen and not one of the others in the range of possible ones - what does it do, what does it accomplish here and now, and what does it tell us about the' wider discursive economy or the politics of representation' which influence what is available to be said and what can be heard (Wetherell et al 2000)?

Discourse involves work in the sense that what is said is often produced, heard and read in relation to the things which are not said. For example, when you do or talk e-learning what is it that you are seen or heard to be doing or saying or not doing or saying? Discourse is functional. Discourse continually 'adds to, instantiates, extends and transforms the cultural storehouse of meanings since meaning is a joint production' (Wetherell et al 2000). The meanings that come from the institutional websites (the naming of units, the aims and designations) are the kinds of 'talk' that gave rise to e-learning activity and also shaped it in the process.

A central point in the thinking around discourse analysis is that language is seen to be constructive and that it builds social worlds. This leads to a fundamental question: can we use discourse (what has been said) and deconstruct it to understand the social worlds that have been built? Language does not only build social worlds but also positions people in those worlds - discourse creates subject positions. 'To speak at all is to speak from a position' (Wetherell et al, 2000, p23). (Kress 2001) asserts that all talk is dialogical, when we speak we take on the voices of others. He argues that certain forms of linguistic behaviour can be shown to correlate with certain aspects of social organization. This is what makes discourse analysis a worthwhile tool to investigate how our social worlds and organizations have been constructed.

Hollway (2001,p273) further elaborates on the positioning power of discourse, he argues that discourses make available positions for subjects to take up and that discourses are socially constituted and are constitutive of subjectivity. The positions are not equally available to differentiated (class or gender) people. In order to understand why people take up positions in one discourse rather than the other, and why investment is made in that position - one has to look at the histories of these people. Power questions like 'what's in it for me' are implied when people take up positions in certain discourses. Hollway (2001) argues for example, that the possibility of interrupting the circle of the reproduction of

gender-differentiated practices (for example) is contained in a grasp of the contradictions between discourses and the contradictory subjectivities. What is being offered here is a methodology for social critique and how to bring change. (McHoul and Rapley 2001) use the work of Potter and Wetherell to argue for a functional approach to discourse analysis. They further argue that talk and writing are constructed with attention to the facilitation of particular tasks - explanations, justifications, blames, denials, accusations, excuses, and describing events in a manner so as to subvert negative attributional interpretations.

Though there are tensions and differences in expositions of what discourse analysis is, what is well established is that discourse analysis carries a social constructionist as well as a critical project. In a review of the Whetherell, Taylor and Yates (2000) book, Zavos (2004) argues that discourse analysis 'should be interested, not only in explicating the micro-context of an utterance or a conversation but in, locating specific instances of talk or text in broader ideological frames to enable us to identify the political issues informing or impinging upon the micro-context'. With this argument, he also gives a sharp rebuke, that discourse analysis should not be 'likened to a meat-grinder that processes language and text into a disfigured mass to neatly fit out analytic molds or 'models', producing our analytic concepts as facts'. His call is to be aggressively 'critical' as we employ this approach in analysis. E-learning as a field will benefit from an analysis informed by these kinds of issues.

In their discussion on the relationship between critical theory and qualitative research Kincheloe and McLaren indicate that many academicians turned to critical theory as they got frustrated by forms of domination emerging from a post-Enlightment culture nurtured by capitalism (Kincheloe and McLaren 2000). Their discussion is important because they clearly outline the reasons why critical theory became part and parcel of qualitative research. They argue that these academicians were impressed 'by critical theory's dialectical concern with social construction of experiences' and they came to view 'their disciplines as

manifestations of the discourses and power relations of the social and historical contexts that produced them' (p280). This is what makes the work of Foucault (1972), 1982) so important that it is considered central in this field. He has contributed significantly to the rethinking of major concepts that are pillars in any analysis that takes this form.

Besides discourse these major concepts include power and knowledge. Related to these are human agency and subject positions, useful themes that guide analysis within this approach. Foucault's work, especially in terms of the understanding of 'subjection' has lead to and facilitated major studies in feminism. The work of Baxter relies heavily on Foucauldian critical discourse analysis (Baxter 2003). She argues, according 'to Foucault, one critical site of struggle to determine dominant social meanings is the subjectivity, or socially constructed identity of the individual' (p25). Using the poststructuralist position, Baxter further indicates that individuals' identities are 'determined by a range of 'subject positions' …approved by their culture, and made available to them by means of the particular discourses operating within a given discursive context'. It is this approach that has provided major works on feminism with the tools for analysis.

A difference that a number of authors have problematised as they compare the Foucauldian approach to that of others in discourse analysis, is about the issue of flexibility. Foucauldian analysts see discourse as being less flexible than their social constructionist colleagues do, a charge Stevenson (Stevenson 2004) adopts from Whetherell and Potter (Whetherell and Potter 1992). He further elaborates that for the Foucauldians 'language uses us because it is systematised into discursive practices', which makes meaning more sustained. Those on the opposite camp believe 'meaning arises through conversation and so is fluid in the extreme'. In order to make sense of this difference it helps to think in terms of the difference/ relationship between victims and culprits. The charge here is that the Foucauldian school sees us (people) as victims of

discourses, that is, made up and constituted (together with our social worlds) by existing discourses, whereas the other camp sees people as culprits, constituting the world though their social interaction and discourses. The essence of the argument here is that 'everything we are familiar with in our world is formed and reformed through discourses'. Both views are useful in understanding the nature and role of discourse in social systems. In one view, we are formed and constrained by discourse (the victim view) and in the other we form and constrain the world we live in through discourse (the culprit view). The two views will be demonstrated further in the coming sections.

The discussions above reveal the intricacies of the evolutionary thread discussed in chapter three. The toolboxes derived from the social tradition are varied and help to provide a crystal view of the meanings sought, that is, viewing the data from different angles.

5.3. The Discourses

Concepts such as telematic, web-based learning, blended learning and e-education are used to portray the kind of direction that e-learning deployment in the institutions is taking, especially when viewed within larger contexts. Besides the differences (as explored in the previous chapter) that exist between the management-led and the practitioner-led approaches for example, the discourses that form part of those approaches are also different. For example, with the management-led scenario, the bigger the numbers, the better the implementation is considered to be. The talk around numbers is used as an indicator of success. For the practitioner-led scenario, talk is centred on protecting the implementation from gaining a bad name, and as a strategy the numbers for participation are kept low.

Applying discourse analysis to both sets of data led to the identification of five different discourses. A common thread that runs through the discourses is that they illustrate how much 'talk' led to the constituting of concepts (and actions or

activities) that were widely used, like blended learning. All these emphasise the role that the techno-hype played in constituting e-learning, as discussed in chapter two.

5.3.1. The 'killer app' discourse

The case of e-learning is one that demonstrates the constituting power of discourse very strongly. The famous quotation (Anders 2001) from Cisco's CEO, John Chambers (at the 1999 COMDEX conference) is acknowledged as one statement that had such power that discourse analysts wanted to investigate. The statement itself does not provide much as data to be analysed, it only becomes relevant if one considers the larger context within which it was made. Zavos (2004) strongly contests that discourse reduced to data becomes a 'positivist' type of discourse because it allows 'us to neatly identify and extract from the complex fabric of social life clearly recognisable units…which can be analysed in isolation', without 'considering the multiple and contentious legacies of these discourses in use or their far-reaching implications'. And in this way, it is stripped of wider context'. He then advises,

Discourse analysis should be interested, not in explicating the micro-context of an utterance or a conversation, but in, locating specific instances of talk or text in broader ideological frames to enable us to identify the political issues informing or impinging upon the micro-context. (p131)

In responding to an interview question about John Chambers's proclamation of e-learning as the 'next killer app of the internet', Cisco's Tom Kelly (Kapp 2005) says,

Well I don't think that was the peak. I think it was the first salvo in coalescing an industry. Before that statement there were very few companies in the e-learning space, there was little or no product in learning management, content management, or very many authoring tools that had any scalability. …what he did though was give us all vision where we stopped saying distance learning and Web-based training, and about 40 other euphemisms, and the industry centred on "e-Learning', right or wrong, and it came to mean a lot of things to many people'. (Making a guru out of you, 2005)

What comes out here is that Chambers was doing some work through this talk, as discourse theorists have argued - that talk is action or work. It is important to note that part of the work was in doing a 'salvo', and also the coalescence of e-learning as an industry. Through this utterance, an industry was carved out and strengthened.

(Kruse 2004) alludes to the same in his article where he looks at the state and history of e-Learning through the Technology Hype Cycle, and asks the question 'will e-learning be remembered as nothing more than a late salvo in the dot-bomb campaign? Kruse (2004) identifies 'the triggers' for internet technologies using Gartner's Hype Cycle, 'a device that lays the path that technologies generally take, from their initial introduction into the market until their eventual maturation into useful components' According to the device, the five distinct stages that occur in the emergence of any new technology are:

1. Technology trigger
2. Peak of inflated expectations
3. Trough of disillusionment
4. Slope of enlightenment
5. Plateau of productivity

Within this context Chambers was seen as engaging in work to save the industry from the failures of the dot.com companies and coercing the market or consumers to view e-learning differently. From his vantage point of being Cisco's CEO, he managed to achieve a lot. Discourse theorists argue that through discourse we acquire subject positions that may constrain or facilitate particular actions and experiences. Positions prescribe and pro-scribe practices. Chambers was able to speak from this position and was able to do this 'amount of work' not only because he was CEO, but because more importantly, in this context stock prices determine position. In an article for FastCompany magazine (2001) Chambers is hailed as both 'market leader in the huge network-equipment

business and thought leader for the Internet economy'. The article affirms his position in the industry and confirms the work that Chambers has done thorough his 'Internet centric' talk, captivating 'businesses, consumers and governments'. The same article argues that his work got a 'supreme compliment from Wall Street, Cisco's stock-market value in March 2000 reached $555 billion, briefly making it the most valuable company on the face of the earth'. It was not only the position of CEO but also the position of Cisco as a business in the internet world that helped to do the work. It is not surprising that Tom Kelly further indicates in the interview cited earlier that for companies 'bringing online learning products to market from 1999 until 2002 virtually everyone quoted John Chambers in their business plans', and that they saw 'dozens of business plans if not many dozens, as part of people coming to Cisco for equity investments.' He continues, 'So we know that it had a far reaching impact in the training/learning space.'

Galagan (Galagan 2002) gives a full story and paints the bigger picture in an article entitled 'Mission E-possible: The Cisco E-Learning story'. Her take on what Chambers did with the famous declaration is that he 'fired the gun' and for the company itself the mission became 'make it exemplary and make it serve thousands.' She goes on to indicate reasons why Cisco 'cares deeply about e-learning', and the number one reason is that 'the more people learning online, the more networking gear Cisco can sell'. In fact in his own words, the CEO says, 'e-learning increases network traffic. And as the CEO of a networking company, I can only be happy'. What he was doing with the declaration was to 'increase the network traffic'. The other reason is growth and she indicates that the company 'has become an $18 billion company; in the next four years, it intends to grow to a $50 billion company'. As this article was reprinted from the 2001 February issue of the *Training and Development*, Galagan was not aware that the target planned for the next four years would be reached in that same year. The hard labour of the CEO bore fruit much earlier than was expected. Creating 'network traffic' is directly linked to how learning (and education) is conducted, marking an interesting business academe connection within the context of e-learning.

Kruse (2004) identifies the 1996 ASTD conference where a single workshop was devoted to "Intranet-based training" and was 'mobbed by more than 500 participants' as the first trigger for internet technologies. The workshop led amongst others, to 'million dollar contracts'. Elliot Masie's TechLearn conference launch was another trigger. Kruse (2004) argues that the 'height of expectation, of irrational exuberance was clearly marked by the unprecedented success of Digitalthink's IPO and record-high stock price'. It was during this historic time that Chambers made his declaration. The 'million dollar contracts' and the record-high stock prices are significant conditions in the context. Wikipedia (2006) describes technological hype 'as sensational promotion of technology', and further indicates that as 'most technology is developed by profit-making organizations, the hype is generated to maximise the sales of the new technology'. It is interesting to see how the technology hype was responsible for the stock market peak of March 10, 2000, mainly associated with the 'dot.com boom' and its subsequent crash within the following year (Wikipedia 2006) . This type of hype led the acquisition of a learning management system in 19 of the institutions in South African higher education. Some of these (4) never managed to sustain the hype internally. Though an expensive license was acquired, they wer not able to do much with it.

Kruse (2004) uses the following figure to indicate how e-learning was developing:
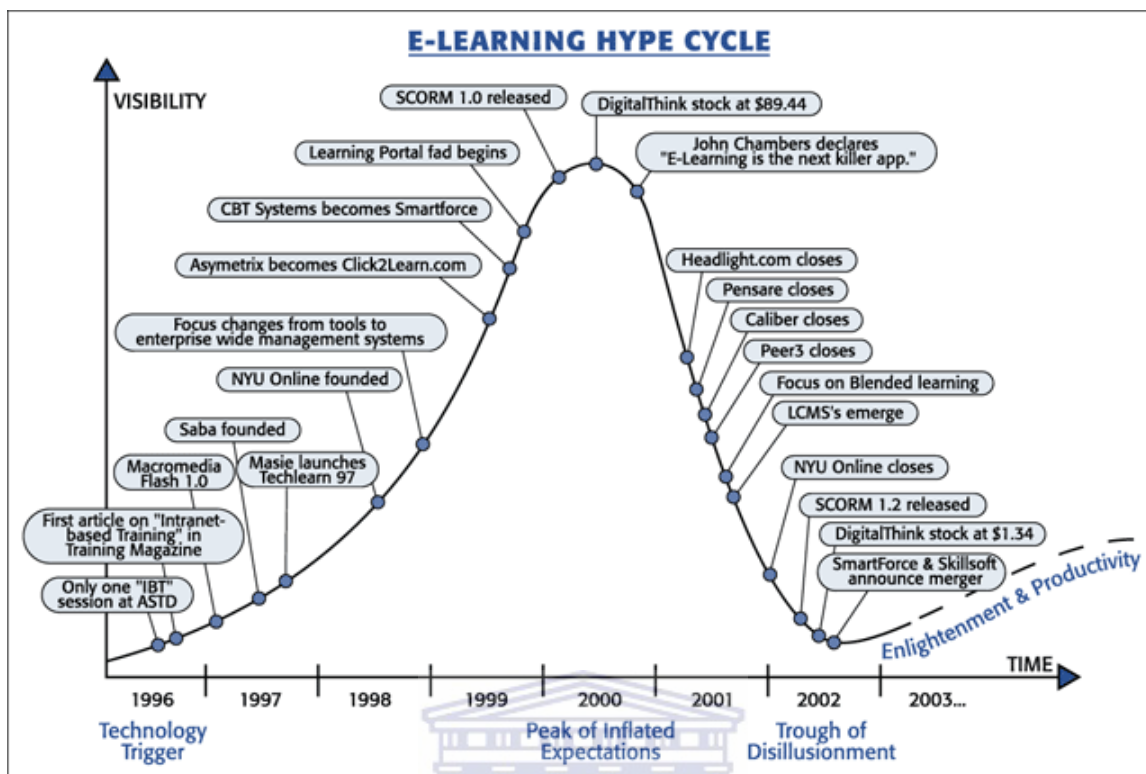
Figure 16: The E-learning Hype cycle (Source: Kruse 2004)

5.3.2. 'Blended Learning' as discourse

Kruse (2004) continues the historical analysis; his words are worth quoting in full,

> *'Then, 2001 brought the harsh, steep slope of unfulfilled promises. Several high-profile providers shut their doors while many more announced large-scale layoffs in the face of missed revenue targets and crashing stock prices. E-learning advocates retreated to the more defensible ground of "blended learning.*

It is indeed noticeable within the e-learning discourse that the focus on "blended learning" came as a defense mechanism when e-learning had experienced so many failures - shortly after it had enjoyed a 'peak of inflated expectations' as Kruse (2004) puts it. The failures he lists are as follows: 'falling stock prices, failed LMS implementations, poor course completion rates, and slashed corporate budgets'. It is interesting to note that blended learning comes after the

closing of four internet related companies on the e-learning hype cycle. Parada (2001) also indicates that that the $555 billion stock-market value that came as a 'supreme compliment' to Chambers' hard labour was slashed 'by more than 50% in the first three and a half months of this year (2001), knocking it off the list of the 10 U.S companies with the highest market value.' There was then a need to find 'something' to fall back on.

From late 1999 into 2000 Elliot Masie (1999, 2002) had begun serious talk about 'blended models' and took the lead in providing (in advance) this fall back mechanism to the declining stock prices in the e-learning industry. He declared,

> *'Over the next year, we will see an increase in the number of blended models integrating technology-based learning with classroom delivered training.' (Masie 1999)*

In another article (Masie 2002) where he declares that 'the magic is in the mix', he argues, 'we as a species are blended learners'. It then became easy for the industry to hold on to the clutch when stock prices went down. Writing for *The New Corporate University Review* Barley (Barley 2000) complains that whereas 'a few years ago new products, services and approaches emerged at a reasonable rate, today it is 'almost impossible to stay on top of all changes and new tools'. In the context of this type of talk, she announces,

> *'What many trainers should find, experts say, is that the best way to use e-learning is in conjunction with other teaching methods, an approach called blending'.*

She further argues that blending 'can greatly enhance a learning experience'. Hofmann (Hofmann 2002) echoes the same sentiments and announces that every 'few months a new trend hits the training industry', as she goes on to indicate that one 'of the latest trends revolves around the application of blended learning solutions'.

Radiant Systems Inc (RadiantSystems 2003) 'recommends' a 'training approach' that is seen as a 'critical success factor in implementing a technology solution', a 'blended learning model'. Their words are worth quoting at length,

> *With the advent of technology-based training, many early adopters have attempted to replace instructor-led training with this new form of learning. While there were many advantages to this first phase of online learning, there were some limitations that diminished its effectiveness, such as lack of collaboration with other learners, inability to simulate complex exercises, and limited tools to track and measure results. As technology has improved and lessons have been learned from this first phase of online learning, a new training model has evolved called "blended learning." A blended learning model is one that incorporates a variety of delivery styles and accommodates different organizational needs to achieve the most effective knowledge transfer.*

As the talk around 'blended learning' strengthened, it became important to clearly spell out what is in the 'mix'. Masie (1999) advocated for 'blended models integrating technology-based learning with classroom-delivered training'. For a while the answer to the criticism against e-learning came with the message that it is not only an online or technology-based business, there is room for face-to-face instruction.

In a 'The Blended Learning best Practice Survey' conducted online by *The eLearning Guild* (2003) a list was given of thirty 'potential components' to be included in the 'blended learning solutions'. The following are included: chat-room, threaded discussion, virtual classroom, email based communication, collaboration software (i.e., NetMeeting, Centra, etc.), Instant message, video presentations, video recording of learner feedback, Audio (cassettes, CDs), closed circuit TV courses or course modules, interactive computer-based training (CD-rom), interactive web-based training, distance learning, on-line pre-course classroom instruction, knowledge management system, print-based workbooks, print-based job aids, on-line references, on-line job aids, on-line testing, peer review, in-person mentoring, on-line mentoring, special programmes at trade schools, community colleges or universities and internships that guarantee employment with your organization upon completion.

In two separate articles IBM heavily supports the blended learning talk (DeViney 2005), (Robert 2005). Instead of a list of thirty, one of the articles (DeViney 2005) speaks about the '4-Tier Blended Learning Framework^{TM}'. This includes learning from information, from interaction, face-to face learning as well as learning from collaboration. Robert (2005) lists the following as the 'delivery modalities': self-study learning guides, web-based training, web-based discussion forums, online workshops, mobile wireless courseware and face-to-face workshops. Using the Baby Boomers, Generation X and the Millennial Generation differentiations, the article argues that the last two generations are associated with a set of values that makes blended learning the best 'solution' for them. The following encapsulates the definition as well as reasons for adopting the 'solution',

'There are many reasons to consider a blended curriculum. We can talk about learning styles, budget considerations, content and format suitability, and even scheduling and travel costs. We've learned, however, that perhaps a more compelling reason to consider a blended curriculum is the learning makeup of today's new workforce. It's not possible to offer these dynamic new employees a meaningful learning experience, suiting their core characteristics, without using a varied blend of delivery modalities.' (p11)

What is interesting is that blended learning is defined and argued for in similar ways in the website data gathered for this study, in the interviews as well as policy documents for some South African higher education institutions. In one institutional website it was stated in their aims, 'We are committed to a blended learning model where electronic technology is utilized as one of the delivery tools'. In another institution, they claim the term 'multimode is used in a generic sense'. They further elaborate, the 'multimode teaching and learning strategy includes, but is not restricted to open, mixed-mode, flexible and resource based or blended learning'. In another policy document one university announces that it utilizes a 'mixed mode approach in order to develop open learning'. A more elaborated explanation is provided, that

'A mixed mode approach incorporates both materials and student/lecturer, tutor contact and facilitates study opportunities for students who cannot attend sessions on campus during

> *working hours, five days per week for a full semester at a time. A mixed mode approach thus incorporates after hours, weekend sessions and shorter concentrated periods of contact. Open learning also includes strategies to facilitate learning' (University-of-Natal 1999)*

In a number of cases the policies and documents with these kinds of 'talk' are meant to coerce management and the academic community into seeing value in incorporating the technologies into their core business. The 'blended talk' takes various meanings and associations in the different institutions. For some it is about establishing 'a flexible learning environment in order to address the educational needs of its clients' whereas for others it is about 'increased flexibility of course provision'. For yet another institution adding educational technologies to their institutional strategy will help in 'designing and developing different learning sources in a variety of mediums, (and) more learning styles are accommodated'. One interviewee in a support function, when asked about any pedagogy and philosophical approach that drives e-learning implement in his institution gave the following answer,

> *'… we believe in blended learning practice where online is not going to take over the whole lecturing situation at all. It's going to enhance what you are doing and I think that's really successful things that we've done already, approaches why we are successful in this'.*

Blended learning (for some) carries the power to demonstrate how relevant e-learning is, that is, as a concept it affirms beyond question that that is a way of doing things. The concept is given the status of a recognized learning theory and pedagogical approach.

5.3.3. 'Innovation' as part of the technology talk

In line with the 'constituting' power of discourse another concept that features strongly in the South African higher education context is 'innovation'. The learning technologies are seen as having the power to support 'any lecturer who wants to innovate'. In one institution the division that serves as host to the

technologies runs "Education Innovation Awards" not directed at general educational achievements but seeks to recognise 'exceptional or outstanding contributions to education innovation' (University of Pretoria 2006). Another institution commits to 'innovative and effective use of ICTs for teaching and learning' in their policy document (University-of-Cape-Town 2003).

