TRANSFORMING DISTANCE LEARNING IN SOUTH AFRICA WITH EMERGING TECHNOLOGIES: THE ACADEMIC VIEW

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KEY WORDS

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ABSTRACT

TRANSFORMING DISTANCE LEARNING IN SOUTH AFRICA WITH EMERGING TECHNOLOGIES: THE ACADEMIC VIEW

MARGARETHA ERASMUS (2370366)

Within a context of rapid technological change and shifting market conditions, the South African education system is challenged with providing increased education opportunities without increased budgets. Many educational institutions are answering the challenge without increased budgets. Several educational institutions are answering the challenge by developing distance education programs through information technology, but in the case of one institution, strategic intentions involving information technology and distance learning have not been fulfilled. At its most basic level, distance education takes place when a teacher and student(s) are separated by physical distance. Technology, often in combination with face-to-face communication, can be used to bridge instructional gaps. It can be argued that modes of teaching and learning are changing, and we must redefine what is meant by the word "student". For example: what should we really call an adult involved in life long learning? The term "student" seems inappropriate. These types of programs can provide adults with a second chance at tertiary education, reach those disadvantaged by limited time, distance or physical disability, and update the knowledge base of workers at their places of employment.

The aim of this research is to determine and understand the growing role of information technology in promoting quality assurance in higher education, and in expanding the education opportunities and workplace learning through the use of distance learning. This work investigates how distance learning can be improved by making use of IT with

particular regard to the underprivileged, and the potential contribution to national transformation. This is summarized in the research question:

"How can we improve distance learning in South Africa with emerging technologies?"

A review of the literature, interviews with experts, and reviews of conference papers provided the principle inputs. The academic literatures were supplemented by studies of papers from the Department of Education and other non-academic sources. Based on the reading of the literature, and the views of experts, questionnaires and field experiments were designed and applied to a statistically significant population of respondents. A combination of statistical analysis and content analysis of open questions from the questionnaires lead to comparative evidence about different learning styles and different communities of learners, and the extent to which different learning styles are effective for the different kinds of learners.

DECLARATION

I declare that the *Transforming Distance Learning in South Africa with Emerging Technologies: the Academic View* is my own work and has not been submitted before for any degree or examination at any other university, and that all the sources I used or quoted were indicated and acknowledge as complete references.

Signed: ..... Date: .....

Margaretha Erasmus

Dedication

I dedicate this thesis to all the underprivileged disadvantaged learners of South Africa and may my contribution, however small be of assistance to improve the level of education in our beloved country.

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CHAPTER I

Introduction

The National White Paper reminds the reader that South Africa is a complex society due to poverty and socio-political circumstances. At the same time we are witnessing major changes in the delivery of training and education. A viable distance education programme is therefore a necessity to ensure equal access to education facilities, as it can be delivered at the same time to different locations, at different times to the same place.

"The specific aim for distance learning is to make provision for:

- the training of educators to develop high quality learning resources;
- the investment in a concrete structure to obtain the necessary funding;
- the re-examination of the whole curriculum and the development of guidelines;
- the expansion and development of the necessary technology;
- stable and justifiable conditions in the learning environment.

At the end of 1998 the Ministry of Education, successfully launched eduMALL and ONE@Schools programmes in Singapore. This provided a platform to teachers to conduct professional dialogue, learning and collaboration. Schools are connected via broadband network and students have access to content-rich educational materials. It also enables the parents by making use of television sets at home to check what their children have achieved for a specific day at school. (ICT lessons learned Series 2004. A collective case study of six Asian countries. Unesco . Bankok 2004.)

"...current courses taught in the traditional lecture-based format cannot be transported to a distance learning environment without modification and must incorporate

technological resources and instructional design features that will enhance distance learning" Cyrs & Conway (1997).

1.1 Study rationale/background:

Research on distance learning experiences overseas indicates that access to technological resources is of critical importance to national development of higher education, and at this moment South Africa is basically depraved of access to equal opportunities in these resources if compared to the first world countries.