The use of e-learning in education and higher education in particular is associated with innovation. In some cases it is taken for granted that the use of the technological tools is in itself innovation, an issue that should be viewed with suspicion. In an attempt to answer the question 'what constitutes innovation?' Mckenzie, Alenxander, Harper and Anderson (McKenzie, Alexander et al. 2005) make some interesting revelations in terms of the connection between innovation and technologies for learning. It is recorded that in a call for grant applications in the Australian higher education sector, the responsible committee was 'embarrassed by the preponderance of high-tech applications'. A big lesson that was learnt was that in subsequent calls for grant applications definitions of what innovation is should be included, to give guidelines to the applicants. It is reported that the committee was 'surprised at the high number of grant submissions proposing to use Information and Communication Technologies (ICT)'. There is a need to broaden discourse on what is seen as innovation when these technologies are used in teaching and learning. It became clear within some institutions that innovation was used to lure the academic community into using the technologies and also in justifying their incorporation.
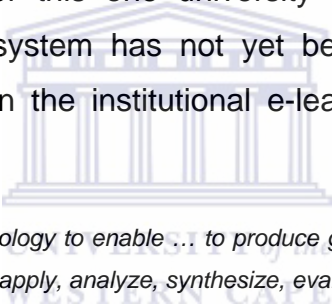
5.3.4. 'Integrated solution'

Another part of the discourse is the talk around 'integration'. In talking about their approach at CISCO to making e-learning 'a business strategy that can be applied across the company', Galagan (2002) elevates e-learning to the position of what in 'business speak' is labeled as an 'integrative solution'. A number of institutions

in South Africa have also laid emphasis on integration. In one of them the 'core focus of e-education is the skillful and appropriate integration of various information and communication technologies' whereas in another the brief is to 'make the integrated multimodal approach to teaching and learning a reality'. The following is yet another institution's way to emphasize the importance of integration:

> *'Educational technology cannot be treated as a stand-alone area of work. The development of appropriate literacies and skills in both students and staff cannot be acquired in isolation. Research indicates that technologies add the most value when their use is closely aligned with curriculum objectives and teaching/learning activities'.*

It is worth noting that even when talk around integration is this prominent locally, (Mlitwa 2005) notes that for this one university with a homegrown learning management system, 'the system has not yet been fully integrated with the curriculum and pedagogy. In the institutional e-learning strategy the 'strategic objective' is to

> *Provide and promote the technology to enable … to produce graduates who are able to use technology to find, understand, apply, analyze, synthesize, evaluate and report on information from a wide variety of sources and who are competitive for the twenty-first century careers'*

There is a strong emphasis on the literacy part, which is seen as expanding on the 'strategic objective'. Within this context it is indicated, that 'Information and Communication Technologies will be integrated into the curriculum to promote the four digital literacies, including basic computer literacy, digital information literacy, digital information fluency, and digital knowledge creation'. The focus on literacies has diverted the attention away from pedagogy and the curriculum, giving e-learning implementation in this institution a different angle- a focus on computer literacy.

5.3.5. The "Tool" talk

Some of the e-learning units see their role as offering 'tools' for teaching and learning not bound by time and place (TechikonPretoria 2003). One respondent in a support function sees their role as a person who is able to identify a particular tool amongst the many that will help to solve problems that lecturers have. He says the following,

> '…we need to identify, work with the individual lecturer to say I need something- I've got a problem with these areas and then we need to find a unique application of one of the 35 tools that will add value to what we do already. That's why I say we rather go for a fully open approach and find things that work for you than try to prescribe what you should do in any sort of a classroom but we want the need to be established by the lecturer.

Kaasgaard (2005) argues that technology tools are not just tools, and further indicates that there are other aspects involved, like their character as representational media. His argument develops out of the reasoning that for technological tools the debate should go beyond whether they can be of use or not, an approach demonstrated by the respondent quoted above, to the question about which logic will yield what consequences. That is a question which does not feature much where tools are seen as just tools.

A different approach to the tool talk is demonstrated in an environment that is practitioner-led and pedagogy-inclined. In that environment, the respondent in the support function argues that the reason for providing long training and support sessions is to make sure that the lecturers end up taking control of the tools, and not the reverse. In this environment there is a sense that the role players are aware that it is not just the usefulness of tools that matters, but many other issues are concerned, issues like your beliefs and assumptions about what teaching and learning entails.

The question of which logic will yield what consequences informs the arguments about the role of a learning management system in terms of what informs its development and the assumptions involved about learning. (Amory, Gachie et al. 2003) argue that there are many products in the market that support the

development of online courses, yet only a few are built to support constructivist principles of learning as well as cognitive development. Because of this, they then argue that many commercial products are unsuitable for higher education. One criticism is that many products emphasize content creation and distribution rather than what can help authentic learning to take place.

5.4. Refractions and Reflections

These discourses on blended, flexible, innovation, tool talk and integrated learning are what constituted the aspirations of those in the fore front of implementing e-learning in the South African higher education landscape. The discourses have been used to coerce others into accepting the role e-learning is expected to play in the environment, as qualified by these self same discourses. A critical look at them (the discourses) suggests that in some cases skepticism towards the technologies was over shadowed by these discourses and this led to a number of institutions committing to their use without due consideration. Discourse analysis is used in this study to allow for those different colours, patterns and arrays to show in terms of what is happening in the deployment of e-learning in South African higher education. The five discourses discussed are illustrations of how forms of linguistic behaviour correlate with certain aspects of social organization. As Zavos (Zavos 2004) has affirmed, discourse (analysis) is located in matrices of power and as such provides tools for the critique of ideology. In this way, questions posed in chapter three: 'is there a language of critique that is being developed for e-learning' begin to find answers.

This chapter focuses on the analysis of data that was done through computer software for qualitative data analysis. The data being analyzed is composed of website data that was used in the preliminary study as well as the interviews that were collected as the study progressed. It was important to keep the data from the preliminary part in close comparison to what was emerging out of the interviews as they laid ground for interpretation and were helpful in the process of

meaning-making in this study. Chapters four and five explored this relationship. The two sets of data were exposed to critical discourse analysis first.

5.4. The Codes and the Nodes

Analysis was taken to another level by the use of NVIVO and this allowed this study to experience the technological turn, adding to the linguistic and interpretive turns anticipated in the research design. NVIVO provides three areas to store coded data as nodes: free nodes, tree nodes and case nodes. In this project the free node area was mainly used as a temporary storage area, before the coded data could be assigned to a specified category. The categories were of a mixed nature, those that emerged directly out of the raw data, and those that emerged out of interpretation of the data and the literature review. As the data were already subjected to discourse analysis, a node was dedicated to the coding of the discourses that shaped the implementation of e-learning in the different institutional and course contexts under study.

The node structure helped to bring a number of issues to the fore front. It has to be emphasized that it was not about counts. It was about the continuous reading of the data, the reflections, comparisons and questions that were asked of the data that led to those issues arising to the surface, above the rest- total immersion into the data.

The context within which to answer the main question in this study was partly mapped by the 'quilt' that was created out of the website data. Discourse analysis further highlighted the constitutive discourses. The use of NVIVO provided a bridge to move over from the broad contextual issues and to focus on courses and how they were delivered. To recall, the major question to be answered is:

> *"What pedagogical considerations are necessary for successful course design when using e-learning?"*

Through the preliminary study, individuals in the support function within specific institutions as well as those who taught courses using e-learning were identified and interviewed. The use of NVIVO helped to reveal that what shaped the institutional environment and specific design of courses was influenced by the attitudes that people in the support function as well as those who taught courses had. These were attitudes towards the technologies, management, their colleagues and towards students. With these attitudes their assumptions were also made explicit, assumptions about what learning is, for example, their beliefs and their convictions about the different learning theories and approaches, and assumptions about what technology was capable or not capable of doing as far as teaching and learning is concerned. It then became clearer why specific people in a specific institutional environment had particular expectations as far as e-learning implementation was concerned. In the same way they revealed the strategies they had employed so far in their implementation as well as the directions in which they were currently moving.

5.5. The Contrasts

The first column in Table 10 gives a list that represents the tree nodes that were finally assembled in this study and samples the contrasts that existed in the differing contexts. It was established (in chapter 4) that some of the characteristics and patterns that emerged revealed that the e-learning initiatives were driven from two differing angles. There was a practitioner-led environment and a management-led environment. The practitioner–led environment was characterised by efforts to support staff as they integrated the technology with their teaching and learning chores. The management-led environment was characterised by huge investments into the technological infrastructure. The nodes (in column 1 of table 10) were instrumental in bringing out another level of understanding of the factors that influenced the contrasts that existed in the different environments. The interrelatedness of all of these aspects constitutes the factors that influenced specific designs in the courses offered. A look at these aspects led to a special focus on the role players: the role those in the support

function played as well as how individuals within the institutions designed their courses.

Table 10 sketches the analysis from the NVIVO nodes and the contrasts they revealed as far as those specific items were concerned. The intention is not to quantify but to expose the meanings teased out. The biggest advantage in using NVIVO and doing the coding is the level of familiarity one attains with the data. It then becomes possible to extract what is of essence. The challenge is that the quotes are extracted from their context and that robs then of their full meaning. The discussions are meant to fill this gap. The benefit is to provide the actual words from which the analysis is constituted.

The six institutions from which interviews were drawn are labelled U,V,W,X,Y and Z. It is striking that in institution X there are strong discourses linked to teaching and learning theories and philosophies like "deep meaning orientation". In this context the support unit takes time to work with a small group over a long period to expose them to teaching and learning theory. In institution Y the assumption is that there are "available pedagogies" amongst lecturers and there is no need to expose them (the lecturers) to those pedagogies. The lecturers have to "go wild" and "do what the hell they want to do" with the technology. When the support unit in the other institution uses a cascading model and mentoring as strategies to support the implementation, institution Y uses incentives, runs a competition and plans to add the use of a "little stick" .

	Support Role		Teaching Role	
	Institution X: Practitioner-led initiative	Institution Y: Management-led initiative	Institution X: Practitioner-led initiative	Institution Y: Management-led initiative
Constituting Discourses	"bottom up organic growth", "deep meaning orientation"	"but go wild", "do what the hell they want to do"	"student centered approach with lots of very secure guidelines and scaffolding"	"the delivery of information is much faster." "reading and printing from the online source"
Directions	"start small with 15 lecturers",	"started by the Rectorate", "to move into the quality assurance"	"Perhaps I should just refine what I got rather than moving ahead"	"now going to get an e-pack from this, I think is Pearson"
Attitudes towards lecturers	"people who over commit themselves"	"finding excuses of not committing"		
Strategies	"work slowly with the same people", "cascading model and mentoring system"	"where the incentives come in", "we are running currently a competition", "we will use a little stick not a big stick."		
Assumptions	"education is very difficult"	"we will look at available pedagogies"		
Unique problems	"change our management"	"the continuous presence of the company politics"		
Constraints	"Our resources for an institution of 20 000	"Changing your mindset, I have problems with because I'm not such	"the lab access was so bad", "I can't wait for (the	"not quite sure of how legal some of the stuff", "the

	students for online learning are three"	a doctor",	institution) to catch up", "I hate to say this but ones' colleagues can be awful constraints"	main problem is the time"
Support activities	"exposing them to the spectrum of teaching theories"	"got a subject called e-learning"		
Success indicators	"the products of what our lecturers, what they put out after they leave us",	"got about 120-130 using that fairly effectively"	"going out there and being mobbed by 4th year journalism students."	"WebCT allows very easily for you to do because you can do so many various types of evaluation and things like quizzes"
Expectations	"it's driven by the innovators themselves", "do their showcases"	"it is the collection of tools", "you can use any number of tools"		

Table 10: The Contrasts

5.5.1. Conceptual rather than a technological infrastructure

From the Access reports that contained web site data it became clear that the institutions in South African higher education which had built infrastructure for e-learning had some common as well as some differing features. Besides the acquisition of a learning management system a unit was also established to support the implementation. However there was a major difference in terms of how the institutions placed their focus as far as the established unit was concerned. To some, the unit was to oversee the technological infrastructure that was available and accessible within the institution following the huge investments that had been made in the technology. Others placed their focus on staff development and support.

The 'module presence' aim discussed in chapter four was another strategy. All modules had to be on the learning management system (LMS) by the end of a specified period, a factor that increased numbers of those seen to be using the system. In some instances, the administrative functions of the LMS were tied very closely to course delivery and the registration processes in the institution. This put pressure on those in teaching to use the system. Where infrastructure was built for assessment; it became another pull for numbers. The intention to use an electronic grade book is another indicator of how the administrative functions can be instrumental in pushing for institution-wide use and draw in the necessary numbers.

In one institution were there was a practitioner-led initiative the role players in the support role were protecting the system from failure by limiting the numbers. The resources were scanty and the available infrastructure was not going to cope if the number of users increased, especially in terms of students. This was in an environment where management was not supportive of the e-learning initiative. The following aims show the contrasts that existed as stated in the aims of two institutions (emphasis inserted):

> *E-education… the **integration of various information and communication technologies** including www, interactive media delivered on CD, computer based assessment, television broadcasting via satellite and video conferencing*

In another institution, these were stated as the aims:

> *That all modules should have a minimum electronic presence within three years- 30% at the end of 2002, 40%/ 2003 and 30%/2004: Electronic presence is defined as having a **module framework available in one or other form of electronic (billboard or email)***

For these two institutions their implementation effort was then placed on the technology. It was notable that in other institutions, the focus was different. In one their aims were stated in the following words:

> *Focuses on staff development in the use of educational technologies, particularly in the area of computer-mediated open learning systems via the World Wide Web; the centre develops and hosts virtual classrooms and websites, as well as web content*

In another it as stated as:

> *To support and assist … to use ICT's in ways that **enhance the quality** of teaching and learning*

These last two were those who had integration into teaching and learning as their focal area. They were faced with a different battle. Supporting staff was the challenge. Theirs was not the building of physical infrastructure as such, it was conceptual infrastructure. It was necessary to arm staff with conceptual tools that would enable them to engage with the technology so that it enhanced teaching and learning. For some it was an intention that was never realised, for others, the road that led to the realisation was very slow. As the institutional and course cases reveal, one institution distinguished itself in terms of how the conceptual infrastructure received the necessary attention.

It became clear that success in relation to implementation was judged on different terms by different institutions. Those who invested in the technological infrastructure had numbers to show. Those who concentrated their efforts on the conceptual infrastructure pointed at specific course designs and how students responded. It has to be noted it was students' reactions rather than 'not responded' that mattered. This was to isolate the student surveys associated with e-learning satisfaction research as against cases where critical incidents were used to reveal the successful use of the technologies.

Weigel (2002) argues that if an infrastructure is to be built for depth education in higher education, it does not require smart classrooms, wireless campus networks, or significant technical skills. His argument is that 'the make-or-break infrastructure requirements for depth education are more conceptual in nature, and they begin with faculty.' (Weigel 2002, 102). The following discussion reveals how in one institution Weigel's claims are espoused, and how different it was for the other. It is this consistent approach to staff development that became one of the distinguishing factors in how different supported implementation of e-learning and this gave it a particular shape. It became clear that it is the conceptual rather than the technological development that determined success.

5.5.2. Attitudes towards teaching and learning theory

In institution X it was clear that people in the support function as well as the lecturers spent time and effort sorting out their understanding of what the role of technology was to be in their implementation of e-learning. They acknowledged that 'the use of technology was not pedagogical', that there was a need to establish pedagogy and take decisions in terms of the what, why and how of teaching first. This is the reason why in their environment it was an important task to 'feed' the lecturers with teaching and learning theory. Their work involved stimulating debates around this area. They saw part of their work as helping to

'match existing theory' to the experiences lecturers brought to the training room. Exposing the lecturers to a full spectrum of teaching and learning theories was one of the purposes to be achieved by those in the support function. Their overall attitude to teaching and learning theories was positive, as they were convinced that online learning and the use of technology was not necessarily pedagogical, it had to be designed in such a way that it become so. Pedagogy was to be woven in consciously. The focus on teaching and learning theory allowed them to achieve a considerable amount of success in their implementation. The courses designed in this environment had features that revealed a level of creativity.

In institution Y, those in the support function had different attitudes towards teaching and learning theories, as well as pedagogy. They believed sitting around the table and discussing 'philosophy of being' as one named it, would not help deliver the outcomes needed. The tools had to be used, and that is what would bring the evidence that e-learning would add value in the institution. This was in stark contrast to institution X were the claim was that the development of the courses in the system was not the main activity, sitting around the table and debating issues in relation to teaching and learning was what mattered the most. Confronting their assumptions and beliefs and changing them were the criteria that brought about outcomes that could be labelled as successful. Their focus was not to take the conceptual issues for granted, but to work hard enough on them to ensure success.

The following figure captures the attitudes to teaching and learning theory:
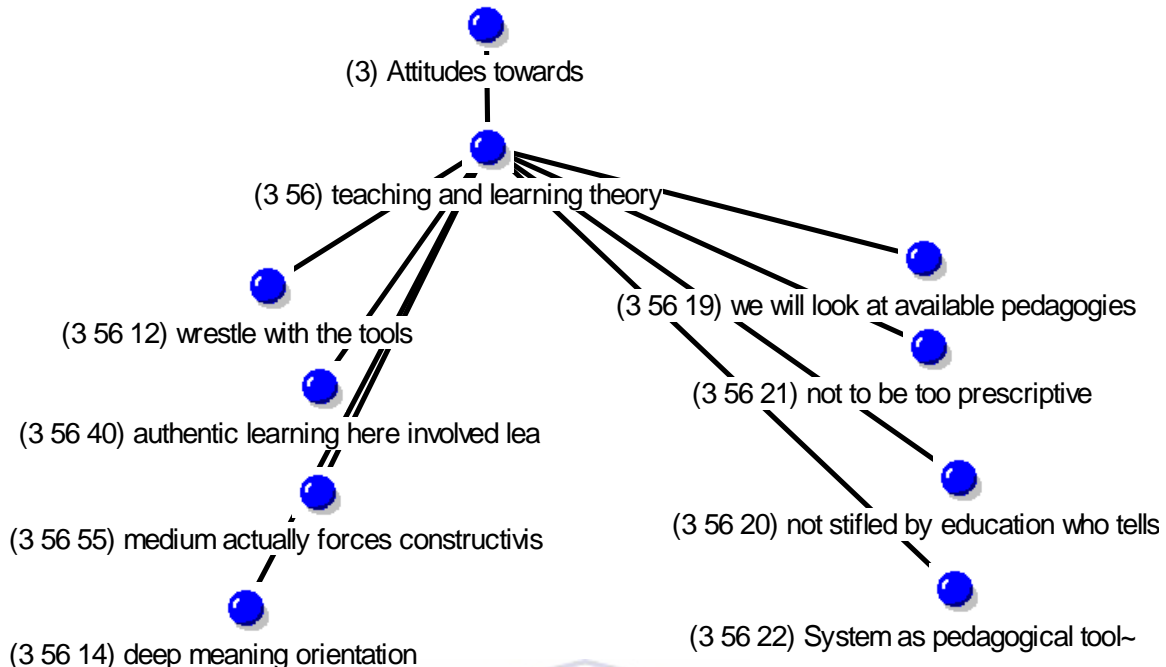
Figure 17: Attitudes towards teaching and learning theory

In institution X it was important to 'wrestle with the tools', which within their context(s) meant asking many conceptual questions before one could choose which tool to use. They pulled in teaching and learning constructs in their discussions of what it was that they were doing, constructs like 'authentic learning', 'constructivism' as well as 'deep meaning orientation'. One can almost say their discourse was soaked with teaching and learning theory and it showed in the features of the courses designed in this environment. In institution Y, the conviction was that it was not necessary to be 'too prescriptive', which in their environment meant e-learning would be stifled if part of the implementation meant exposing staff to specific teaching and learning theory. The assumption here was that staff would come with their 'available pedagogies' and 'we will look' at them. The approach was a kind of 'hands –off' as far as teaching and learning theories were concerned. The courses designed in this environment carried some marks from these attitudes and assumptions. It is remarkable that whereas in institution X constructivism was commonly referred to, in institution Y there was no mention of the concept. It is remarkable because literature on the use of technology for teaching and learning is dominated by discussion for or against

constructivism, and without hesitation it is important to mention that there is more in the literature in support of it than against it.

5.5.3. Attitudes towards lecturers

Working across the data these differing and yet persistent attitudes could be easily identified. On the one hand (left of figure 18) in institution X lecturers were often referred to as creative, innovative, competent and talented, and the kind of people who were willing to over commit. They were seen as people who want to make a difference with their students. In the other environment (right) the lecturers were to be blamed, they were regarded as people who are well known for finding many excuses when they had to commit to anything. They were seen as people who were scared of technology, afraid that it would take over their lives, infringe on their privacy as well as their third stream income. The attitude was that there was a need to enforce, to beg and to dictate to for e-learning to be used. The following figure captures the striking difference in the attitudes from those in the support unit towards lecturers in these two environments:

Figure 18: Support staff attitudes towards lecturers

Even though lecturers in institution X were considered to be innovative, creative and committed, they were nevertheless exposed to a range of teaching and learning theories so that they would be able to develop successful courses. They were to be 'accompanied long enough' in their journey of exploring the technologies to lead them to meaningful use for both teaching and learning. The prevailing discourses in the different environments confirmed these attitudes and assumptions consistently.

5.6. The Nodes and the Discourses

It was in institution Y where the environment was dominated by 'tool talk' whereas in the other environment the use of technologies was to be 'protected from a bad name'. It was in institution X where the discourse indicated some form of judgment on what is considered as quality use. References were made about good use as against the bad use of technology, good teaching as against bad teaching, using the medium well. These were the kinds of judgments that were not prominent in the environment where the 'use of the tools' was the most important thing. The following figure gives a picture of these differences:

(1) Constituting Discourses

(1 1) Judgemental discourses

(1 1 36) then it gets a bad name~

(1 1 38) crappy teacher bad teacher it's also

(1 1 9) plug it into the right place~

(1 1 1) she uses the medium well,

(1 1 53) not meet that need is morally unsoun

(1 4) Just Use it discourses

(1 4 24)do what the hell they want to do

(1 4 10) use it as your please

(1 4 18) but go wild

(1 4 5) you can use any number of tools

(1 4 27) it is the collection of tools

Figure 19: Discourses

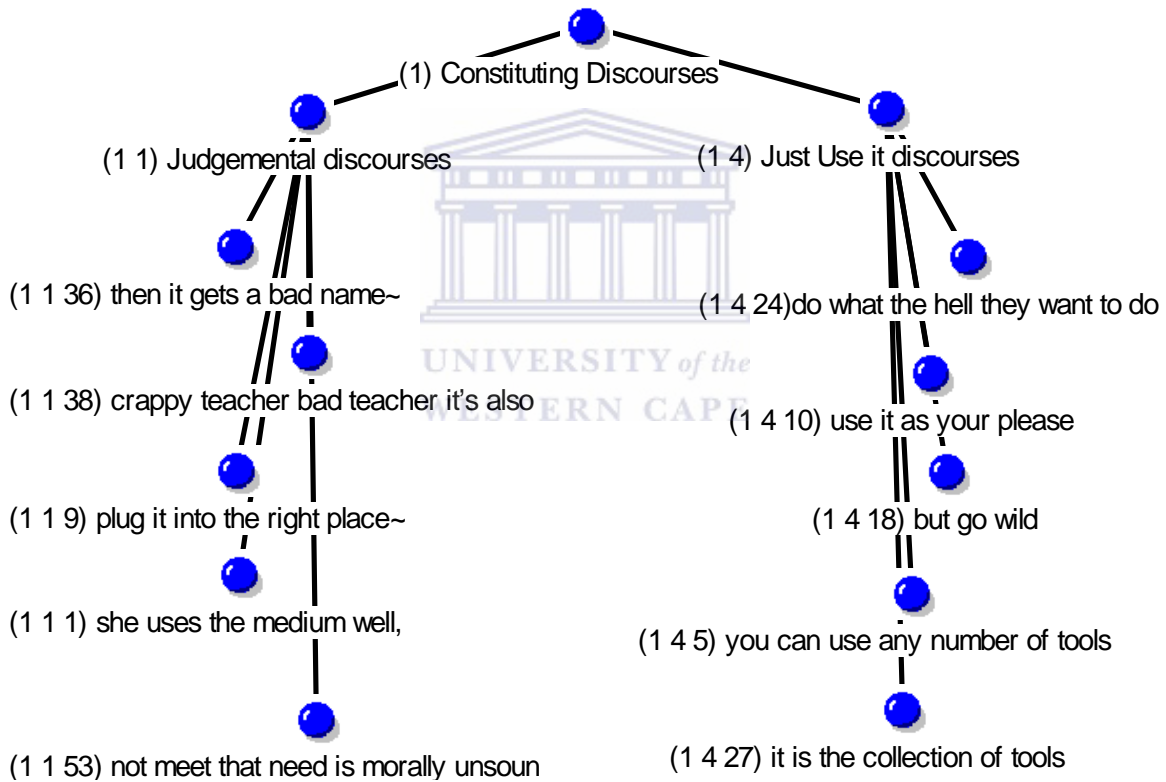In institution X, there is talk about the technology getting 'a bad name' if it is not used properly, and the role players see it as their duty to protect it. There is talk about a crappy or bad teacher whose weaknesses will be amplified by the technology in contrast to a good one. This differentiation permeates their convictions revealing that the duty here is to make sure that bad teaching is

changed through the support coming from the unit. There is talk about plugging 'into the right place'. Again here, there is a differentiation and the indication given is that there is a wrong place that lecturers can plug into, hence the reason why there was so much reliance on teaching and learning theory to shape the use of technology for the better. In talking about one of their successful lecturers, there is an implication that she uses the medium well, making a clear judgment that the medium can be used badly in other circumstances.

Another distinguishing factor in institution X was the point that there were also judgments about what is morally sound and what is unsound. This is a factor that can be related to some of the features visible in the courses designed in this environment. There is an indication here that the role players are critical, their level of consciousness is high. For them it is not just about enjoying the technology, but ensuring that students whose future depends on the education they are given, get what is due to them. A notion of justice is drawn in. To them teaching effectively and meaningfully is a just cause.

In institution Y, the talk is around 'wild use'. The lecturers are encouraged to 'go wild'. The technology is seen as a collection of tools and the lecturers are to use the technology as they please. They can do 'what the hell they want to' with it. This is an emphasis on the consistent approach to their implementation: it is important that the tools be used. It is not about how they are used, but if they are used. This is the reason why there is also talk about having to beg people, and to enforce the use of technology. This is why in this environment it is important to count the number of people using the technology and talk about how this use compares with 'international trends'. As already argued in institution X numbers are limited on purpose, to make sure that implementation is successful.

In a different institution, institution U, there was strong reluctance to encourage the use of the technology for content delivery, yet in institution Y that was seen as proper. It was an individual's choice to do so - lecturers had the freedom to

use it as they pleased - any use would go unchallenged. If a staff member wanted to use it for content delivery only, then they were encouraged by a phrase such as 'the content tool is for you'. In institution U, even though people could use the technology for content delivery, it was discouraged, and hence this strong rebuke:

> *Some of them, yes, some of them, a lot of them they come and get inducted into social constructivism and they use it as a dumping dump for lecture notes. I mean they are going to do that in any way. Many people want to just put their notes online on the web, which is just a waste of time as far as I'm concerned. I mean print them, put them on a CD and get the CD to the students. Why do you want to put them online and waste bandwidth. For what I have no idea! But anyway some people believe that that's the way online learning is. We are trying to change that thinking but it is very hard to change people's thinking.*

5.7. Conclusion

At this stage it should be clear that there is a pedagogy- technology pendulum that is swinging. In institution X, issues relating to pedagogy are high on their agenda. In institution Y, technology, or rather the use of technology is what is important. When one considers the definition of pedagogy as discussed in chapter two, one realises why, within institution X, notions of social justice are important. This feature suggests that it is not just pedagogy that is high on the agenda in institution X, but critical pedagogy as Giroux and McLaren (1989) would suggest. The insistence on the use of technology for teaching and learning, without debating the issues involved, without engaging conceptually in what that means is synonymous with adopting technocratic approaches - unquestionably so.

From the Access reports and the interviews, it became clear that the support environment provided a particular texture institutionally, the kind that contributed towards the way e-learning technologies were adopted and used. The following chapter will dwell on further analysis in the form of institutional and course case studies. The analysis will reveal how together with the explored attitudes, assumptions and discourses the expectations of those in the support units

shaped the design of courses. The case studies will then expose the kind of pedagogical considerations that were made when specific courses were designed.

Chapter 6: Institutional cases and models

6.1. Introduction

This chapter discusses institutional cases as a way to investigate the context within which course design considerations were made as e-learning was implemented within South African higher education. The main focus is on how one of the institutions has given shape and scope to what is viewed as a professional development oriented model towards the implementation of e-learning. The chapter seeks to argue how 'instrumental' this one specific institution is as a case towards mapping out issues that are key to the design of e-learning courses. An as instrumental case, the lessons learned can be applied in other contexts as long as there is a full appreciation of the unique characteristics the case reveals. The case study approach is used as a way to understand the uniqueness and idiosyncrasy of the cases involved. It is the purpose in this research project to focus on institutions that are considered to be active in terms of e-learning and to study cases that demonstrate how pedagogical design of courses emerged in this context where e-learning was used.

With the introduction of new learning technologies, South African higher education saw significant restructuring of internal institutional landscapes as academia tried to position themselves within what can be identified as the 'pedagogy-technology tension' In some cases, old units or divisions that were involved with professional development were restructured or extended to accommodate the demands of e-learning, whereas in other cases new units were established to nurture the (new) developments. The positioning within the 'pedagogy-technology tension' challenge was not the only one facing South African higher education at this time. These changes happened along with the restructuring that government introduced - a move that was aimed at national

socio-economic transformation of higher education (Council on Higher Education 2004, p19). This was to be achieved mainly through institutional mergers.

The internal and external demands brought about by e-learning as against those changes brought about by mergers added to the complexity of change institutions had to respond to. In this chapter, iteration is made, that the e-learning project in South African higher education could be visualized at this stage as a swinging pendulum; the two extreme positions of the pendulum being pedagogy on the one side and technology on the other. This study explores this complex tension and how role players experienced it or, to be exact, what they were saying about the way they were handling the tension, and what they were doing in terms of confronting it, consciously or unconsciously.

6.2. The Case Study Approach

It makes more sense to look at this environment through an 'interpretive lens', what Gubrium and Holstein (2000) refer to as 'the institutional life' that has potential to contribute towards meaning making, when one is engaged in a study of social sciences. They say

> 'The emerging empirical horizons, although still centered on processes of social accomplishment, are increasingly viewed in terms of "interpretive practice"- the constellations of procedures, conditions, and resources through which reality is apprehended, understood, organised, and conveyed in everyday life…. Interpretive practice engages both the hows and the whats of social reality; it is centered both in how people methodically construct their experiences and their worlds and in the configurations of meaning and institutional life that inform and shape their reality-constituting activity.' (p488)

From what was learned from the websites, it was possible to tease out meanings that fostered an understanding of the level of activity that existed generally within the country, as well as within the individual institutions. And because of that it then became easy to trace a number of role players and listen to their stories about what is it that they were doing in the design of courses using e-learning

technologies, another goal that the study was pursuing. These role players included teaching staff as well as people who were involved in running the e-learning units within the different institutions, the people responsible for supporting e-learning implementation.

Stake (2000) defines a case study as both a process and product of inquiry and this paper will concentrate on the product more than the process part of it. He (Stake 2000) identifies three types of cases; intrinsic, instrumental and collective cases. Using his rationale, this chapter looks at institution X as an instrumental case for (e-learning) professional development. It was a mixture of a conscious and a spontaneous decision in the design to go back and concentrate on one institution: to listen more attentively and more deeply to issues that were involved as far as course design and e-learning was concerned. At this stage in the research project there was enough material to indicate where interesting e-learning activity was taking place within South African higher education institutions. Interesting is a relative term. Obviously what was seen as interesting to one researcher would not be described as the same by another. What was seen as interesting was how particular courses were shaped and how they acquired specific features in their design because of the environment in which they were developed.

From the data collected so far, there were clear indications about how (newly established) e-learning units in South Africa were influencing the design of courses offered through the use of these technologies. The particular institution on which this case study centers adopted a staff development approach and distinguished itself from many others that laid their focus on the technology. From the institutional web site data, their aim for implementing e-learning as a unit was clearly stated as focussing on staff development, whereas some of their peers saw their core business as the integration of the technologies into teaching and learning, with no reference to the role of teaching staff.

6.3. The broader context

Given that the introduction of new learning technologies was to a certain extent dominated by the chores attached to the management and use of a Learning Management System (LMS), it was notable that some of these units that were meant to support the implementation of e-learning, were not necessarily housed in the IT (Information Technology) division of the institution. A number of them worked separately from the IT departments and a number of tensions were reported (between the IT and the e-learning units). From one institution, it was mentioned that it was a conscious decision to be separate from IT this was the reasoning:

> *If you put e-learning into the IT department then in a sense (what institution A has done) … they dictate what this WebCT can or cannot do. They've eliminated some of the tools because they've written similar tools in that sort of some community platform already. So I decided that your WebCT shall not do XYZ and if they in a sense that now an IT boffin, a specialist who knows the inside more than what we do, but they dictate education, where technology dictates education- it does not work.*

It was not only the relationship to IT that mattered as far as the e-learning units were concerned. As discussed in chapter five, the position of the e-learning unit was affected by whether it was a stand-alone unit and independent or whether it was part of another division. Apart from the IT department, another possible location was within a unit that focussed on teaching development. The institutional case study that will be discussed at length was one such example, where it was part of the institutional staff development unit. There were some gains in terms of being stand-alone or incorporated (as already discussed in chapter five). The relationship with management was very important. In this case that was chosen as instrumental; implementation did not enjoy the support of management. In the words of one role player in this institution, they 'did not have (any) mandate' from management; and as such part of the struggle with implementation involved trying to 'convert' management in the process. In another institution, management support of the changes to be made was their biggest strength.

The two factors, management support and whether the unit was stand-alone or incorporated into another unit, revealed another dimension: whether implementation was a practitioner- or management-led initiative. In an institution where management was part of the initiating party, it became crucial to talk numbers, to use statistics to prove that e-learning was adding value to the institution's business. In one institution, one of their success indicators was that they were currently at 66% in terms of adoption by users in the institution, and (to them) that compared very well to some international trends that predicted a 70% university adoption rate by 2002. Under such circumstances, the technology was pushed as a set of tools to be used. As demonstrated by the 'just use it' discourses in the previous chapter, the teaching staff were encouraged to 'go wild' and use the technology as they please. The practitioner–led initiative on the other hand, defined success differently, not in terms of numbers. It was important, for example, that students find the technologies appealing and value adding. It was important to know how students viewed the technology as linked to how staff used it. Those in the support function saw it as their role to ensure proper use as they openly acknowledged that there is good and bad use. They took the responsibility of protecting the technology from a bad name by ensuring that teaching staff used 'the medium well'.

6.3.1. Different models of implementation

A number of trends emerged on how the implementation of e-learning was to be nurtured in the different institutions within this early period of integration. The different forms that this nurturing assumed suggested a tension similar to the pedagogy-technology pendulum. From the reading of the meanings that were embedded in the website data, it emerged that in some institutions the technology aspect mattered more and received more attention while in others pedagogy held the swing up. The interviews confirmed this by providing more

data on how to interpret the direction the swing was going. How the relationship between the two – the pedagogy and the technology - was managed raised a significant challenge within institutions. To a certain extent, this tension was responsible for the varied models of integration that have been identified in the development of e-learning within South African higher education institutions.

The models that emerged and were identified in relation to specific institutions should be seen as further refractions and reflections in terms of analysis in this study. They are an elaboration of the emerging characteristics and exposed focal areas of implementation (in the different institutions. The identified models are:

- *IT-oriented model,* or a model where activities related to e-learning integration were organized within a technically resourced (both in terms of physical and human resource) unit

- *Distance education oriented model,* where 'innovation' in the use of learning technologies was focused on distance learners. These have been uniquely referred to in South Africa as "Telematic Education" centres, which concentrate on appropriation of selected state of the art multimedia technologies to deliver distance learning programmes to targeted students at both secondary and university levels. In a number of institutions, the distance part was happening within residential universities.

- *Research oriented model*, where efforts were concentrated towards researching and exploring the potential of new technologies and approaches to support effective teaching and learning

- *Professional development oriented model* that focused on staff development and training projects to investigate 'what strategy would help sustain online learning'. It emphasized strategies aimed at enabling staff to use and operate technology and its associate language systems, to

make effective use of appropriate technological strategies in real world contexts, and to evaluate, assess and critique the technology and all it provides

- *Open Source (research and) development oriented model*, a model with a project development focus to develop a system for integration of e-learning into institutional business

Even though these distinctions are made, it is with caution since some of these boundaries were blurred in some of the institutions. For example, for one institution the model that has evolved can be located within both the IT- oriented model and the Open Source project development model. With the research oriented model, there are institutions that defied being rigidly placed in or out of categorisations through the self proclamations that they made. For one institution, it was mentioned that their focus was integration of technology into teaching and learning as well as research. Even though it was publicly announced on their web site, it only remained an intention, while other issues received prominence. Almost all institutions had a few papers read at national and international conferences about their e-learning activities.

A focus on research was less of a challenge in another university which is a distinguished research university in South Africa. For them, the intention to adopt a research based model in their implementation of e-learning was made possible by the existence of a research culture that has characterised this institution for many years. It has to be acknowledged that their research based approach in this particular university can be seen as a highly strategic move; since the university prided itself in research outputs, it was necessary to initiate a practitioner-led initiative that wielded a considerable amount of accredited research output so as to be able to appeal to the university community for wider adoption.

It is within this context that they committed to researching e-learning as the university was at the beginning of institution wide implementation. Donor funds also played a role to encourage research into new initiatives. In the words of a role player who was interviewed, such a commitment to research was emphasised,

> So at that level we are saying researching our practice is a commitment, because nobody knows, as soon as we go through these questions, the answer is "we don't know". There are indications that, there's hardly any real research done. Looking at international research, it seems to be the beginning that- I mean you've seen that, you're reading the stuff. Where are the answers?

The professional development approach can also be challenged as not being particular to a specific institution. It has to be noted though, that not all could claim that they are professionalizing their staff in the use of e-learning. In some institutions training sessions that lasted two to three hours were offered to staff, organised through the human resources department. In one institution, this training support was done through 'SAPSE accredited modules' and this was seen as a non-traditional way of providing support to staff,

> The way in which we support staff development is not the traditional sense of workshops and things. We do run some. The main form of staff support is via SAPSE credited learning modules. We have 11 modules, which are available to staff members and they both have the theoretical and practical components built into them. And if you go to our website you will see them, they all are there, they are up on the website. We have, that is one form of our staff development that ITED offers. The university offers it free to all staff training in the standard packages so Word, Excel and all that kind of stuff. The normal things, is free training, end-user training and the stuff. With the new system we are running workshops to teach them the new system.

One can read into this approach a literacy type of focus where the intention of such a support project is to raise the computer literacy levels of staff members. Teaching staff 'the new system' is an add-on to the literacy training project. It has to be noted that this is in an institution that can be located within the Open

Source project development model and 'the new system' refers to the newly developed system. The literacy project, together with the teaching of the new system, deprived the unit of a more concentrated effort on staff development. It is remarkable that in another institution that can also be located within this Open source model, a focus on literacy development was given to students. Teaching staff were given the sort of training that takes three hours or so, and it was also on how to use system. In the strategic documents that were meant to support implementation of e-learning in this institution, developing the digital literacies of students featured very high on the agenda. The focus in this institution fell on the new system as well as the digital literacies of students. As one interviewee put it,

> Ok, I think the concern for most lecturers are that if they are to put a course online, how do they know the students are actually going to want, or can use or read the material online. So for them it is if you are putting this are our students are also equipped at the same time? You know it's no use getting up a really nice course and then you have students that don't even know what to do as far as that is concerned. On that issue, we try to address that by making a computer literacy or become compulsory for first year students. '

In line with the thinking in their strategic documents, developing the computer literacy of students became a way of addressing the lecturers' concern about whether students will buy-in. The focus on how to use the system, as well as students' computer literacy deprived the unit of paying attention to the professionalization of staff. A help desk approach supplemented the three hour training that was provided as staff support. The institution missed the point that what was needed was to develop a conceptual infrastructure rather than a technological one. Implementation of e-learning in higher education requires such an infrastructure, and that goes beyond the provision of technical skills.

The points raised in this discussion so far, are an indication that a staff development focus to the implementation of e-learning is the more dependable model as it allows for the development of the conceptual infrastructure. The implementation of e-learning becomes an opportunity to revisit the 'ideas and acts' (Alexander 2008) teachers use to inform how their courses are designed

and delivered. It is an illusion to work from a premise that teaching staff know how to teach well, and if trained in the use of technology, will be able to integrate it successfully into their teaching methods. This assumption is harmful, and threatens the intention to see to it that e-learning is integrated into the core business of a university, which is teaching and learning. To some institutions it might not be an assumption, it might be that it is a decision to overlook paying attention to the conceptual development of teaching staff for whatever reasons there might be. Whether it is an assumption that staff will know how to integrate the technology once they know how the system works, or whether it is intentional to overlook the conceptual development side, the implementation of e-learning is then suffers a significant set backs. And as the interviews revealed, role players then seek other ways to explain the slow rate of adoption.

On the overall, the different institutional models demonstrated that the different points of focus as far as the implementation of e-learning is concerned did not lead to the same outcomes. In fact, for some, there were a number of losses whereas for others a number of gains were achieved. As others focused on computer literacy of both staff and students, a 'how to use the tool/system' approach, others focused on how to conceptual positioning of staff, so that the use of the system does not become a technical venture, but a means towards improved teaching and learning.

6.3.2. Emerging Patterns and implementation models

The examination of e-learning implementation experiences in different institutions revealed different patterns and characteristics. It was discovered that institutional landscapes were being changed to host e-learning and to accommodate new organisational units. New posts were created and filled with staff with a variety of designations to support the implementation of the e-learning. The general aim these units had was to see to it that e-learning was implemented as a new

institutional system, that technological infrastructure was available and was used to support teaching and learning, but there were differences.

From the analysis of the web site data (contained in the Access reports provided as Appendix 1) it became clear that institutions in South African higher education built infrastructure for e-learning with some common as well as differing features. The common features included the acquisition of a learning management system and the establishment of a unit to support the implementation. However, there were major differences in terms of how the institutions placed their focus as far as the support unit was concerned. In some, the unit was expected to oversee the technological infrastructure and ensure availability and accessibility within the institution - huge investments were made in the technology. Other institutions placed their focus on staff development and support and invested more in the people that had to use the technology. For example, in these institutions considerable amounts of time were spent on exposing lecturers to a variety of teaching and learning theories and engaging them in debates and discussions focussed on pedagogy. The contrasting investments in technology and in staff development activities to enhance pedagogical practices exemplify the technology-pedagogy tension discussed earlier.

The characteristics that emerged include whether the unit responsible for e-learning was a stand-alone unit or whether it was incorporated into another unit. In some institutions the implementation was led by practitioners whereas in others it was led by management. The practitioner-led implementation wielded a different form of authority from the one that was management-led. For example, in the institution with the professional development oriented model, the practitioners who led the implementation consciously took a decision to 'protect it (e-learning) from a bad name'. They used their authority to prevent large numbers of lecturers from using it and claimed that because resources in the institution were not enough, the implementation might end up being branded as a failure. They wanted to produce specific results with small numbers and use those as success indicators. Though they were aware that management wanted

large numbers as evidence that e-learning was being implemented in the institution, they used their practitioner authority to limit the numbers. In another institution with an IT oriented model which was management-led, those who led the implementation wanted to use a 'stick' to force lecturers to use the acquired technological infrastructure. The following table shows these comparisons and is adapted from 'quilt' in Chapter 4:

Practitioner-led**:** **Struggles to influence management Decisions**	Management-Led: **Dictates what is important**
Enjoys pedagogical influence (and pressure) from the mother unit and rich in pedagogical discourses and concerned with broader issues in teaching and learning	Specialised technical expertise & support, short training courses focused on large numbers
Poorly resourced in physical infrastructure	Well resourced and enjoys updates & latest technology
Professional Development model: Long term professional development in support of staff, works with limited numbers	IT oriented model

Table 11: Emerging patterns and institutional models

6.3.3. The different expectations

There is another dimension to the commitment to develop the conceptual infrastructure as argued in this thesis; it is that universities do not take an interest in developing this particular infrastructure because they do not expect lecturers to teach creatively. As one interviewee put it,

> I think we will put more effort on the new system because we developed it from a development point of view rather, and the support point of view, because the university in many ways is quite free and it does not dictate how you teach; you can be as creative or not creative as you like in your teaching. There are certain standards that they want but they don't say you have to have to teach online and you have to teach in this way

With the hype and the potential of e-learning well touted, a message that comes across is that the technology has a way of exposing 'crappy, bad teachers'. The danger in an environment where people are encouraged to use the tools anyhow is that bad teaching becomes worse; it is amplified by the system. A question that arises is can institutions afford to put expensive technological infrastructure in place and not be concerned when these are used to make poor teaching even worse? Is it not worth the effort to ensure that the reach that the technology provides in terms of access to education comes along with richness to all concerned?