- The context of this Thesis is to embrace the following:
  - There is a migration from our traditionally formal classroom pedagogues to more liberal alternatives to better embrace new or emerging technologies. Traditional classroom pedagogues are not serving current needs and these pedagogues can embrace new and emerging technologies.
  - The importance of maintaining quality in the production of information technology knowledge and quality maintenance systems needs attention.
  - The involuntary widening of the economic, academic and technological gap is creating a problem.
  - The potential lack of electronic communication media is not realised in South Africa and could be an important factor in improving education in South Africa.

The aim of the South African Education system should be one of enabling teachers and staff members' to access specialised education material and resources and to introduce the young generation to the world of interactive and multimedia technology. Access to these education material and resources should not be limited to schools only, but also be available in public places such as libraries, community centres and public kiosks.

The ***motivation of this Thesis*** is to examine some current issues in education and to reveal the complexity of the problem of quality education, e.g.:

- the promotion of quality assurance in distance learning;
- the absence of information technology in schools and advanced information technology present at some tertiary institutions.

But it must be taken in to consideration that distance learning is just the means to the end and not the end itself. The design of formal courseware for distance education in South Africa is lacking behind the rest of the world, due to the country's unique topographic and demographic circumstances. More than often the lecturers are up to their own devices compiling their own syllabi and methodologies in a "slap dash" manner. The result is that many students experience confusion and frustration with the distance teaching method adapted by the lecturer.

An important hypothesis therefore is to design and develop a new centralised curriculum and a national co-ordinating framework for distance learning by the Higher Education Board of tertiary institutions (South Africa). This curriculum and framework must be designed in such a way that it will succeed in practice and help the institutions to work in unification instead of isolation.

The investigation took, as its point of departure, the vision and goals for higher education expressed in the White Paper and the National Plan and the key values and principles that are intended to guide the process of transformation and development in higher education. The investigation concentrated on distance education in the public higher education sector. (Council of Higher Education, 2004. Enhancing the contribution of Distance Higher Education in South Africa. A Report of an investigation led by the South African Institute for Distance Education).

i. South Africa must be helped to move to a new paradigm in teaching. The question is what assistance is needed for residential and distance learning to become the core elements of a new integrated paradigm.

ii. Distance learning cannot be classified as technologically mediated residential learning.

- The ***importance of this Thesis*** is:
  - to conceptualise and implement quality standards in distance learning;
  - to conceptualise and advise on implementation of advanced information technology in distance learning.

> Today, political and public interest in distance education is especially evident in areas where the student population is widely distributed. Each region has developed its own form of distance education in accordance with local resources, target audience, and philosophy of the organisations which provide the instruction. Many institutions, both public and private, offer university courses for self-motivated individuals through independent study programmes. Students work on their own, with supplied course materials, print-based media and postal communication, some form of teleconferencing and/or electronic networking, and learner support from tutors and mentors via telephone or E-mail. Sherry, 1996: 1(4): 337-365.

Today's youth are quite possibly the most media and technologically savoir-faire generation there has ever been. It goes without saying this degree of sophistication deserves an equally sophisticated and creative pedagogical approach. As complement to traditional textbooks, distance education should harness technology in such a way that it will arouse students' curiosity and also put them in charge of their own education.

Distance learning should therefore contribute towards the students' learning experience and provide an education framework in which students can become active leaders in their own education.

1.2 The literature review

In recent years, distance learning has become an increasingly prominent aspect of learning and instruction. "It would appear however, as if some tertiary institutions were enticed to go this route by the lure of countering declining underprivileged student enrolments; other perhaps by the envisaged monetary gains and, possibly, others by the ease with which their demographic student profile can be put right." Du Mont (2002): Casts Sceptical Eye on Distance learning Faculty Report: University of Illinois.

There is a magnitude of differences between the distance learning environments, and that of the traditional (classroom-based) learning environments. This led to the adoption of distance learning practices that were outdated and based on old schooling systems.

It therefore became evident that there is a great need for experts in communication and information technology to work in partnership with a wide variety of disciplines such as the private sector, government, tertiary institutions and communities.

"It is against this background that current distance learning endeavours should be reflected on and lessons are learnt which could assist with the articulation of an appropriate distance learning typology." (Bates,1997:P93-108)

Based on the abovementioned discussion the whole aim of the literature review is to determine how emerging technologies in South Africa can positively influence distance learning. This brings one to the research problem.