The following figure shows sets of expectations from two different institutions. The discussion that follows will demonstrate how those varied expectations influenced course design.
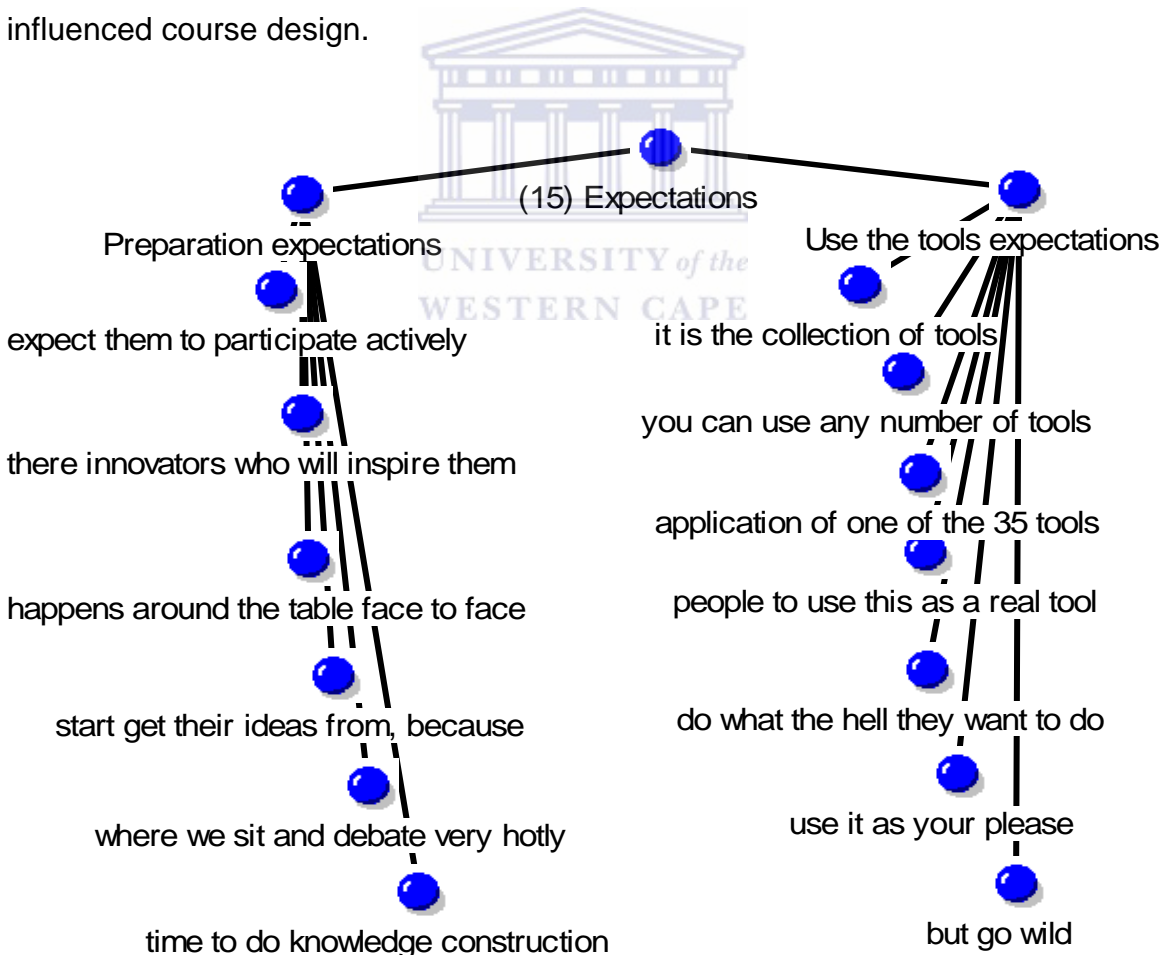

Figure 20: Varied expectations

The set of expectations to the right emphasizes the 'just use the tools' type of discourse that dominates the environment in institution Y. The preparation in this institution focuses on the exposure to the tools available. What is expected from lecturers is that they should use at least one of the 35 tools available, and 'do what the hell they want to do' with them. The set on the left shows how different the expectations were that existed in institution X. This set is a sub-section of the set of expectations relating to how prepared lectures are expected to be before they are released for independent implementation. In this institution the lecturers are expected to spend time around the table and engage in hot debates on issues that are involved in the implementation of e-learning. They are expected to get inspiration from other innovators, as they are about to engage in innovation themselves.

In this institution, institution X, there is a huge expectation for lecturers to participate actively throughout this long period of preparation. The emphasis is on their active participation because an underlying expectation is that during this period they have to construct their own knowledge. The preparation happens within a constructivist paradigm and this is one of the reasons that those in the support function in this institution do not believe in short training sessions. Where others prefer to take two to three hours, they prefer a year long programme. Their vision is to provide continuous support beyond the one year programme. They are convinced that creating communities of practice is actually 'open-ended, not time bound' as Lewis and Allan (2005) would argue. Because of their constructivist approach they expect their participants to take time constructing their knowledge of in terms of the how and why before they fully implement e-learning.

Though this is a feature that is responsible for success within institution X, Alessi and Trollip (2001) see this feature as a pitfall of constructivism. They argue that learning constructively is time consuming and slow. For this institution, it is this slow process that ensures that the product at the end is what it should be. The

product here is student learning. The following figure shows another set of expectations in relation to the responsibilities of the lecturers who are being prepared to implement e-learning in their courses. A persistent message from the institution (institution X) is that this venture is not about the wild use of tools; improved teaching and learning is the focus.

Lecturers are expected to be responsible for the learning of their students and to be their own instructional designers in the process; hence the do-it-yourself approach. The conviction is that at the end of the day it is the lecturer who should speak in the course, not the person in the support role. In doing their own course development, the lecturer's voice will be heard; it will not be overshadowed by the separate instructional designer. This approach recalls arguments made in chapter two, about the role of instructional designers in teaching and learning. It was argued that if they are seen as separate from those who have to teach, the design of the courses suffer in a number of ways. In an environment where instructional designers do the development of the courses the responsibility of ensuring that meaningful teaching and learning takes place is removed, it is placed further away from those who should directly bear it.
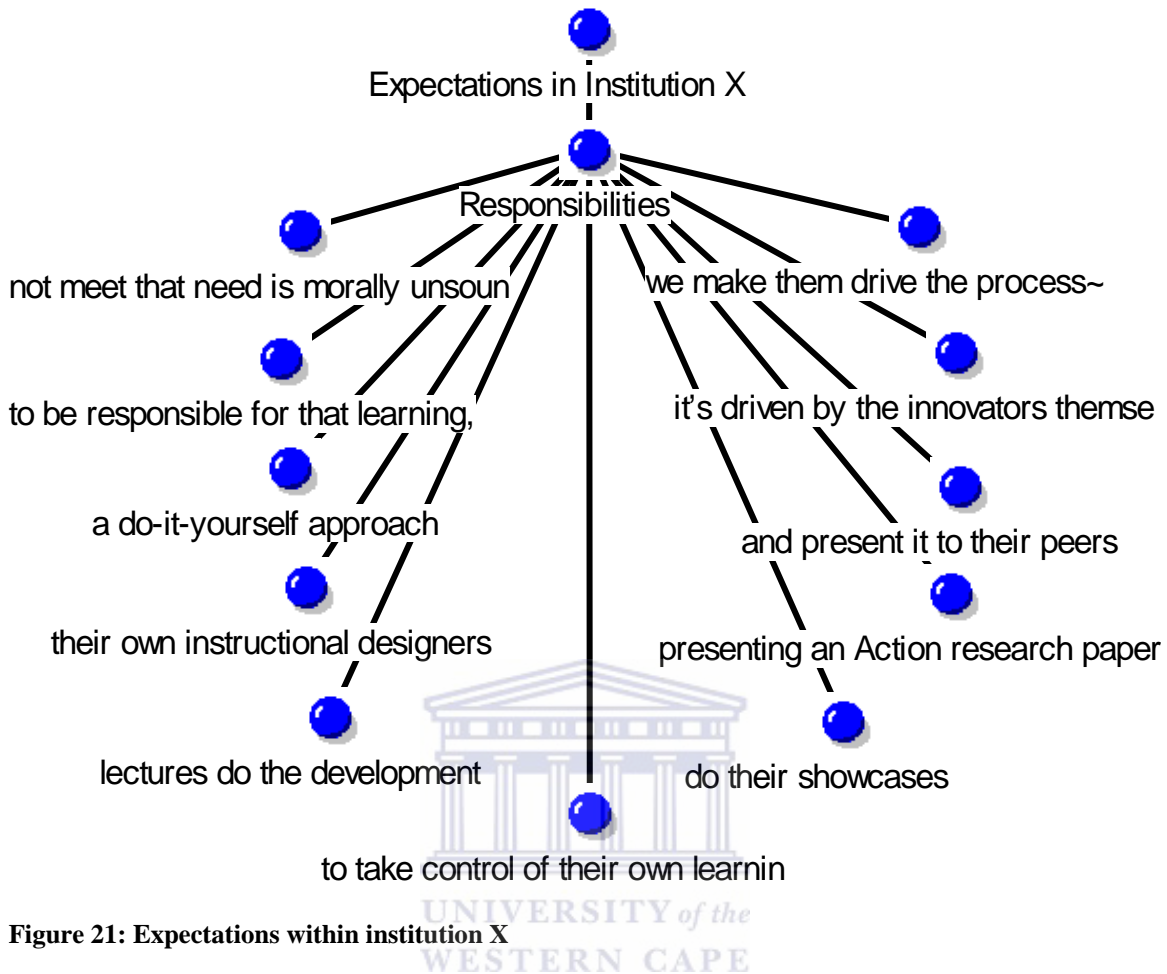
Figure 21: Expectations within institution X

As part of their responsibilities, lecturers in this institution are expected to work through an action research paper and present it to their peers at the end of the year long programme. This expectation of show casing their work puts a number of responsibilities on the participants. It is also the reason why their programme is long. Beyond the expectation to develop creative and innovative ideas for their courses, they work hard to think through and test the ideas in order to get them polished. Peer evaluation is added as another pressure factor to ensure that the ideas are developed to maturity. The lecturers' teaching is now made transparent and open to peer criticism. This is what allows for those judgmental discourses, discussed in the previous sections, to differentiate between the correct and incorrect use of the medium, good and bad teaching, for instance.

Another set of expectations relates more closely to course design. The following figure shows what constitutes this set.
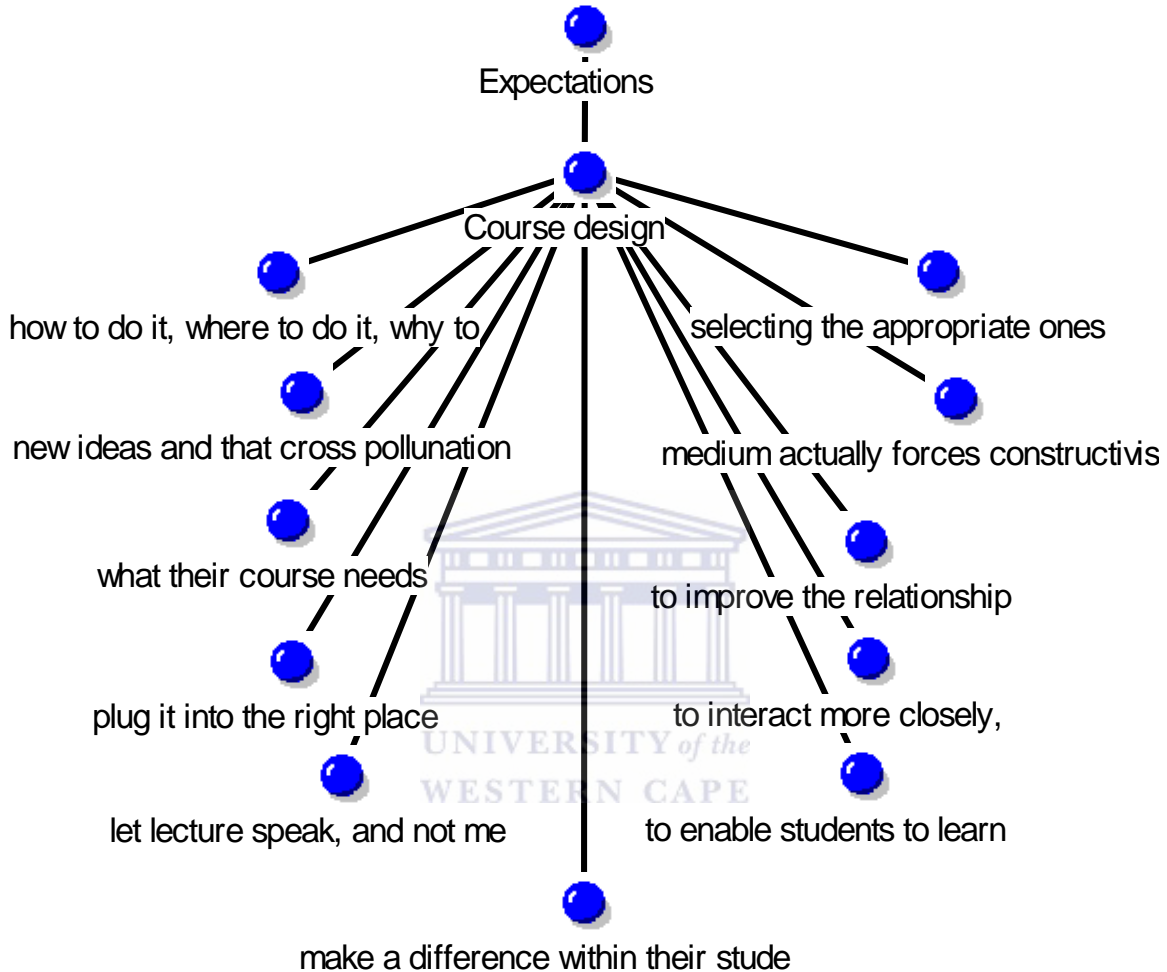
Figure 22: Course Design Expectations

Although the lecturers are expected to get ideas from 'other innovators' to inspire their own creativity and to foster cross-pollution between the different subjects and disciplines, they are also expected to know what their specific subjects need and 'plug into the right place'. This is how the person in the support role puts it in this context:

*So I can go on like this and like I said that is why if you let the lecturer look very closely at the potential of WebCT, side by side with **what their course needs** and plug it in to the right place. That's what Zuber-Skerrit means by deep meaning orientation (emphasis inserted)*

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This is a case for 'texture' in course design and will later be discussed at length, that lecturers consider what their courses need and then plug in to the 'right place'. They are not just supposed to know the 'what' of their teaching (content) or 'how' to use of the system, but also what the course needs. They are to select appropriate tools out of the variety to which they are being exposed as their courses demand. In this environment, they are not expected to use the tools in the system as they please. The expectation is that they will make appropriate choices. Although at the end it has to be their own personal voice that comes through, it is expected from each of them to be constructivist. There is a conviction that 'the medium forces constructivism' on them. This is where those in institution Y would argue that they do not want to be prescriptive.

One more pressing expectation in Institution X is that they have to make a difference in terms of the learning of their students. This has to be linked with a claim made earlier that a success indicator in this environment is when students see e-learning as value adding to their learning. Those in the support function here, feel that they must protect the system from a bad name and that is the reason why their participating lecturers are expected to design courses for meaningful learning, in such a way that students will see the benefit. The system, or rather the medium as commonly referred to in this institution, has to improve the relationship lecturers are expected to have with their students. It has to be used to increase the lecturer-student interaction. The argument here is that in the large face to face classrooms lecturers often fail to develop a sound relationship with their students and the interaction that should foster learning becomes minimal. Now that they have this medium at their disposal, they are expected to overcome these shortcomings. A more pressing expectation that goes beyond the lecturers is that in teaching the students the institution must be seen to be just and morally sound in giving students value for their money. When put in these large classrooms with only face to face instruction, there is no way in which students can receive what is due to them in an appropriate way. The medium is

there to help the institution to do justice to poor students for instance; those who cannot afford anything but pop corn to eat during their schooling time.

6.4. From 'collective cases' to 'instrumental case'

Institution X is singled out and a concentrated inquiry into their staff development model is made. This specific case is instrumental for a number of reasons. It demonstrates well how a staff development focus serves as a platform to raise pedagogical considerations to a high position on the agenda when courses are to be developed. A full year programme is dedicated to this cause. Focus in this institution is not on the technical part; that receives attention within a broader environment where many other issues are attended to. For this institution important issues include building a community of practice, feeding staff with a wide spectrum of teaching and learning theories, and engaging in debates on teaching and learning matters. The technology is learned in the process of defining what good teaching is. The necessary literacies for both staff and students are developed at the same time as creative ways to teach and learn are being implemented. Research, action research to be exact, is encouraged as part of the process to foster innovative teaching with a 'deep orientation meaning' as one role player puts it. A distinct characteristic is that in this case all other activities like technical skills and research are seen as the means and not the end, the means to work towards good teaching and learning.

6.4.1. The support activities

A look at the support activities reveals a corresponding set of expectations that drove implementation in this institution. Unlike some other institutions where the university is not concerned whether staff teach creatively or not, in this university, those in the support function do pitch their expectations at a high level, and as argued in the previous sections, the environment is full of talk on innovation and creativity. The new participants in a year long programme are provided with

opportunities to be inspired by those who have gone through already at a special occasion organised in the form of a graduation ceremony. The occasion is preceded by an internal conference where the outgoing participants share their action research papers. It is at these occasions that the new participants receive their innovative ideas and start planning their e-learning projects. Through NVIVO, it was possible to map out the kinds of support activities that exist within this case. The following figure gives a visual presentation of the range of categories into which activities that form part of the professionalisation of staff were classified. The information that was gathered from the data on case support activities was then classified into research, conceptual, moral as well as community of practice types of support.
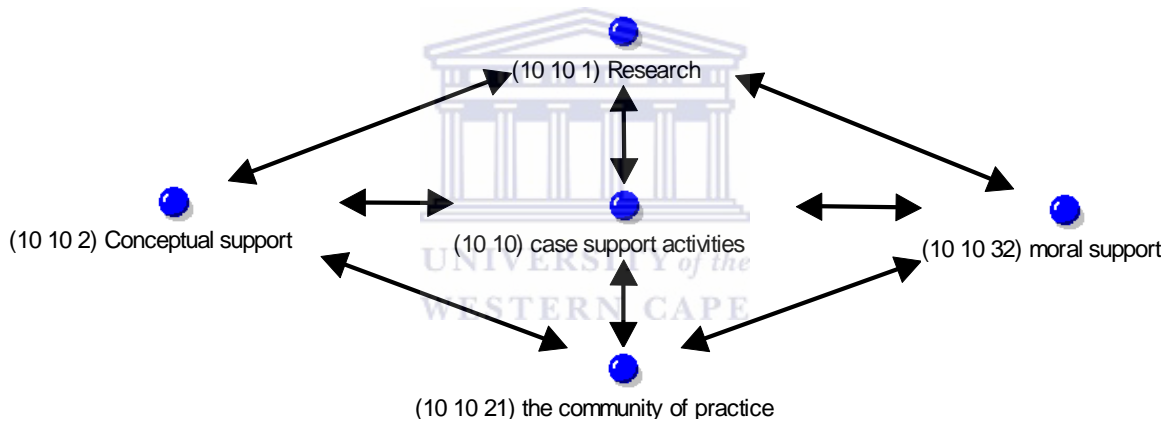
Figure 23: Support activities

The figures that follow give the details of the activities below each category. For the conceptual type of support the activities included stimulating the lecturers to be creative, encouraging mentorships, providing educational as well as design support.
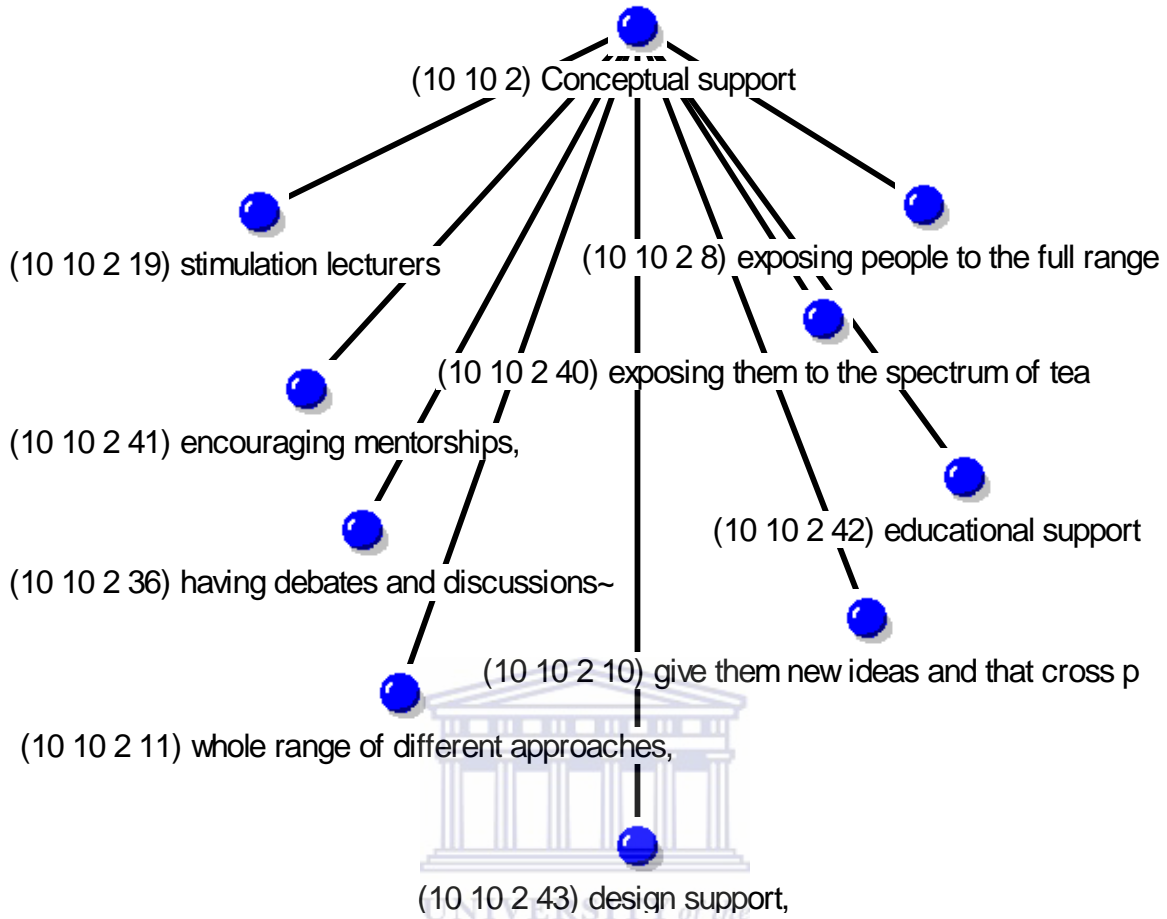
Figure 24: Conceptual support

The boundaries between these categorizations are to be seen as artificial. The others like moral support and community of practice support can be seen as conceptual. A few of the activities in community of practice are portrayed in the following:
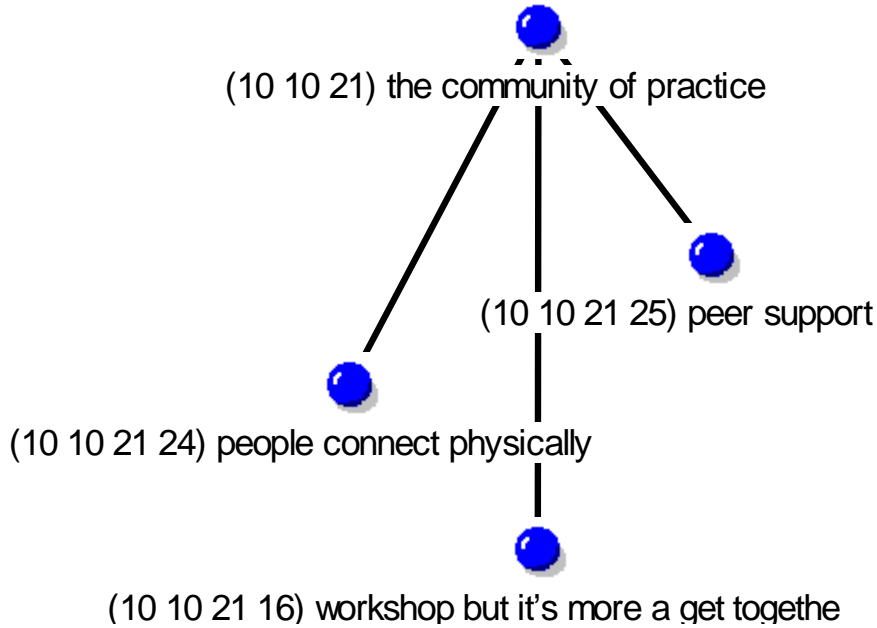
Figure 25: Community of practice type of support

(Lewis and Allan 2005) compare the descriptions given to the concepts of learning communities and communities of practice. Their discussion reveals that communities of practice in particular are characterised by shared membership and leadership, development of professional practice through apprenticeship as well as the importance of dialogue, interaction and shared narratives, amongst others. These features are evident within the professional model in this case. The moral support category shows more of these characteristics:
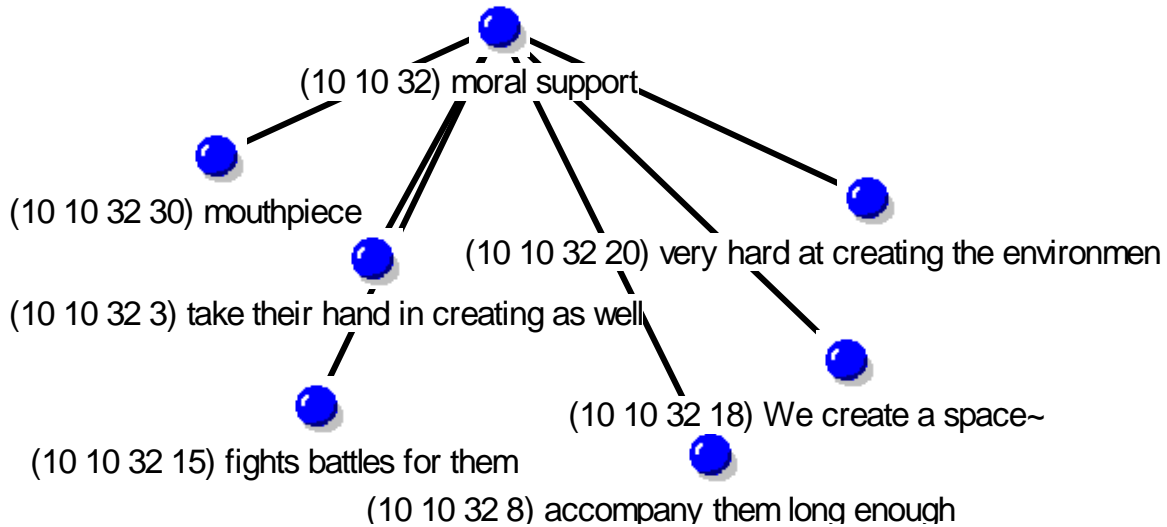
Figure 26: The moral support characteristic

In keeping with the notion of community of practice, those in the support role continue providing the participants who have completed the year long programme with continuous support and membership. It is not enough for them just to accompany them during the course of the year. They want to sustain the identity and sense of belonging beyond the space of one year. The moral support they provide is also a way of protecting the implementation from a bad name as already pointed out. Those in support work hard to prevent any increase in the drop out rate (dropping out of year long programme). They work hard at creating an environment where lecturers feel safe to learn, debate, create and share ideas, a 'safe space' they called it.

A special feature is how peer support and interaction allows for 'cross pollution' and 'cross fertilization' in the design of courses for online delivery. It is worth noting that the participants are drawn from different faculties and subject disciplines. The discussions and debates create room for these participants to share models, conceptual frameworks and many other (conceptual) tools that can be used by those outside the discipline. For those times that they spend around the table, as well as during their showcasing events, they allow peers to challenge and inspire one another. They are not only encouraged to attend

conferences in order to share their ideas with peers; they are offered support that enables them to do so. The following shows the range of activities that provide research support:
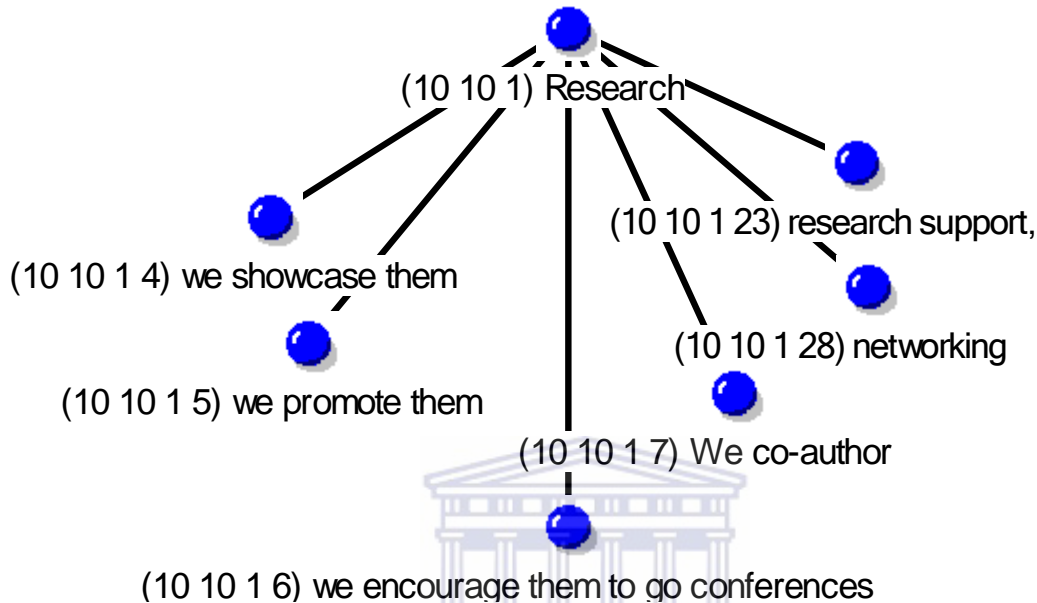
Figure 27: Research related type of support

6.4.2. More special features in the case

The year long programme was in its fifth year of running at the time of data collection in this study. Spelling out the origins of the project, Pete & Fregon (2004) indicate that it was 'during a period of deconstruction and construction of the South African education system, and our own local work environment' that demanded a response such as this to deal with a number of challenges. The biggest challenge was "what strategy would help sustain online learning during challenging and changing circumstances, in an under-resourced institution" Pete & Fregon (2004). The 'Pioneers Online' project drew some of its staff from the two (merged) technikons, a feature that can be seen as one of the benefits of the merger not only in terms of expertise, but also in terms of institutional cultural cross-fertilization. What became prominent was its strategic location within the

Centre for Higher Education Development (CHED), which provided it with a unique nurturing environment.

The aim of the Centre was to assist academics in the development of teaching and learning strategies. In this way the programme enjoyed the influence of the centre. Within this context, the aim of the project was clearly articulated, it was to support 'lecturers in the development of online learning spaces and online materials'. This had a special significance in this Centre's role. In the case of several other IT projects located outside a teaching and learning support unit, the swing tends to change position from the pedagogy to the technology side in the 'pedagogy-technology' pendulum. In the institution in question the emphasis seems to fall more on the pedagogy side. The programme justifies itself through the provision of resources of an intellectual and conceptual nature in contrast to those universities that only provide those resources that are merely technical. It provides support to staff in developing strategies for their classroom practice.

Given the 'under-resourced' environment within which the project is placed, it becomes interesting that the focus (and hence outputs) is not on physical resources. In this regard, it differs however from the other models in that it puts emphasis on professional development rather than scholarly or research outputs. The project is sustained and manages to exist into its fifth year, growing in popularity and status, attracting participants with varied experience and expertise - from those just entering the profession to professors in the different fields of study that the institution offers. In contrast to another institution, the relationship with a similar centre was not appreciated. Those in the support function preferred to keep away and the attitude was that people in the centre were prescriptive in terms of the 'how' of teaching. This was seen as an element that might stifle e-learning implementation.

Another characteristic of the programme is the level of interdisciplinary influences lecturers have on one another, which brings together methodological and

pedagogical strengths of a multiplicity of disciplines into focal areas of ICT-mediated academic practice and learning. 'Interdisciplinary' in this regard does not only refer to the variety of disciplines from which the participants are drawn, but also in terms of the varied experiences and expertise that participants bring to the project - experience and expertise in teaching and in the use of the technologies. Lecturers are able to spot opportunities for authentic interdisciplinary projects for their students. An example in this regard is an instance where the journalism lecturer is able to propose a project for both journalism and the department of Statistics. The journalism group was to conduct a campus wide opinion survey on a variety of issues and publish it in their newspaper, to 'help the community know themselves better'. The group from Statistics would then work on the statistical analysis. This 'cross-fertilization' between different subjects and fields represents one of the most important aspects of the project. In their presentations it became clear that their year long involvement provided a forum to share (pedagogical) ideas as well as relevant tools, including the evaluation software to be used in the campus wide survey. The ideal of 'not reinventing the wheel' becomes a reality. The benefits stretch far beyond 'how to deal with institutional obstacles' and the lack of proper infrastructure. There is 'cross pollination' and 'cross fertilization' across the different subject fields represented by the participants. The 'cross fertilization' as well as the 'cross pollination' are by-products of this environment which is dependent on peer interaction. Those who provide support do not regard themselves as experts though they take full responsibility for leadership and as such the peers are given space to nurture and support the development of courses beyond their own subject expertise.

A unique and yet recurring concern is how the development of web-based/online learning is dealt with in the different subject areas. Participants indicated how they spent time and effort experimenting with tools that could help them address specific issues in their subject areas, they 'wrestle with the tools'. As one lecturer put it, "The quiz tool is a wonderful tool, a wonderful tool, but I could not use it in

my subject". The argument here was that it was not suitable to the 'texture' of the subject and its specific 'assessment methods'. The concept of 'subject texture' is part of the discourse underpinning the discussions around endeavours to develop web-based learning. Within this institutional environment, lecturers are encouraged not just to use technology for the sake of it or because it is available, but to search for relevant and appropriate technologies without compromising the special features of their subject field. Evaluation of technology is regarded as an integral component of technological use. Under the present technological circumstances, where marketing pressures very often supersede adequacy concerns, this is certainly a significant highlight of the project.

In its structure and what it has achieved so far, the programme and as such the case provides a useful model for the integration of learning technologies, where the focus is on pedagogy rather than the technology itself. As demonstrated, the nurturing environment of the centre within which the unit is located and the interdisciplinary approach of the project are some of the defining features of the implementation model. It provides an environment where lecturers can develop or access electronic tools suitable for the 'texture' of their subject fields, and which allows for deeper engagement with issues around technology, teaching and learning. It represents a significant departure from the use of technology for its own sake. The project cultivates the skills and knowledge for making informed decisions on the choice of appropriate technological tools. On the whole, by emphasizing an understanding of issues involved in teaching and learning, the professional development of lecturers as teaching and learning facilitators is taken to another level. The implementation of e-learning has been used to support teachers in innovative teaching. The professional development here (in institution X) is not limited to a 'help desk' approach, a pattern that emerged within the other cases. Chapter Seven will focus on a case based on an individual course designed within this nurturing environment.

6.5. Conclusion: The technology-pedagogy tension

The attitudes, discourses and assumptions discussed in the previous chapter together create an institutional climate within which courses offered through e-learning technologies are designed. A specific institution was singled out as a case study and these factors received further treatment to reveal how, as constitutive factors, they positioned the role players to influence specific course designs.

From the web site data and from the interviews in particular, it became clear that those in the support function had specific expectations from those who were to design and offer courses in e-learning, and the expectations differed across institutions. From the previous chapter for example, it was discussed how in one institution the lecturers were expected to 'go wild'. Within this environment they were offered short training sessions to help them know how to use the system. The expectation from those in the support function was for lecturers to use the tools that the system provided, and to use them as 'they please'. In the institution discussed in the case study, the lecturers were accompanied by the support staff until they were competent and confident to implement those innovative ideas they had taken time to create and work on.

The discourses as revealed in the expectations, assumptions and attitudes of role players were like 'climatic' conditions under which courses were designed and delivered and implementation in these institutions was shaped accordingly. Where there were positive attitudes towards encouraging lecturers to engage learning theories a strong conceptual infrastructure was built and it became evident in the courses designed. Where negative attitudes towards learning theories existed, for example in institution Y where 'tool talk' was strong; the conceptual infrastructure was almost non-existent. The over-riding assumption was that lecturers will know the theories by their mere involvement in teaching. There is a belief in this institution that spending time on learning theories is like dictating to lecturers how they have to teach. It is in this type of an environment

where there is more attention paid to technology, the concentration is on building a strong technological infrastructure and the conceptual infrastructure becomes weaker (and almost non-existent). The following figure shows the emerged characteristics and patterns, and the manifestation of technology-pedagogy tension:

Technology-Pedagogy tension

Authority/power **Management-led** Stand-alone units	Knowledge: pedagogy + technology **Practitioner-led** Incorporated units
Technological infrastructure matters **Technology- inclined** 'Wild use' of tools	Conceptual infrastructure is secured **Pedagogy- inclined** 'Protected use' of tools

Figure 28: Technology-pedagogy tension characterised (Source: Author)

It has been argued that the patterns, discourses, models and course features identified in this study are 'representations' used to arrive at meanings to understand what constitutes the introduction of e-learning in course design and delivery. The concept of technicism was juxtaposed with criticalness to emphasise the different focal points from which the use of e-learning is being approached. This analytic view led to the second juxtapositioning of technology and pedagogy, what was named the technology-pedagogy tension in this study.

The construct of technology-pedagogy tension is a useful lens through which the patterns, discourses, models and course features can be critically looked at. The following figure portrays how the tension plays out in all of the four key findings.

The 'Representations' and the Technology-Pedagogy Tension
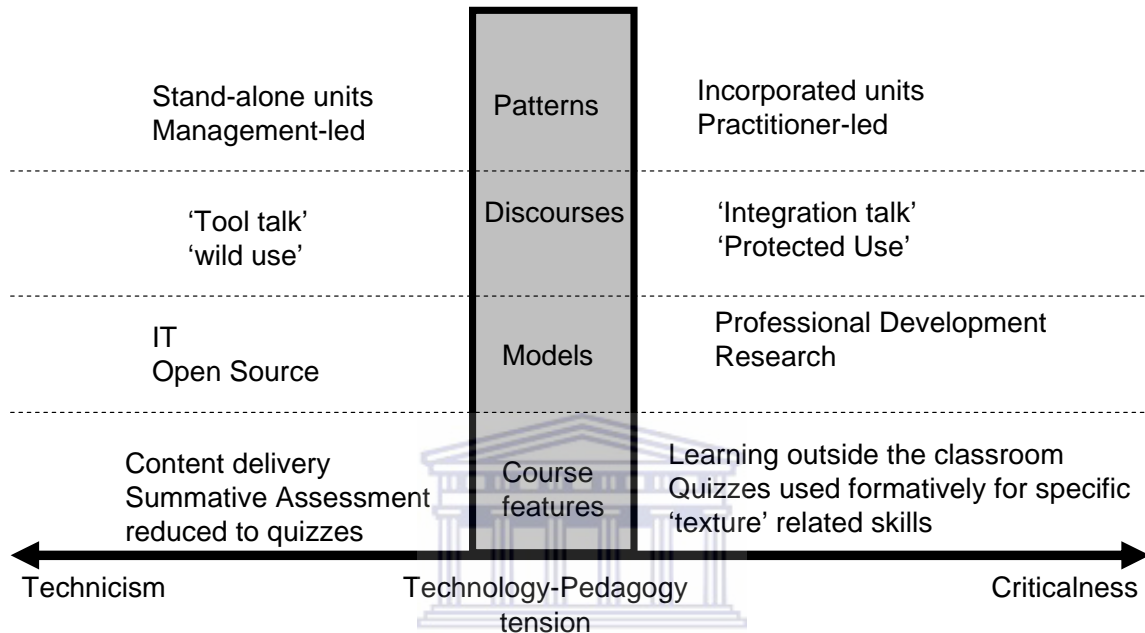
Figure 29: 'Representations' and the Technology-Pedagogy Tension

The postulation made here is that both technicism and criticalness have the potential to swing the tension in either direction. Where the move is towards technicism there is a further complication in terms of the power relations. Human agency is traded for technology agency. This argument was presented in Chapter 2 and the 'learning object' movement was used as a case in point. In institutions where the 'tool talk' was prominent; where the unit was a stand alone and did not have influences to infuse arguments of pedagogy into the implementation of e-learning technicism was evident.

In the contrasting contexts where arguments on pedagogy surfaced and those were used to question how the 'tools' are to be used, criticalness was evident. Bringing this postulation to the level of course design it was observed that the course design context influenced the features built into courses and this influence can be linked to either technicism or criticalness.

Chapter 7: Course Cases

7.1. Introduction

An assumption that existed in this exploration was that lecturers have a design role in the implementation of courses, hence the search for pedagogical design considerations. The design role implied here is not that of an instructional designer who works alongside a lecturer, but rather the lecturer who has the responsibility to design the learning environment within which they have to interact with their students. There were 17 courses that were described in the interview data coming out of the six institutions involved in the research project. A matrix (Appendix 2) was drawn to map out the different features that emerged in the designs of the courses, drawing features out of 12 of the 17 courses. The descriptions of the other five were too limited. As course features were being explored, pedagogical considerations emerged out of the descriptions that lecturers and those in support units provided during the interviews. The course case study treated as instrumental in this class is associated with the professional development case discussed in the previous chapter. The case was tested against descriptions of other courses implied in the data. By focusing on what features courses acquired when designed to be delivered using e-learning in these specific contexts it was possible to arrive at a number of conclusions. There was a close relationship between the institutional context within which these courses existed and their designs.

The Learning Design Movement discussed in the literature review provides a number of pointers in terms of understanding the design role of the lecturer. The developments in the movement further indicate how complicated it can be to attempt to make representations of the designs associated with the delivery of courses. The search for standard ways of representing learning designs and patterns continues. At the time of collecting data in this project, the focus was not on any standard form in any way; as such the descriptions were not confined to

any pattern. The challenge was to extract material out of these descriptions and then map out those features associated with the courses under description.

7.2. Course Design Features

Appendix 2 is not a presentation of the summary of the features only; it shows how the features that were gleaned from the data were interpreted in the light of the conceptual framework discussed in Chapter 2. In making sense of what the respondents were saying in relation to these courses, questions that guided the interpretation included the following: how is learning conceptualised in the course, what is to be learned, that is, beyond the content: the verbalised knowledge associated with facts, concepts, procedures and principles in a subject matter (FCPP).

Appendix 2 reveals a kind of continuum within which design considerations in the cases at hand can be mapped. On the one extreme (in institution Y), the use of the available technology in the course was for communication with individual students and providing access to course content and assessment. It has to be noted that assessment here was mainly in the form of multiple choice questions and quizzes. It is in this environment where the discourse was on the use of tools. As the lecturer proclaimed, 'I try to use all the tools'. The design involves a technical struggle to ensure that all the tools in the system find a place in the course. When asked what will be targeted for improvement in the next round of running the course, the lecturer indicated the need for more technical skills to be able to include more graphics and animations. It was remarkable that the lecturer also complained about negativity towards the 'WebCT course', that is, the course that he offered on WebCT. The following figure represents the continuum under discussion in relation to the developed conceptual framework:

Food BioChem	Electric Eng	Stats (1)	Nursing	Architec	Stats (2)	Course	Econ	HCI	Digital Media	Film Studies	Comm	Jour-nalism
Y	Y	W	Z	Z	Z	Institutions	V	U	U	V	X	X

FCPP   FCPP+   FCPP++   FCPP+++

⟵——————————————————————————————————⟶

LD1
Content

LD2
Content
Activities
Collaboration

LD3
Context
Inquiry
Action
End Product
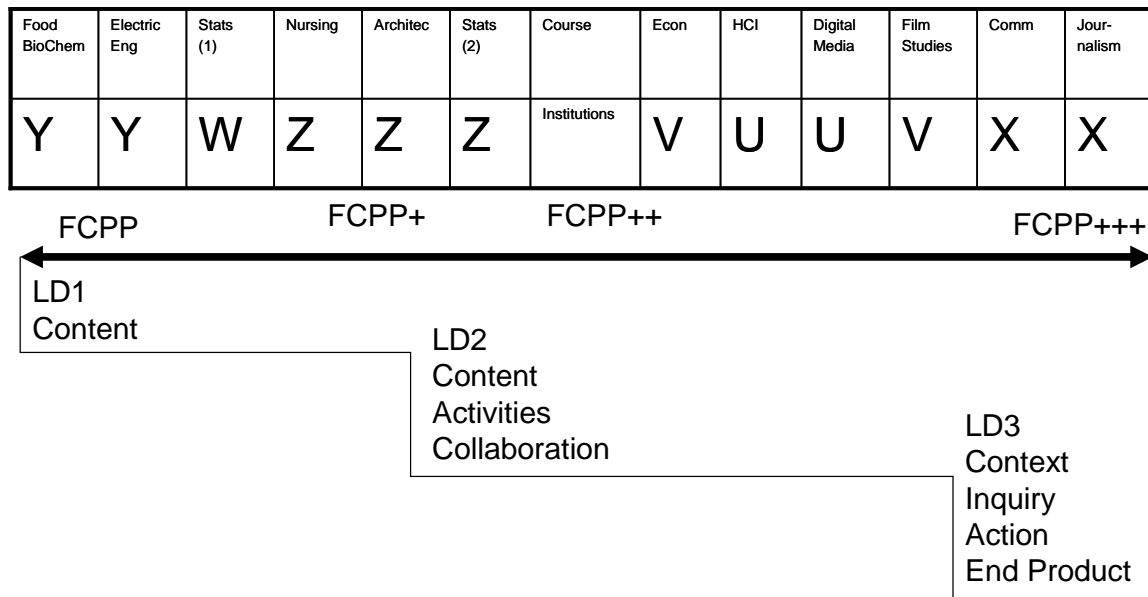
Figure 30: Course Features continuum & conceptual framework

In another course on the same side of the continuum (in institution W), the system or the technology assumes a policing role. The lecturer believes students are by nature not motivated and as such there is a need to use a 'stick' to get them to carry out their responsibilities. This is in stark contract to the courses on the other side of the continuum (e.g. in institution X) where student motivation is very high. The technological environment within which the courses are delivered is seen as attractive to students (like a magnet) and that keeps them active and engaged in their learning. On the opposite side of the continuum (W and Y) students have to pressurised in order to learn.

7.2.1. Conceptual Infrastructure

It became evident that in some institutions building the technological infrastructure was the main focal area. For those where implementation was a management-led project it became easier to acquire the necessary technology, it was not difficult to get the necessary budget allocations for license upgrades (for example). Technology dominated the scene and attention was paid to the technical side of e-learning rather than to pedagogy. The 'learning' was ignored and the 'e' part received much attention. Consequently, there was a distinction in

terms of those who concentrated on building the physical (technological) infrastructure to ensure availability of the necessary technology within the institution and those who made sure they armed staff with conceptual tools that would enable them to engage with the technology and use it to enhance teaching and learning. For those who were in a practitioner-led environment the battle was more conceptual than technical. It was about building the necessary understanding of what learning is, and how to improve it. The focus was to dedicate institutional effort of implementing e-learning towards ensuring that this understanding exists and hence the need to spend a long time on developing the necessary staff competencies.

It was the attitudes, assumptions and expectations of role players (as discussed in the previous chapters) that revealed a specific institutional environment within which the implementation of e-learning took place and the context within which courses were designed. The 'climatic' conditions created by these different factors contributed towards a conceptual infrastructure for the specific institution. Where there was engagement with learning theories the conceptual infrastructure built was stronger and contributed to better design. Where there is more attention paid to technology, the concentration was on building a strong technological infrastructure and the conceptual infrastructure was weak. Understanding the construct of conceptual infrastructure and ensuring that the right climatic conditions are built and supported can improve the use of e-learning to promote student learning. This is what Alexander (2008) argues for, that in order to improve teaching and learning attention has to be paid to the ideas or conceptions that teachers (and lecturers) have as those inform their acts (or practice).

For those whose courses can be described in terms of LD1, it was difficult to articulate the kind of 'ideas' that guided their 'acts' in the teaching and learning environment. It is in institution Y where OBE (outcomes based education) was mentioned when lecturers were asked about teaching and learning theories

associated with their course delivery. It became clear that they do not differentiate between such a broad framework to guide curriculum development and the approaches and techniques one needs in a classroom environment. A support staff member in this institution referred to blended learning as a teaching method. On the overall the institutional context revealed an amount of sterility as far as teaching and learning theories and methods are concerned.

Another characteristic of the design in institution Y was that the teaching and learning interaction concentrated on and was limited to content dissemination; there was no mention of collaborative learning or the incorporation of other necessary skills. These are characteristics of an environment dominated by LD1. In this context the act of lecturing (or teaching) is equated to oral presentation skills, with an associated assumption that subject content knowledge is what matters the most. There is no need to talk about appropriate teaching methods. Technology is used to upload and download text with content and the typed assignments students have to submit. This differed greatly with what happened on the other side of the continuum where respondents argued for or against constructivism, or identified with one form or the other of its variants when they described the teaching methods they used.

It has to be noted that criterion 5 of the CHE (2004) for programme accreditation is specific to teaching methods and holds institutions responsible for training of staff in this regard. For institution X, the implementation of e-learning offered an opportunity to carry out this responsibility. The criterion reads as follows:

> *The institution gives recognition to the importance of promoting student learning. The teaching and learning strategy is appropriate for the institutional type (as reflected in its mission), mode(s) of delivery and student composition, contains mechanisms to ensure the appropriateness of teaching and learning methods, and makes provision for staff to upgrade their teaching methods. The strategy sets targets, plans for implementation, and mechanisms to monitor progress, evaluate impact and effect improvement. (CHE, 2004, p11))*

7.2.2. Teaching activities and use of technology

Whereas courses in institution Y had a number of characteristics associated with LD1 (where teaching is about content dissemination only) in institution Z characteristics associated with LD2 began to emerge. A prominent characteristic here is the design of collaborative activities for students. A feature that was more specific to this context was that collaboration was across diverse geographical locations; in one of the courses (Architecture) it was international. It is in this environment where e-learning was strongly conceived as 'telematic'. There was not much on teaching and learning theories and methods, what was being celebrated in the design of the courses was the collaboration across distance as well as the more technical aspects- the simulation software, video conferencing and the multiple choice testing facilities. The technical capabilities of the technologies involved were what the respondents showcased as the strengths of the courses designed.

In institution V, U and X characteristics associated with LD3 emerged. For example, in a Film Studies course the technology system was used for peer review, to orient students towards reviewing of films, building in the students the ability to give and receive feedback. In the Economics course, students worked in groups to gather information from websites of different countries in exploration of economic policies. The activity was planned in such a way that students had to take into consideration many other issues like cultural values, encouraging students to make other connections beyond the content. In assuming the role of economic experts from those countries, students were afforded the opportunity to be more reflective and evaluative of the principles to be learned. Learning was made contextual. It is in this environment where a number of respondents aimed at making their courses 'personal' and 'real'

This characteristic of creating a context within which an aspect of the curriculum had to be learned was closely related to having an envisaged end product that students had to produce at the end of the learning activity. The design took a
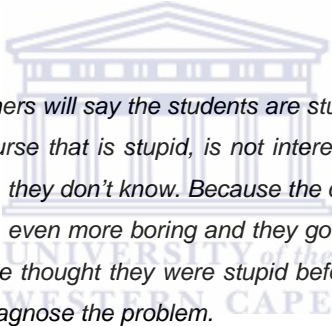
form of the P/?(B)L type of designs. It became possible for lecturers to think about other skills needed for the end product to meet specific assessment criteria, a learning design environment defined by FCPP+++ in the conceptual framework. As one respondent puts it, designing for teaching in this environment is like 'killing 12 birds with one stone'. Learning is not only about acquiring knowledge; it is also about developing necessary skills, values and attitudes. In the Communication course for example, students learned basic end user computing skills in the process of learning language, writing and oral presentation skills. Students worked in collaborative teams in order to produce a basic web page. These are students who never had access to computers before. Other respondents who shared the LD3 type of conceptions for learning argued that students do not necessarily have to be taught computer skills in isolation. Their argument was that if the application of these skills is required within a subject area, development is accelerated; significantly lessoning the time it takes to learn those skills. Incorporating e-learning in the design of their courses was a way of enhancing the digital illiteracies of their students.

7.2.3. Students Motivation

The differences in the courses as mapped on the continuum demonstrated another strong feature of the LD3 type of designs. Student motivation is easier to manage than in LD1. In courses associated with LD1 and the first part of LD2 (FCPP+) lecturers pointed out there was 'negativity' towards the course and a need to use the system to 'police' in order to force students to take their responsibility. In a Nursing course the technology was used to 'shock' students using the 'cruel mode' of the simulation software in order to make students more receptive to the learning. This is how a respondent put it:

> …what we've done with nurses we put them in the cruel mode first just to make them come down to earth…. Just to bring them down to earth and we say yes, actually there is something that we can teach you and that you still don't know everything and all that.

Courses where LD3 (and hence FCPP+++) was evident reported a high level of student motivation. One respondent said that 'students and computers are like magnets' and the other said that 'students don't like reading but they like computers'. The implication was that making computers part of the design solved the lack of motivation problem that many other lecturers have. Others argued that the lecturer can keep 'a very, very strong presence' in the online environment and this keeps students engaged. For one, the use of quizzes was a way to keep students hooked on to the course. The commitment to keep the subject 'real, personal, meaningful' resulted in keeping students involved in the course. Four of respondents argued that contextualising the content and relating it to students' personal lives ensured interest. One respondent laid the blame on lecturers as she argued that it is their responsibility to make courses interesting for students. She said,

> *You see a lot of language teachers will say the students are stupid, they don't learn. It's quite often the case that it is the course that is stupid, is not interesting. So what they do is they look at the students and say ok, they don't know. Because the course is … basically then they make the course easier, that is, even more boring and they go back and say, they can't even do this- how stupid they are, we thought they were stupid before but now we know they are absolutely useless. They misdiagnose the problem.*

7.3. The Instrumental Course Case

Within the environment mapped out in the previous sections, a lecturer for the Journalism course made a claim, that her 'pedagogy is nothing of that sort of a transmission mode', signalling that she does not operate in the LD1 context. This is the course placed on the extreme LD3 side of the continuum. The following discussion focuses on the course as way to reveal why it emerged as an instrumental case in this study.

It has to be recalled why movements like *Pedagogical Patterns* have been established. One of its aims is to provide a method for capturing and

communicating 'pedagogical knowledge' (Bergin, Eckstein, Manns and Sharp, 2001). Another of the aims is to provide an explanation why some designs are considered 'unique, insightful, aesthetical and really useful'; what is named 'QWAN' (Quality without a Name) (de Moura Filho and Derycke, 2006). Many other authors in the learning design movement argue that because of the absence of standard forms of representing pedagogical design, teaching expertise is not easy to transfer. This case is instrumental in the sense that it can be used to communicate pedagogical knowledge as it carries a number of those features implied within the concept of 'QWAN'.

One more useful contribution from *the Pedagogical Patterns* movement is on 'workarounds to constraints of learners, instructors or even learning environments' experience. The interview data in this study captured a number of constraints as expressed by lecturers and those in the support unit. Part of the investigation was to explore how others in a different environment dealt with the specific constraints, how they designed 'workarounds'. This instrumental case provides a good example as far as a 'workaround' for student motivation is concerned. The essence of these 'workarounds' is a repository of best practices.

In talking about the things that she does with her students during the interview, the Journalism lecturer highlighted the variety of features that characterise her course design. The following list is an attempt to represent what emerged as specific features in her course design:

- Learning outside the classroom
- Peer assessment
- Texture
- Keep it personal
- Collaborative learning
- Exciting technology
- Make it real
- Reflection
- Student's motivation

The following discussion will focus on the features.

7.3.1. Learning outside the classroom

In the interview, it was difficult for her to answer the question on how many courses she offered. These were her words,

> *And I also offer courses. I'm offering, I even offer a course that is not a course. Is that making*
> *sense? I have a classroom which is for learning outside the classroom. I've got an online*
> *classroom for learning that happens outside the classroom. It is not a formal requirement but*
> *it is active, very, very active. So when you say how many courses do you have, it is a very*
> *difficult question to answer.*

She indicated that she had designed her journalism course in such a way that there was learning that took place outside the classroom. By this, she referred to a web site that she had created with her students to run an online newspaper. This was on the internet and as such accessible to the public. Her students were awarded marks for getting published on the online newspaper and the articles were rated. It kept her students engaged in their learning. She was able to extend the process of learning beyond the confines of the time tabled lecture periods. Writing articles for this newspaper and getting them published on a system that gave immediate feedback on how many viewers/readers were attracted kept the students highly involved.

She described the 'learning outside the classroom' as 'very very active' and the level of student engagement in running this online newspaper gave meaning to what 'active learning' is. In her case, calculating the (SAQA 2000) credit value of the course becomes easier since the notional hours spent on the course outside the classroom are made visible. For her it was not a question of whether students spend time on the course beyond the scheduled contact time. Maintaining the production of the newspaper provided enough evidence in this regard.

7.3.2. Make it real

This learning outside the classroom helped her to make learning real, a feature that she holds in high esteem. She argued that making learning real is what

brings success and motivation to learning. Students are involved in their learning in ways that are different from when they have to sit in a lecture and listen to an explanation on 'how to' of an aspect of their course. This is how she put it,

> *I think to me the biggest break through is how I started publishing a website…, because suddenly I was able to make that real. Students were learning lessons that weren't my lessons, they were their lessons.*

She believes that her classroom is a safe place in which to make real mistakes, in preparation for the real world of work. She argues,

> *I could facilitate that, but the moment we had a real world, real learning situation, a real, in fact they made real mistakes. Last week we had to publish a correction. And you know what shame that is, for a publication to, just for small correction. But they, students, they had to write this to editors and apologize because they made a mistake. And now, and now my philosophy is always let them make a mistake here. We try and be as professional as we can, but they can learn here; they can make mistakes. When they walk out they are going to be more professional as they start out in their careers. They are not going to have to remake those mistakes.*

She sees the creation of this classroom outside her official classroom as what has made her teaching extraordinary.

> *So for me, definitely, think my teaching got kicked off when started we publishing this website.*

Part of making it real is to allow the students to experience the stress of being a journalist, having to deliver within pressing time frames, for example. Through a discussion board, she teases reflections out of them and provides a platform for the students to engage in stress management through 'venting'. The following quote illustrates this strategy,

> *Let me show you this, eh, eh mm, I've also got one 'how are you doing', I mean this is just venting, I mean they're often just negative 'cause they are so stressed. And I tried to respond to them as well just to make them feel better, because I mean, I also like them feeling stressed, because it's real, you know, they, eh mm.*

7.3.3. Peer Assessment

She employs peer assessment extensively in her design. It was clear to her that in the beginning students were resistant to this mode of assessment and she had to work hard on infusing the culture as a necessity, not just for the classroom, but also for journalism as a career. This is what she said about the resistance,

> *Eh mm, every, at the beginning of the course I wanted to make the whole course peer assessment, but the students didn't like that idea at all. They were very resistant, they don't trust each other, they are not used to peer assessment, they have done a little bit but not a lot, and they were very resistant to that. I got a petition; they came to my office with a petition. They said they don't want to be assessed like that.*

She acknowledges that it was not easy to get to where she is and she had to revise the strategy about three times. When students complained to her, asking what if their peers did not like them for one reason or the other and gave them less marks than they deserved, her response was that that sort of thing happens in the real world of work. Her aim is to teach them to survive under the kinds of hostile circumstances that exist in the real world of work. In her words, this is what she told students who complained;

> *…but they keep complaining, they complain that it's not fair because someone in the class may hate them. And I said to them but you know that's luck, when you go into the news room, how people are going to judge that's not clear sometimes. It not on the quality of your work, it's sometimes who you are. Then it's luck, yah?*

7.3.4. Students' motivation

She finds the idea of using technology with students to be a high motivating factor to them. She says,

> *The technology itself is very exciting. I mean you put a student next to a computer and there's a spark. They just love it. Students and computers are magnetic things. They love to. So to use the technology, WebCT or the idea of having a virtual classroom it is quite a novel idea even the student that did it last year it is still novel. It is different from anything that they are doing. They are not going to class and sitting on a boring bench and taking notes and looking on at an overhead projector. So the technology itself, the software and the hardware are components of that excitement.*

This reaction is in stark contrast to the feeling another lecturer had in a different institution (institution W). His claim was that students are not that motivated to learn. Even the use of the (electronic) system, to these students, is not an attraction. Using communism as a metaphor, this lecturer went on to illustrate his point that no matter what you do, students do not care, they are not motivated. He said,

> *But, you know for (the system) for all its, it is just beautiful. But just like communism, communism is wonderful you know; everybody works for the good of everybody. I mean, can you think of anything more beautiful than that? But communism does not take into account human nature, and (the system) also falls short there, does not take into account that students are students. Students by nature are 'who cares'. Ok, I mean, you could give a student the examination paper before they write, do you think they can work through it? No! So in theory it's very beautiful.*

It is remarkable that he blames the lack of motivation on students and their nature when in the other environment students are seen to be drawn to the technology like 'magnets'. There is a difference in conviction and for the journalism lecturer both the software and the hardware are components that together produce excitement from students. It is also evident that for journalism what students were expected to do with the technology added to the motivation to be engaged. This other lecturer who sees students as lacking in motivation goes on to reveal what features characterize the course design where he is involved. It is interesting to note how different the design is from the one on journalism. The following quote reveals the features,

> *Here we have all our chapters and course outlines, even some useful websites and links, which is something fantastic that takes the students through every part of their course, you know difficult problems and so forth.*

Here it was about content only (FCPP), LD1 type of design. Students were expected to sit in front of computers and go through those HTML pages. And, when they did not engage at the expected level, they were labelled as 'who cares'. It has to be mentioned that this design is part of an environment where the lecturers are given three hours of training on how to use the system, the

same thing that happened in institution Y, as discussed earlier. After the short training, lecturers are left on their own to go on and implement. Any further support is in the form of a help desk. There was a revealing remark that the calls for support to the help desk were mainly associated with passwords, because lecturers always forgot them. There was no support in terms of pedagogy; lecturers were left to figure it out on their own.

7.3.5. Collaborative learning

A strong feature of this case was collaborative learning. There were lots of illustrations to show that collaborative learning was one of the driving forces. The concept –collaborative learning- was stretched beyond the ordinary meaning. Often collaborative learning is fostered within the limitations of a specific group of students, normally those in the same classroom or course level. In this case it went beyond those boundaries. The lecturer put it in this way,

> *… one thing which I hate to see is students, … when I came to the Tech, each year was very much a discreet entity unto itself in the diploma. So the 3rd years didn't know who the 1st years were, and 1st years didn't talk to the 2nd years, and nobody talked to each other. And I think through that you loose a lot of knowledge, you loose, you loose a lot of contacts, and so I've consciously tried to break that down. And so more, that is where I want to move more in the future. I've started for example, to try to get the 3rd years and the 2nd years to work on stories together, and 1st years to comment on 4th year work and critique it, on for 4th years to defend it.*

With this type of collaborative learning, peer pressure is employed and the benefit is that learning is taken to a different level. The same notion of peer pressure and evaluation was used in the year long development programme lecturers in this same institution were exposed to, to foster their own constructive learning. At the end of each programme, those who have already gone through share their course designs (success stories) and the new entrants share their intended designs; a platform for peer critique is created. This same feature is now imported into the classroom demonstrating how the conceptual infrastructure' (in institution X) stimulated ideas for course design. As pointed out

in the quote that follows, the pressure to perform is more powerful when exerted by peers rather than the teacher. This is how the journalism lecturer illustrated it,

> *It's a long class, two hours, and the other half is run by students, and is run as a news meeting. And each week there are editors, there are two news editors, and the multimedia editor, and two site editors who do all the corrections, grammar and spelling, and a photo editor, and editors run the meeting, all others are reporters. The editor stands up and says, "What are you doing this week, what day are you delivering" and well the student says, "well eh, eh," the editor says, "We want it, we need it tomorrow". They understand the pressure of having to perform all the time and it's exerted by their peers not by me. So it's much more powerful.*

Collaborative learning in this context extended cooperative learning where tasks were allocated and work completion depended on the cooperation, diligence and commitment of the individuals. It is this feature that made peer pressure to be rife. Those who were assigned as editors for a period wanted their articles to be rated high and they had to find ways to push their peers to deliver on expected outcomes.
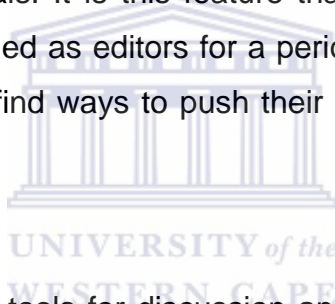
7.3.6. Reflection

The system (LMS) provides tools for discussion and the journalism lecturer has taken advantage of that. She asks them questions like 'how are you doing'? As students reflect on their work, their achievements, their failures and also how they feel, she throws in her comments to encourage them to understand and assimilate the lessons they have learnt. Her interaction with her students is increased and in doing this she meets part of the expectations from those in the support role. She gets to understand the problems her students experience in their learning. For example, they get to complain about the lack of transport when the deadlines keep them long in the computer labs. These are students who do not have the computers in their homes. Added to the list of their worries is the lack of proper transport after hours. They get tired and stressed when the deadlines are due. This is when she throws in those encouraging comments that she pulled out of the discussion board:

When they 'moan',

> *… I am tired, don't try to be as strong, don't put more ...'*

Here are some of her responses:

> *'Keep up your energy level for these couple of weeks and see you in the top ten stories again.' I want to encourage you to keep up the excellent work you've done in the schools. You only have 4 weeks to go now'*

The discussion forum is used for therapeutic purposes; students get the lecturer to sympathize with their personal problems. This is how she manages to keep the learning personal, as she makes the claim,

> *It is that I try to respond personally to my students all the time; I try to keep it personal.*

7.3.7. Texture

Another distinguishing feature was how the lecturer exploited the medium for her subject area. An expectation from those in the support function was that although participating lecturers were to benefit from cross pollination from other innovators (co-participants in the year long programme), each lecturer had to design and use the system to cater for the individual needs of their specific subjects. She used the quiz tool to set and administer questions quickly so as to teach students the skill of searching for news that is current on the internet, and to search with speed and accuracy. To her the quiz tool was not to be used to test content (FCPP) memory.

On the overall, she used the technology (both the LMS and the internet site for the online newspaper) to support her aim to foster the necessary skills, values and attitudes a successful journalist would need in their career. These included letting her students be stressed by pressing deadlines so that the online newspaper could publish real, authentic and current stories that attracted viewers/readers internationally. Coping with a heavy workload, meeting deadlines, making judgments in the newsroom, putting pressure on your peers

for delivery were the kinds of experiences woven into this course design, demonstrating what LD3 type of design entails (FCPP+++).

She expected her students to be curious about what was happening on the campus, and she claimed,

> *As journalists and as human beings we should be inquisitive about each other and we should*
> *be inquisitive about knowledge, and as I can do that I think it will improve my classes.*

The quiz tool, the discussion forum as well as publishing on the internet were some of those components that became enablers for this lecturer. She did not just meet the expectations of those in the support function; they also used her course as an example of good design. She is labelled as one of the lecturers who 'uses the medium well.' She gave much weight to her claim that her pedagogy as not that 'sort of transmission mode'. It was part of the expectation in this institution (X) that lecturers have to 'plug in the right place' as they use technology in their designs. The notion of catering for the specific nature or texture of your subject area was part of the 'conceptual infrastructure'.

The communication lecturer in this same institution also operated in the LD3 mode of design and claimed that this suited her subject area better. It has already been noted in the literature review that P/?(B)L type of approaches are applicable to all subject areas, not necessarily confined to specific area. The LD3 designs in institution X demonstrated that when teaching and learning is conceptualised as FCPP+++, e-learning cannot be limited to the reading of html pages containing content, it has to be used to support the other features that are considered important in the subject area. This is what the respondent in the support role meant- to 'plug (technology) into the right place'.

When she was asked if the success was because journalism as a course renders itself easily to e-learning implementation and this type of design, the journalism

lecturer gave a strong rebuke. She claims that it has nothing to do with the nature of the subject, but that it has everything to do with passion, creativity and innovative teaching. She goes on to claim that she would have done the same if she was to teach any other subject, she would work hard enough and generate ideas as to how best to teach that subject. She argued that every subject has its own texture, and successful teaching must find ways to address the nature of the course. The challenge is to understand the subject well enough and to be able to identify what makes it unique, and then design teaching and learning processes and activities to address that uniqueness.

7.3.8. It has to be messy

Sharing the same attitude with those in the support role that learning is messy; the journalism lecturer agrees that her classroom is chaotic at times. From one of the role players in the support function, her attitude is that these lecturers should play with the tools and wrestle with them; they should not worry if it is messy because it has to be; especially when they are still learning to use the medium themselves. For this journalism lecturer, she does experience this mess in her classroom. In her own words

> *Eh mm, but also a lot of attention to detail, I spent an enormous amount of time on my courses, even when they sometimes look chaotic, this morning they looked chaotic, I spent enormous of my time preparing, like online quizzes and my assessment, I spent a lot of time.*

Her case illustrates how involving the design and implementation of the course is and the implied workload. It is not only her students that are kept 'very, very active'. Managing the chaos and the demands of a design of this nature calls for more resources, including a lot of time as the lecturer indicated.

7.4. The frame

She then put an overall frame on her pedagogy and the pedagogical considerations she made when she designed her course. She claimed that she is constructivist in her design, that she believed in authentic learning, in action learning and that she has personal philosophical opinions that she aims to bring

out in her classrooms. Earlier in the interview, she indicated that she believed in being democratic, she negotiates the curriculum. In her words,

> … eh, constructivist, eh, and, and I believe in action learning, eh, so everything, and I believe in authentic learning, so everything that I do, I believe in collaboration, eh, everything I do I try to bring that out, eh mm, eh mm. There's also a certain philosophical, personal philosophical, or personal opinions that I lived in my classrooms,

As she articulated conceptions (constructivism, action learning, authentic learning) of learning that inform her teaching practice she provided evidence through her course description and demonstrated how principles behind the P/?(B)L type of approaches (as discussed in chapter 2) manifested in her courses. These principles include the following: that learning occurs in the context of problem solving, learning occurs when learners are challenged and learning is a social act. Negotiating the curriculum suggests the time and effort she spends thinking through and contextualising it with her students. She is concerned with articulation between the levels (courses 1-4). She demonstrates that it is not only about good pedagogy; that has to be supported by a good curriculum. In this manner the design role of the lecturer is emphasised. In an LD3 environment, the lecturer needs to spend time thinking through the context, the process, the support students need to be able to perform and design end products for an actively engaged learning environment.

The following figure is an attempt to give a visual representation of what characterised the journalism course design. The richness of the design is portrayed by the variety of features that were be identified and discussed in the previous section. In the courses associated with LD1, there was no visibility of elaborate features. As mentioned earlier, design was limited to communication and (multiple choice and quiz type) of assessments. One lecturer in this environment mentioned that the system helps to track students' submission of assignments. Course descriptions in these designs were very limited. An 'enneagram' (a geometric figure with nine points used as a symbol to analyse character or personality, (Wikipedia 2006), is adopted as a model to represent

the 'character' this course acquired in the way it was designed and delivered. The lecturer was able to articulate the philosophical and theoretical positions and belief systems that underlie the course design. These provided a kind of a frame to encompass the distinct features that characterised the course.
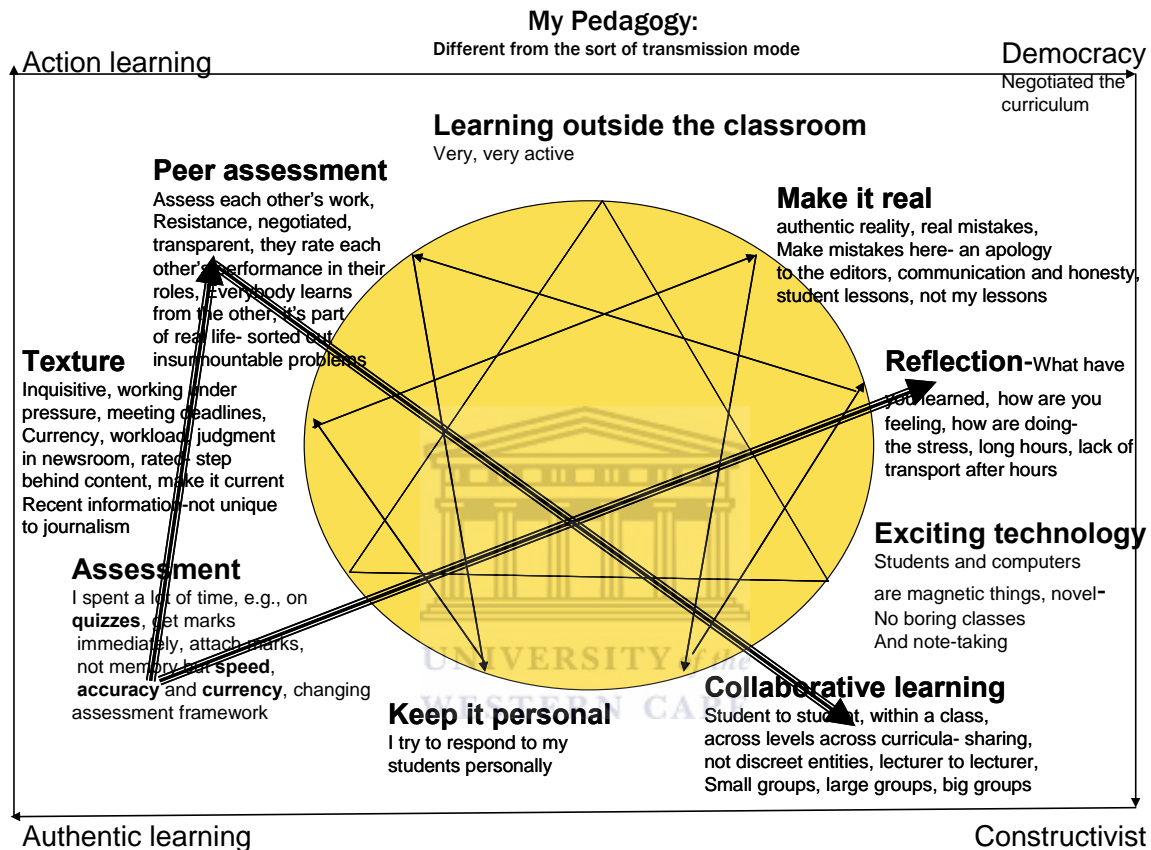
Figure 31: The Frame

7.5. Conclusion

The instrumental course case study (together with the rest of the cases) treated in this discussion demonstrates what LD3 type of design can achieve. There are a number of attributes that can be identified that link closely to the principles of good design discussed in Chapter 2. The course cases suggest a number of additions to the list. One of these additions is that good design depends on the conceptual infrastructure the designer is able to operate within. In the absence of such an infrastructure, the design will be limited to LD1. It should not be taken for granted that designers will identify the necessary conceptual tools. The tools are

concepts used in the design such as action learning, making learning personal and real, and reflective learning. As demonstrated in institution X, a focus on these conceptual tools serves another purpose: the use of e-learning is not reduced to a technical exercise.

It has to be noted that the way to support designers to identify the necessary conceptual tools took the LD3 design. Participants in the year long programme had to work towards an end product. Designing their courses for e-learning created a context for the learning of the technologies involved as well as the necessary teaching and learning theories, approaches and principles. They learned within a community of practice. Those in the support unit demonstrated the principles they wanted the participants to learn and transfer of knowledge was evident when courses imitated the design in the year long programme.

The environment in institution W and Y demonstrated LD1 type of design in staff training and the courses delivered. The focus (in the short staff training programmes) was limited to how to use the technology. The design showed signs of technicism and the same was evident in the courses delivered in this environment. Whereas staff and students in institution X got highly motivated to work towards the identified end products, in institution Y there was a need to use a 'little stick' to force the uptake of the use of the available system.

The cases reveal clear distinctions that can be plotted on the LD1 to LD3 continuum. A strong conceptual infrastructure will lead to high level of student engagement and motivation. The opposite is also true. The design features of LD3 design are elaborate and rich whereas LD1 is limited on features. The following figure illustrates these points.
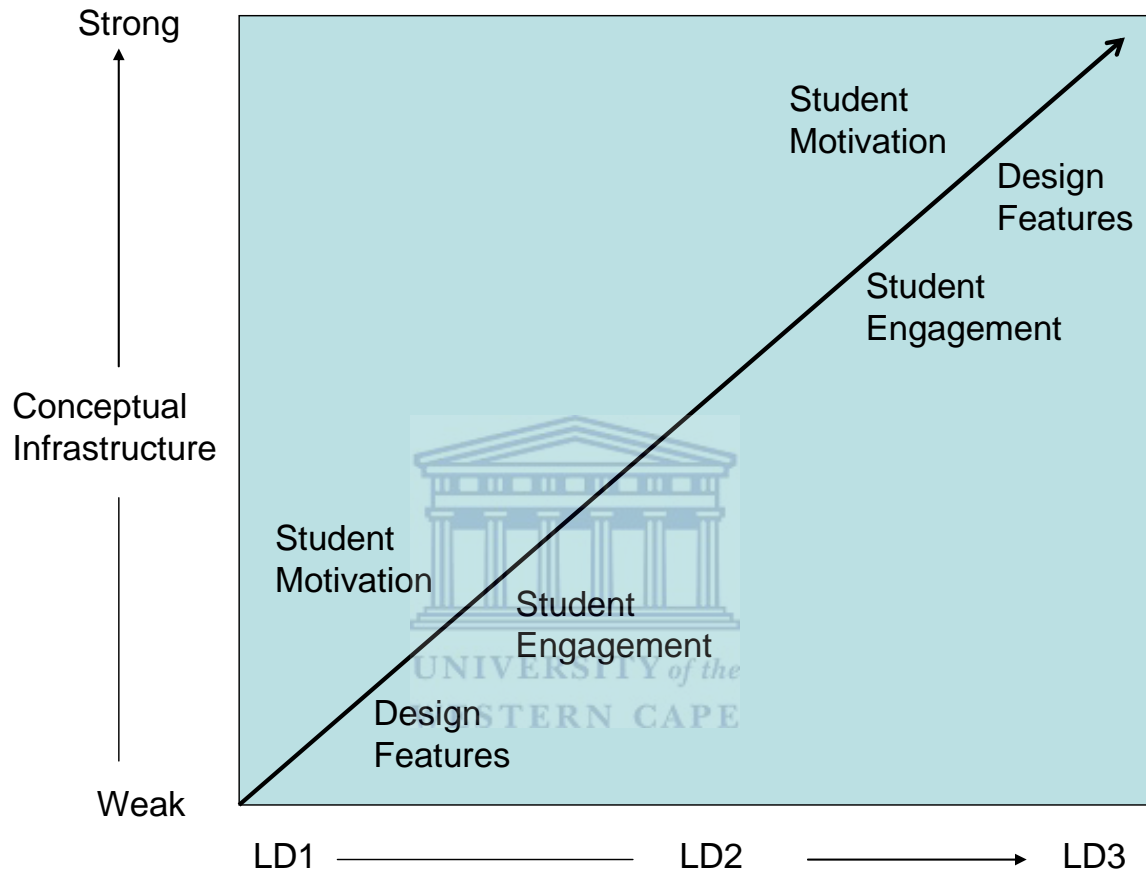
Figure 32: The distinctions on the LD1-LD3 continuum

Chapter 8

This chapter concludes the thesis by summarising the rationale for the study, re-visiting its aims, and making some concluding comments in relation to the framework developed here, and others that might be compared with it. It also identifies further areas for research.

8.1. Rationale for the study

From the literature reviewed, it was established that the incorporation of e-learning was encouraged by the techno-hype at the dawn of the new millennium. Higher education was pressurized to seize opportunities that were often touted as e-learning benefits. A prominent indication that the South African higher education responded to the pressure was the acquisition of a learning management system by most institutions.

Through the literature review it was established that e-learning is widely believed to have potential to support deep learning. However, it was also established that the adoption of instructional design and the ADDIE model as the overriding philosophy for implementation of e-learning in course design has led to failure, and there is an acknowledgement that there is 'little conversation on pedagogy' associated with e-learning implementation. A need to broaden the discourse in e-learning was thereby established. Although the Learning Design movement is a response that promises to focus more on pedagogy, there are gaps in the way the movement is progressing at this stage. The framework developed in this study offers opportunities to close the identified gaps and to guide further developments in systems that have to support and enhance teaching and learning.

8.2. The aims of the study

To recollect, the aims of this study were developed at two different levels, at an academic level as well as at a strategic level. The following sections is a

summary of the developments in the study and they demonstrate the extent to which the aims were achieved.

At an academic level the aims of the research were to:

- Explore the emerging patterns of use of e-learning in the South African Higher Education sector

- Investigate pedagogical design considerations necessary for successful teaching and learning as e-learning is incorporated in the delivery of courses

- Build a framework that will support the development of successful programmes offered through the use of e-learning in order to address the question of capacity by means of better utilisation of available technologies.

At a strategic level this study aimed at mapping out the strategic options available to different role players for the successful incorporation of e-learning at an institutional level. The following discussion reveals how the aims were achieved.

8.3 Emerging patterns of use

Data was collected mainly from two sources. The first set of data was from web sites of South African higher education and the second was collected from interviews of those serving in the support units and lecturers who designed and offered courses that incorporated e-learning. From the analysis of the web site data (contained in the Access reports provided as Appendix 1) it was possible to examine e-learning implementation efforts in different institutions. The analysis revealed different patterns and characteristics. The first aim in the study was achieved. It was discovered that institutional landscapes were being changed to host e-learning and to accommodate new organisational units. New posts were created and filled with staff with a variety of designations to support the implementation of the e-learning. The overall aim these units had was to see to it that e-learning was implemented as part of institutional systems, that

technological infrastructure was available and was used to support teaching and learning.

One of the patterns observed was that the units that were established were either stand-alone or incorporated into other existing units. The units experienced different influences depending on whether stand-alone or incorporated. Those that were incorporated enjoyed the influence of the 'mother' unit and most of these 'mother' units were units such as 'Centre for Teaching and Learning'. These centres were mainly responsible for institutional academic development and support and hosted reasonable expertise in terms of supporting teaching and learning. It is these influences that encouraged an emphasis on pedagogical considerations. E-learning implementation that was supported by units that did not have such influences had its emphasis laid somewhere else, not on pedagogy. The technology-pedagogy tension became an evident feature in the implementation of e-learning in South African higher education.

The second set of data comprised of interviews. A four pronged approach to data analysis was employed and was comprised of an access database, discourse analysis, the use of NVIVO (a computer software for of qualitative data analysis), and case study analysis. Adding to the patterns and characteristics a set of discourses that are associated with e-learning implementation in South African higher education was identified together with a number of implementation models across different institutions. Institutional and course case studies of e-learning implementation were analysed. The institutional case studies revealed what influences courses designed to be offered through e-learning were exposed to.

The second aim of the study was achieved through the analysis of course case studies and the identification of features associated with course design. The course case studies that emanated out of the institutional cases were instrumental in revealing the kind of pedagogical considerations that have to be made when a successful course has to be designed and implemented through e-learning. The identification of the features provided an answer to the main

question in this study: *what are the pedagogical considerations that have to be taken into consideration when courses are designed using e-learning*? The design framework presented in the preceding chapter is the fulfilment of the third aim in the study.

8.4. Design considerations

A number of considerations were explored from the literature as well as the data analysed in this study. Designing constructive learning environments as a concept has contributed to the rethinking of pedagogy, with a special emphasis on epistemic change. Problem based learning and related approaches (P/?BL) offer the basis for what considerations to be made for better design of learning environments.

The course cases treated in this study demonstrated that 'lifting' course design to LD3 has several benefits; student motivation, for example, becomes high. Students become more engaged in their learning when they are expected to deliver on meaningful end products as opposed to passively listening to and collecting information on the facts, concepts, principles and procedures (FCPP) in the area of their study. These (FCPP) have to be embedded within a context that demands engagement from students. The cases revealed that in the courses that remained within LD1 it was a struggle to motivate students and to draw them into the work to be done. As such, some used the available technology system to police students and to force them to do independent work.

The journalism course that served as an instrumental case provided a good example of how to account and even measure the level at which students were engaging with their work outside the formal classroom, providing a basis for the justification and use of notional hours and credits associated with the course. The course demonstrated that LD3 type of designs deepen students' learning. It further demonstrated that because of the elaborate chores and activities involved in implementing such a design, the use of technology becomes a desirable option. It will be difficult to enable some of the activities in the absence of

technological support. For example, the system provided a platform for students to reflect on their learning and the lecturer was able to reinforce the learning and offer feedback on their reflections.

By exploring the assumptions, expectations and attitudes of those in the support function and the lecturers they supported it became clear what context existed for each of the courses included in this study. Appendix 2 maps the courses and their features on the LD1-LD3 continuum. The interplay between the contextual factors (as treated in Chapter 5-6) within which courses were designed and delivered and the course features that were identified in specific courses (Chapter 7) shed light on what these considerations should be and this led the construct of conceptual infrastructure.

The institutional and course cases together demonstrated that technological infrastructure alone is not good enough and cannot lead to improved student learning. Conceptual infrastructure is necessary to lay proper ground for the use of technology. The ideas the lecturers have about teaching and learning inform the acts they engage in and as such they (the ideas) have to be grounded on meaningful and relevant epistemic foundations. Institutional professional development that focuses on nurturing epistemic assumptions relevant to the improvement of teaching and learning create room for the emergence of LD3 type of designs. This was demonstrated by the professional development case treated in Chapter 6 and how it served as context for the LD3 type of designs evident in the courses designed in this particular institution.

8.5 LD1/2/3 framework: A design and evaluation tool

The conceptual framework that emerged as a result of literature review in the study provided a lens through which courses were investigated. It is a tool that can serve as a strategic map to think and work with for successful incorporation of e-learning in teaching and learning. Three learning designs were plotted on a continuum (LD1-3) to demonstrate how distinct they are and what features and pedagogical considerations are associated with each of them. The framework

can be used for design, evaluation and for the identification of technology and system requirements. The highest level of the framework is informed by problem based learning and its associated approaches.

LD3 is a manifestation of P/?(B)L type of designs. As elaborate as these approaches are, they are not without challenges and shortcomings. As argued before, in their current form they do not address issues relating to curriculum. There is a need to provide a bridge between the macro level of curriculum design and the micro level focus of learning design. This is a gap for further research.

Evaluation of the quality of implementation is another challenge these approaches face. Part of the criticism against P/?(B)L approaches is because of poor implementation rather than the quality of design. There are currently no systems in place to evaluate quality at the level of classroom implementation. Where this happens it has been limited to peer observations. The use of technology and the structure of processes in LD3 and P/?(B)L designs do not render themselves easily to those types of evaluations (peer observation for example). The South African Council for Higher Education programme evaluation criteria for example operate at levels higher than classroom implementation levels and as such institutional audits and programme evaluation exercises do not manage to expose poor practices in this regard (Council-for-Higher-Education 2004). As such, known evaluation methods in higher education cannot lead to judgements on how far students' learning experiences are meaningful. The Pedagogical Patterns movement aims to provide solutions in this regard by creating databanks of good designs and best practice. The claim is that by doing so poor designs will be identified in the process. It is argued in this thesis that the framework developed in this study provides a basis from which evaluation of quality designs can be done.

Another of the LD3 challenges is the demands associated with implementation. On the overall LD3 is resource hungry in terms of the many human roles implied, technology requirements, time and learning resources needed. As Weigel (2002)

has argued, it is not possible to articulate to the level of quality teaching and learning needed in higher education without relying on technological advances. It became clear that for the journalism lecturer, coping with the workload was a big challenge. It could have been lighter if some of the chores to be performed could be automated and if she could have had a team to support her. As Brown (2005) argued, for these types of designs teaching cannot be reduced to the role of one individual, there should be a team to assume the many roles implied. For the journalism course, this was one area where the implementation was weakened.

The case study demonstrated that where there is a move from the 'transmission mode of teaching', designing processes and activities becomes a way of teaching. Designing the different activities and administering them, assessing how students are performing in the activities and giving them feedback requires a lot from both the lecturers and the students. Within this environment there are a number of tasks that have to be performed concurrently and teaching and learning can become more exhausting than usual. The level of engagement is higher. As demonstrated in the journalism course, creating the different texts, embedding learning within context, providing opportunities for varied repetition involves managing a variety of tasks all at the same time. The challenge is to plan for the tasks and perform them within the given time constraints. The lecturer in this case expressed how exhausting it was to keep up with the pace created by the activities. It is this challenge that led to development of omnitasking, a construct to indicate that in this environment the teacher has to perform many tasks beyond what her ordinary human abilities can afford. Though the case study demonstrated the possibilities that exist for omnitasking, the opportunities were not exploited at a rate that dealt with the hectic schedule in the course.

At a basic level, omnitasking involves ensuring that all administrative tasks that support effective course delivery are computerised as far as it is possible, to free time for staff to undertake those that cannot be handled in that manner. In the practitioner-led environment it was the attitude of those in the support unit that e-

learning should provide this type of support. Their motivation was that the teacher should be left with enough time to concentrate on the conceptual part of delivering course. The time should not be fully occupied by the administrative and repetitive tasks. At another level, omnitasking is extending one's human capabilities through the use of technology, especially the capability to defy the confines of space and time. It is more than multi-tasking, a concept that is associated with an act where an individual's attention is shared across a variety of tasks. The essence is in doing multiple tasks at a time. In computing, multitasking refers to a method where multiple tasks share common processing resources and are run at the same time (Wikipedia, 2006). Within this study, omnitasking refers to the capability to perform tasks beyond the confines of geographic distance, space and time.

The lecturer in the case of the journalism course was engaged in the many roles of an educator, that of being a curriculum designer, teacher, mentor and counsellor. In performing in these roles there was a need to be with students longer than the time allocated to the normal classroom allowed. Joining the students in the discussion board provided her with ample chances to do mentoring and counselling, to listen to students' personal feelings and problems and to provide assurance. She claimed that the course had a classroom 'outside the classroom', referring to the website created specifically for the course. The website provided another meeting place where the lecturer met with students virtually and provided them with learning experiences. These 'virtual' meetings enabled both the lecturer and students to do far much more that what an ordinary classroom can allow them.

Because e-learning allows for this capability of defying the constraints of time and space that human beings experience, it can enable omnitasking and enable those involved to do more than what they are capable of doing as human beings. Though the case study demonstrated these possibilities, there is a need to understand more how omnitasking can be employed in such a way that it relieves individuals of the strain to accomplish the many tasks necessary to support the

more engaging ways of teaching of teaching and learning. The rate at which the quizzes were repeated in the course was made possible by e-learning. The teacher could not have managed to administer and provide feedback at the required rate. The next generation of learning (design) management systems should strengthen this part.

It cannot be over emphasised that LD3 cannot thrive where there is a high level of technicism, which is as against a pedagogical focus on learning. The institutional and course case studies demonstrated that the right 'climatic conditions' for implementing LD3 necessitate an environment where there is engagement with teaching and learning approaches, principles and theories. Designers have to be challenged to appropriate the associated conceptual tools as they do not necessarily come along with the knowledge of the subject matter. E-learning has provided a new platform for professionalisation academic staff in higher education. Those institutions that do not take advantage and yet acquire the technology will by default engage in technical training of their staff. As it has been argued, teachers need well founded and strong foundations within which to embed their (teaching nad learning) ideas and acts.

8.6. Strategic Options

The framework offered in this study can be used by different role players to claim their stake in improving teaching and learning at an institutional level. Those in staff development units can further develop strategies to support the movement of course design and delivery from LD1 to LD3. Lecturers can use the framework to evaluate where their courses are and what improvements to make as a way to deepen the learning of their students.

The framework can be useful in broadening discourse for those in management roles when they have to engage with questions of quality as far as teaching and learning is concerned, and return on investment in relation to technological infrastructure that has been put in place. The framework can support further choices to be made in the maintenance and renewal of licences associated with

technological infrastructure as well as guide new acquisitions. Instead of just being interested in numbers, those in management can be enabled to ask questions about the quality of learning associated with institutional infrastructure invested in. Understanding the fundamental differences in the LD types provides a quality discourse for asking relevant questions in relation to course design and delivery.

As already argued, the framework can lead to further system advances in order to close existing gaps in learning design. A system that can address curriculum issues and not just learner or student interaction with lecturers will be more relevant and address many other challenges within the South African higher education system. The 'quality apparatus' implied in the South African Higher Education Qualifications Framework (Department-of-Education 2007) can be addressed through LD3 type of designs. The use of allocated credits and notional hours can be better accounted for by LD3 type of designs as already demonstrated. An advanced learning design system that articulates to the framework offered in this thesis can support the planning of how courses will measure up to the number of credits allocated and how the course responds to the relevant level descriptors.

The incorporation of e-learning into institutional business has this added benefit that it has created a new platform to make explicit assumptions, ideas and philosophies that lecturers carry with them , the kind that influence their practice. Institutional adoption of learning management systems has opened up opportunities for different roles within institutions to raise questions about good (or bad) teaching and what it means to support deep learning, although not all institutions managed to seize the opportunities in this regard. The cases treated in this thesis revealed how (positive) influences can be offered leading to better learning designs. The framework will be a useful tool in seizing more opportunities to influence and build a reasonably strong institutional conceptual infrastructure. The adoption of learning management systems has in the least

initiated institution wide 'talk' on how to teach, this is not withstanding those who missed the point and concentrated on the use of the tool ('tool talk').

Through the incorporation of the LMS, the institutional platform that has been created to talk about good (and bad) teaching render itself usefully to the South African quality agenda. A valuable contribution this thesis aims to make through this framework is to ensure that the quality discourse is not narrowed, but broadened enough to articulate to student learning, the type that engages students and turns them into empowered and active learners.

8.7. System design tool

The framework developed in this study can be used to contribute to further system design in learning and curriculum design. This is an unintended outcome that will require further testing and validation. The system requirements implied by LD3 cannot be reduced to content and activities and as such the current learning management systems are not sufficient in enabling and supporting LD3 type of designs. The existing systems (including LAMS: Learning Management Activity System) articulate reasonably well to the design needs associated with LD1 & 2. They cannot satisfy the needs in LD3 as they will involve more components. The system should be able to help create a context for the learning process. The end product should be made known and the system should be able to provide assessment criteria and make explicit the standards to which learners should work towards. The activities associated with learning should lead to the end product and the system should be able to facilitate the progression. The following figure is an attempt to capture the differences that exist in the available systems so far and to point out the needs of LD3.

Cog= cognitive operations
Coll= collaborative skills

		P/?(B)L	
		Context, Problem Process, End Product	FCPP + Cog+ Coll + other skills & literacies
	LD3		
LD3		Activity based	FCPP + Cog + Coll
			FCPP + Cog
LD1		Content based 'Verbalised Knowledge'	FCPP
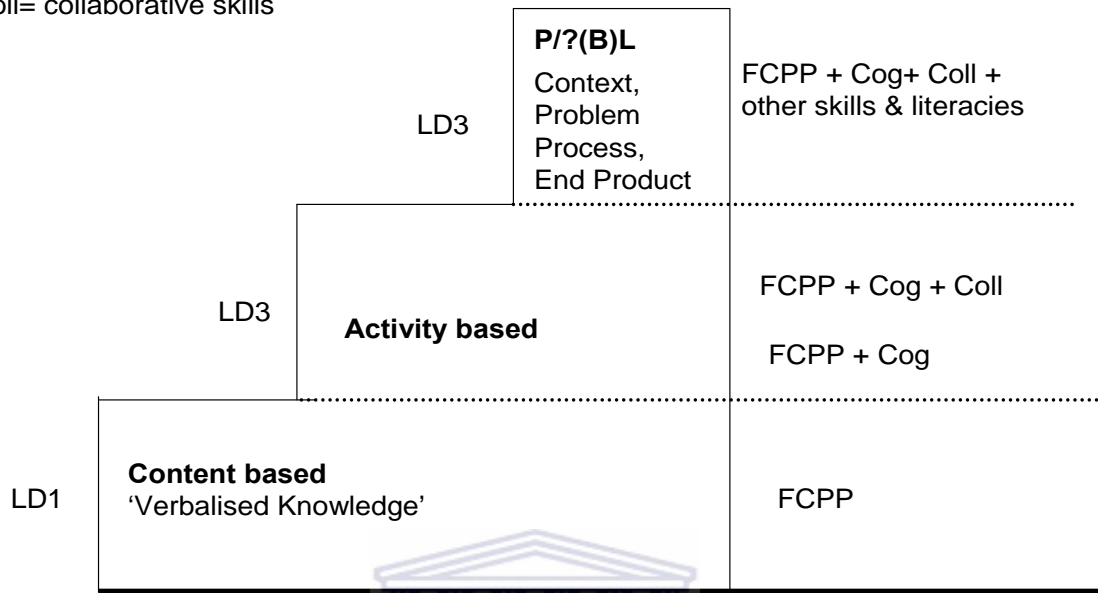
Figure 33: LD3 System needs

Learning management systems as the dominant technological infrastructure are responsible for enforcing LD1 of designs at this stage. The features included so far do not offer much to enable LD3 type of designs, an argument partly treated in Chapter 2. Part of the weakness is the bias towards a narrow definition of what learning is. The role of the teacher as designer is not prominently catered for. The current focus of technological advances in the learning design movement attempts to remedy this by focusing on the different roles implied by the designed activities in the learning process. Even with this new focus, it appears that the developments are not yet at a place where the resultant systems will elevate design to LD3. It has already been argued that they (the developments) in fact support LD2, especially with the strong focus on activities.

Within LD3 designs learning assumes this definition: a process taking place within a specified context guided by a focal point in the form of a problem, case, scenario, etc, leading to an end product or performance. It is not content deposit. Learning is the process of integrating and interaction of verbalised knowledge

(FCPP) and various skills, leading to end products that can be assessed for their quality. Teaching becomes the science of facilitating this integration and interaction, ensuring that learning occurs. Technology provides the necessary infrastructure to support the learning process that is guided by a strong conceptual infrastructure. It is within this environment where student engagement and motivation becomes high.

It is argued in this thesis that the next generation of learning management systems should consider an incorporation of at least four of the critical elements of what is necessary for the implementation of LD3 type of designs. The focus should be on intersecting pedagogy, quality, curriculum and learning into one system. P/?(B)L approaches and LD3 design require that aspects of the curriculum be used as focal points to contextualise learning. If a strong and clear link is not created with the curriculum, a narrow scope (of the curriculum) will be covered. The logical choice might be to concentrate on areas for which problems (or any of those focal points) are already identified instead of ensuring that the identified focal points (or problems) cover the entire scope of the set curriculum for the course.

The newly promulgated HEQF (Higher Education Qualifications Framework) (Department-of-Education 2007) contains apparatus to be used in ensuring that quality education is delivered. These include the qualification and level descriptors. Credit allocation adds to the list. It would be ideal to include in a learning management system these apparatus and ensure that the design of learning programmes adhere to set standards.

The current learning management systems do not have any room to support teacher performance. Future systems should not only demand or imply specific pedagogies; it should be inherent in the system to nurture desired approaches. Developments in EPSS (electronic performance support systems) should be tapped into to see how learning design systems can support the knowledge of the teacher. Making provision for this intersection of curriculum, pedagogy,

learning and quality is to cater for the multi dimensional view of learning. Learning in formal settings like higher education cannot be limited to a one sided view. The other components are equally important. The following figure is an attempt to capture the differences that exist in the available systems so far and to point out possible future system development. Such a system should be conceived as Learning Design System, to emphasise fundamental shift form the current learning management systems.
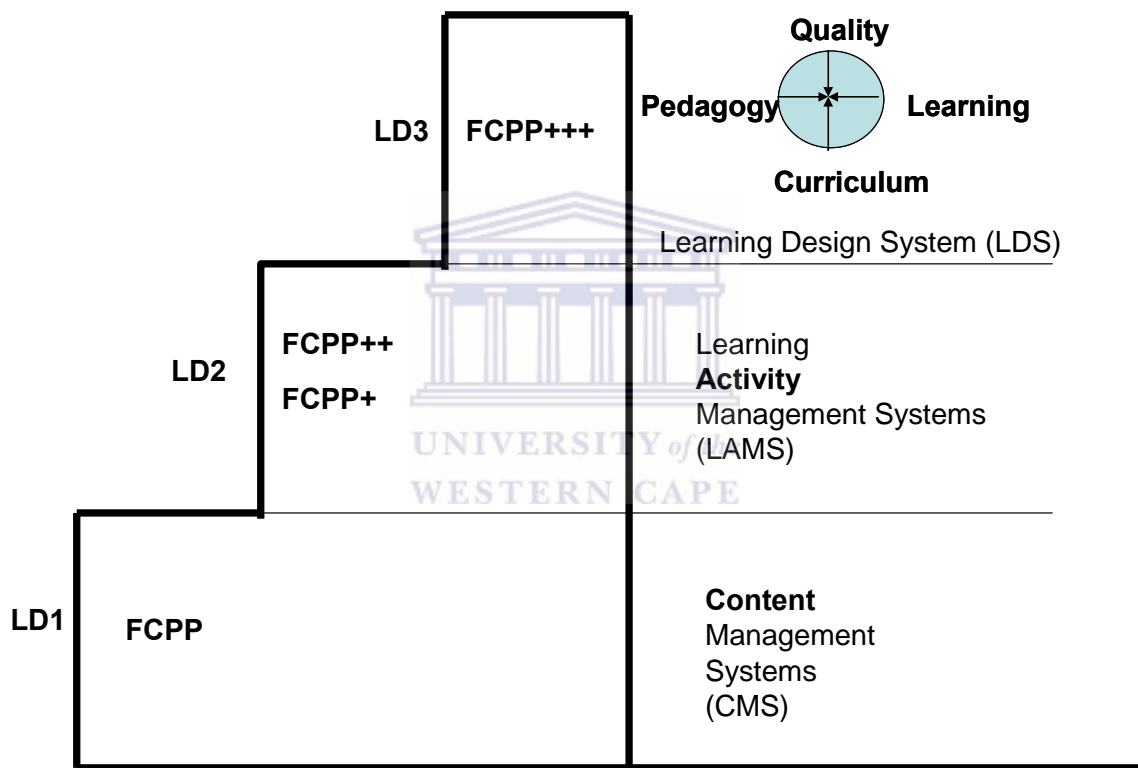

Figure 34: LMS Future Directions.

8.8 Concluding comments

In order to conclude this work, an important question that must be posed is: *why another framework?*

The framework developed and presented here addresses a gap that is not dealt with elsewhere. The existence of a gap was established through the literature

review, and is based on the observations that there has been little conversation accompanying e-learning developments so far, and that there is a clear need to broaden the discourse on pedagogy. The analysis and interpretation of the data validated the framework and its potential usefulness. The framework can be used as both an analytical and evaluative tool in course design and delivery.

A perusal of various frameworks and models associated with e-learning so far shows that they do not address the issues highlighted in this study in the way and to the extent to which they have been debated here. Hence, in order to conclude this work (and to affirm the importance of its contribution) the following discussion of other frameworks and their deficiencies is offered.

With e-learning and associated new technologies learning has not only received numerous qualifiers, a number of 'e-learning gurus' (as they called in a number of e-learning circles) have attempted to provide ways and approaches in the struggle to promote learning through the use of e-learning. Jay Cross's (Cross 2003) *Informal learning – the other 80%*; Wayne Hodgins's (Hodgins 2005) *meLearning – Every *One* Learning* and George Siemens's (Siemens 2004) *Connectivism* are a few of such constructions. The tendency is to use the workplace (and corporate world) as the referred context in elaborating how these constructions and concepts can become instrumental in driving successful implementation of e-learning. The academic world is not well accommodated.

In *Informal learning* Cross (2003) argues that formal learning accounts for 20% of what entails people's jobs and the other 80% is learned informally. He questions the amount of money spent on formal learning and argues that the money should be directed at informal learning. A closer look at the argument suggests that his definition of formal learning is learning that is sterile and rigid, the type that lacks creative ways of supporting meaningful learning. In action learning (for example Zuber-Skerrit's SEAL program) (Zuber-Skerritt 2005) many of what Cross (2003) describe as informal learning is planned for as activities to help to support

learning. The Informal learning concept fails to realise that sterility in formal learning settings like university is a result of lack of creative ways to support learning. The framework proposed in this study is a tool to stimulate such creativity.

Hodgin's (2005) *meLearning* is cast into the future as he proclaims: "imagine if the impossible isn't" (p243). He admits that the kind of personalised learning he is calling for is not here and it will take a lot to build. Such optimism into future innovations does not hold much promise for the now. The question, in the meantime, how should learning be personalised in order for it to be meaningful? In this way the concept of *meLearning* fails to address current needs in learning.

Siemens's (2004) *Connectivism* promises to present a model that acknowledges 'the tectonic shifts in society where learning is no longer an internal, individualistic activity" (p7). This model is provided as a learning theory for the digital age. A closer look reveals that that the model touches on issues associated with distributed cognition, a theory that is credited to the work of Hutchings (Hutchings 1995). In elaborating on the notion of distributed cognition, Rogers and Ellis speak about the 'interwoven' nature of work tasks and the argue that task execution requires 'interactions with different artefacts (Rogers and Ellis 1994)'. (Heylighen, Heath et al. undated) indicate that one of the principles of distributed cognition is that 'the resulting distributed cognitive system can be modelled as a learning, connectionist network', where 'novel knowledge emerges through non-linear recurrent interactions'. The construct of distributed cognition offer substantial tenets on which to think about the inter-connected of learning than does the Siemens's Connectivism.

Atwell argues for personal learning environments (PLE"s) as a way to widen the discourse of life long learning (Attwell 2006). He further argues that many institutional VLE's lack this discourse and are less vibrant than spaces targeted

at young people like MySpace. Like the Hodgin's meLearning the promise of PLE's offered by Attwell (2006) is still in the future. His words are worth quoting:

> *The promise of Personal Learning Environments could be to extend access to educational technology to everyone who wishes to organise their own learning. Furthermore the idea of the PLE purports to include and bring together all learning, including informal learning, workplace learning, learning from home, learning driven by problem solving and learning motivated by personal interest as well as learning through engagement in formal educational programmes'.*

This is an ambitious promise that aims at being inclusive of the many types of learning identified by the different qualifiers associated with e-learning that is if it succeeds.

Alessi and Trollip offer a model for design and development with three phases: planning, design, and development. It is more of project management than a pedagogical process to incorporate technology into learning, which interest in this study (Alessi and Trollip 2001). The pedagogical issues are given attention in the first chapters of the book and the rest is dedicated to technology and project management aspects of integration. The model is more on the technology side than the pedagogy side.

Salmon offers a Five-stage model that forms the basis for e-moderating (Salmon 2000). The stages include access and motivation, online socialization, information exchange, knowledge construction and development. The limitation in the model and hence concept of e-moderating is that it was developed within an environment dominated by Computer Mediated Conferencing (CMC). E-moderating presupposes the use of CMC technologies. It is this confining feature that makes it less useful. Learning is reduced to communication and conferencing. An elaborate or improved discussion board system is seen as the main feature of the technological infrastructure. As revealed in the analysis of data in this study, course design in e-learning covers far much more the use of a

discussion board, especially when the texture of the content is taken into consideration.

Weigel's (2002) models appear to pay attention to both pedagogy and technology. He talks about infrastructure for depth education and provides for what he calls knowledge rooms: the Research Center, the Skill workplace, the Conference Center, the Debate Hall and the Portfolio Gallery. His model is populated with learning and teaching theory, a strength that others miss. It is acknowledged in this study that the model has great potential. The problem is that the design of the knowledge rooms is already an aggregation of pedagogy. This closes up room for teachers to make their own choices from an informed position. The design is also dependent on available and specified technologies and as such ties the model to specific development in the historical time line of technology. It does not leave much room for further innovation. In instances where huge investments have already been made on LMS's and their upgrades as is the case in the South African context, the knowledge room model is out of place.

Laurillard (2002) offers what she calls 'The Conversational Framework'. The framework is used to identify activities necessary to complete the learning process as well as to analyse educational media. In a discussion where she critiques the concepts of academic learning as imparted knowledge, situated learning, learning as a way of experiencing the world she then adopts the stance that teaching is mediating learning.   What makes her framework suspect is that teaching is defined through the lecture method. This makes her framework rigid; it is tied to the dialogue between the teacher and the student.   She has closed out a number of useful theories like contextualisation of knowledge. When contexts are varied, students are provided with a wide range of platforms from which to engage with content. Contextualisation should not be confined to one context, hence the construct of varied repletion. Learning that is decontextualised has been widely criticised. It becomes difficult for students to learn the content.

8.9. Where next?

In their analysis of 'where are we going' in Information Systems Ward and Peppard (2002) make the following assertion,

> *Clearly, technology on its own, no matter how leading edge, is not enough, which may seem an obvious statement to make, but this lesson has yet to filter through to many management teams. There is now a danger in some organizations that IT may lose its position on the management agenda as it seen, yet, again, as having failed to deliver on its promise. (p581)*

The remarks they make here are vital and caution against keeping the pedagogy-technology swing on the wrong side. They indicate that not even leading edge technology is enough, and if the lesson is not learnt on time, IT will lose its (hyped) position, especially if there is this continuous failure to deliver. The framework proposed in this study aims to provide a tool to work with in designing learning that is enhanced through technology, in such a way that technology does not overshadow the pedagogy and end up losing the position of enhancing learning.

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Appendix 1: Institution, aims of e-learning (divisions), designations and number of staff

Institution	Aims of the div	Posts	#staff
Pochefstroom	Virtual learning environment is a programming environment specifically designed to use web technology with a range of supporting aids to create a dynamic interactio process between roleplayers	Director, financial control off, manager: study mat, 2 switchboard ass, 2 coord: printed media, coord: electronic	9
Pretoria Univ	focus of e-education is the integration of various of various information and communication technologies including www, interactive multimedia delivered on CD, computer based assessment, television broadcasting via satellite and video conferencing	Director	
Wits University	The e-learning coordinator is responsible for the development and integration of e-learning into mainstream teaching, learning and training	Director,e-learning cood, management training,training cood,new stff induction, academic project manager,academic training cood,website support,dep director,centre manager, special projects coord	12
RAU	Webct		21
UCT	Webct is the centrally supported system designed to assist lecturers with the design, delivery and management of web based learning environments. You might wish to use it to sup current courses or develop and deliver materials intended for distributed lea	manager, consultant	2
Stellenbosch	That all modules should have a minimun electronic presence within three years- 30% at the end of 2002, 40%/ 2003 and 30%/2004. Electronic presence is defined as having a module framework available in one or other form of electronic(bul board or email)	Director, 3xsenior advisors,3xadvisors,PA,senior assistant,2xtemp admin off, 2xtechnical off	13
UWC	To support & assist to use ICTs in ways that ehance the quality of teaching and learning		13
Natal Uni	The core of the OLS system revolves around the creation, development and deployment of on-line learning modules.	Director, senior education IT consultant, 2xsenior consultants,2xeducational IT consultants, graphic artist, programmer, co-ordinator & info officer	9
Free state Uni	The Telematic and Open Learning Office was established to integrate the previous CAI with the latest ICT.		

Institution	*Aims of the div*	*Posts*	*#staff*
Unin	There are courses that you can online. Theses include coursesin computer literacy and various management		
Pretoria Tech	utilise technology and ensure a necessary infrastructure for the utilisation of technology, apply instructional design principles and become invloved in research	Director,admin staff,4xinstructional desgners, studio	7
TSA	The philosophy of the COOL system is to take distance out of distance education. It aims to facilitate communication and learning among learners, lecturers, tutors and TSA administrative staff		
Cape Tech	enables to access learning materials,interact with fellow students,interact with lecturer or tutor, and assessment	Project manager,sec, 2xmedia developers,instructional	5
Mangosuthu	Webct		
Fort Hare	Webct		
Uni of Zululand	Webct		
Free state Tech	E-learning is to be phased in as an enhancement of normal face to face programme delivery on the campus. We are committed to a blended learning model where electronic technology is utilised as one of the main delivery tools.	3 Regonal manager and secretary	
DIT	Focusses on staff development in the use of educational technologies, particularly in the aea of computer-mediated open learning systemsvia the www.The centre develops and hosts virtual classroms and websites, as well as web content and multi-media course	Centre coordinator, courseware designer, secretary	
Border Tech	Webct		

Appendix 2: Course Features Patterns Discourses Matrix

Food BioChem	Electrical Eng	Stats (1)	Nursing	Architecture	Stats (2)	Components	Econ	HCI	Digital Media	Film studies	Communication	Journalism
OBE	OBE	Lecturing Tutorials Teach yourself	Do things collaboratively	collaboration		Teaching & learning Methods Conceptual Infrastructure/ideas	A practical Not philosophical approach	social constructivism recognising prior learning	make it more personal, & more real	Integrated solution; base our development loosely on a constructivist approach.	Drive the learning Anti constructivism, 'I'm a critical realist'	constructivist, action learning, authentic learning, collaboration
Lecturing Quizzes & Exams (low level/conflict	Structured and controlled teaching, regular testing & feedback	Step by step explanation	List serve Discussion Simulation	collaboration across distance	Content and test based. Quizzes in their own time, increase number of quizzes	Teaching , learning & assessment activities	Forums to discuss and Create websites to present content	Learning from each other Critique Rewrite for Portfolio	Portfolio & Task based, real life tasks With assessment criteria Selected readings and selection of tutorials	Own film reviews and Peer review	Student centred No to top down Integrated learning Scaffolding Learn experientially	Peer learning & peer assessment Team/Group work
Document delivery Communication Power relations on email	Different Formats Track study More testing Life made easier/reduce workloads	Communication Administration Control/ Tracking Power relations in Chat room	Independent /exam vs. guided/ collaborative mode Experimentation	Telematic Video conferencing Comparison & exposure	Content delivery & quiz testing	Use of Technology & managing different Tasks	Website creation and presentations	Peer learning & sharing Independent discussions Manage open-endedness	Create artefacts and evaluate for reflections Learning journal	Post student reviews for access & peer review, lecturer open ended questions	Dig for content Medium to present own content '12 birds with 1 stone '	Learning outside the classroom Individual support & encouragement Reflections
Time; Resources available, just reorganisation & better planning	Time Ample tech infrastructure	no formal training in programming	Tech infrastructure	Human resources Could not turn away	Bandwidth, time, students' literacy	Constraints	Bandwidth, time, students' literacy	technology fails, student literacy	Technical problems	enthusiasm wanes, availability of the pc's, bandwidth, time from the lecturer side	Resources, poor labs, time for more innovation & experimentation	Colleagues Resources
Negativity- why the WebCT course	Control & police	Force them More stick than carrot Human nature	Shocked them to teach them: 'the cruel mode to bring them down to earth'	Confidence raised	Keep students active through quizzes	Students Motivation	Peer support	Self driven, continuing to learn	make it more personal, more real Actual learning is a learning goal	'Very, very strong (lecturer) presence'	Students don't like reading but they like computers Stupid & boring course or stupid students?	Students and computers are like magnets

Food BioChem	Electrical Eng	Stats (1)	Nursing	Architecture	Stats (2)	Components	Econ	HCI	Digital Media	Film studies	Communication	Journalism
More technical skills for more graphics and animations	Acquire ready made Pearson materials, Technical skills	Get students to use More technical skills	Got more resources	From informal to project based More resources	Student literacy	Improvement needed	a suite of options available to lecturers	Group work	some of theoretical subjects it's a bit more difficult	Interesting ways to enhance and support learning	Resources	Resources Group work design
I try to use all of the tools	Add pressure; they get immediate feedback	'communism does not take into count human nature, and KEWL also falls short there'	Testing: Pulling Power	five technologies; one that was the least that was used least	A specific need that they think WebCT & computers can solve,	Discourses	Peer support	Learning not private	Social interaction;	Strong presence	'to understand the nature of things by depth investigation and there is reality out there'	'My pedagogy is so different from the sort of transition mode'
IT	IT	OpenSource/IT	Telematic/ Distance	Telematic/ Distance	Research	Institutional Models	Research	OpenSource/ Research	OpenSource/ Research	Research	Prof Development	Prof Development
Y	Y	W	Z	Z	Z	Institution	V	U	U	V	X	X

FCPP FCPP+ FCPP++ FCPP+++

LD1
Content

LD2
Content
Activities
Collaboration

LD3
Context
Inquiry
Action
End Product