1.3 The research problem

The stakeholders of education in South Africa are seriously concerned about the quality of education in this country. The question is therefore raised why so many distance learning departments of tertiary institutions and also teacher training colleges were forced to close and that to the detriment of the potential learner in South Africa. It is therefore of the utmost importance that this research is an attempt to determine the importance of distance learning and the influence of technologies on distance learning in South Africa. At the moment South Africa is experiencing a few obstacles:

- Low throughput and completion rates.
- Inadequate learner support.
- A large number of courses with low student enrolment.

Is it not time that South African education should consider to move away from correspondence-type programmes and to concentrate on multimedia and open learning programmes especially at entry levels, and develop a learner-centred model with student tutors, technical assistants and moderators and that the students should be encouraged to research on their own?

Altering human acuities, perceptions and attitudes almost require divine intervention. Consequently, the success of any e-learning programme depends on the people involved: both the trainers and trainees. This situation is particularly noticeable in enterprise-wide solutions that present a significant change in the work process and the role of learning within an organisation.

Many tertiary institutions and teaching professionals do not identify the importance of the implementation of effective and efficient knowledge dissemination solutions. They still offer instructor-led, fixed duration, dogmatic courses as the primary solution. They insist on learning in a classroom environment, even though they realise that we live in an "on demand' society where people insist on getting things as and when required. It

is difficult for many teaching/training professionals to evolve and change their training methodologies, partly because of the traditional way of thinking is holding us back.

The concept of gathering in a centralised place to learn is comforting to us: the socially acceptable way of learning sitting down in a classroom and listening to the lecturer. Once it is recognised that we are in an 'on demand' society, the traditional classroom can be disadvantageous in the dissemination of knowledge and it is possible to consider many options available to implement new modes of distance learning. The predominant factor in this process is to dispel some paradigms about distance learning and replace them with more futuristic ones.

In order to understand how distance learning (e-learning) initiative succeeds, it is necessary to first identify the obstacles that cause the failures of distance learning, which brings one back to the research question:

"How can we transform distance learning in South Africa with emerging technologies?"

In other words, the current distance learning endeavours should be reflected on. These endeavours could assist with the articulation of an appropriate distance learning typology (a distance learning paradigm) which could, in systemic fashion, facilitate the transformation of the outdated public tertiary education sector into an entity which is not only distinctly different, but also bridging the gap that exists between commerce and academia.

1.4 Delineation of study areas and assumptions on which this research is based:

1. the availability of adequate infrastructure to support effective online teaching and learning;
2. the development of effective mechanisms for evaluating the quality of online distance learning from a variety of perspectives (e.g. learners, educators, institutions and external role-players);

3. time and distance constraints (communication restraints).

> We recognize that telecommunications is not an end in itself. But since telecommunication enables information to be made instantly available to a multitude of points, its relevance to human activity is obvious. The telecommunications system in a developing country can be used not only to disseminate information of immediate importance to the nation as a whole but also as a channel for education, for strengthening the social fabric, for enriching the national culture.

"Information Technology must be seen as an economic investment, which society must be able to pay for it. IT should be examined within the broader context of holistic development. It is not an end in itself but a means to an end". (Agunga, 1997).

- Distance learning strategy:

  Distance learning strategies focus largely on three broad topics: aspirations, barriers, and reactions; faculty and administrator attitudes; and planning processes and issues.

  > Smith (1998: P63-72) asked: why distance learning should be provided. He proposed five objectives: improving access, expanding an institution's geographic reach, improving educational quality, increasing efficiency for institutions and for underprivileged students, and achieving customer satisfaction. He found that "expanding geographic reach was by far the most common reason for getting into distance learning and those institutions primarily measured success in terms of enrolment increases, revenue increases, and improved learning."
  >
  > Muilenburg & Berge (2001) compared "barriers to Distance Learning" with "stages of organizational maturity." They commented that the three most significant sets of barriers to distance learning, regardless of

organisational stage were: faculty compensation and time, organisational change, and lack of technical expertise and support.

1.5 Conceptual framework to be used to develop the research questions.

(see Fig. 1.1)

a) Education strategy (research question 1); Kirkpatrick (1998) – Level 1

b) Technological resources and the digital divide (research question 2); Level 2

c) Professional teaching (research question 3); Level 3

d) Transformation of distance education (research question 4). Level 4.*

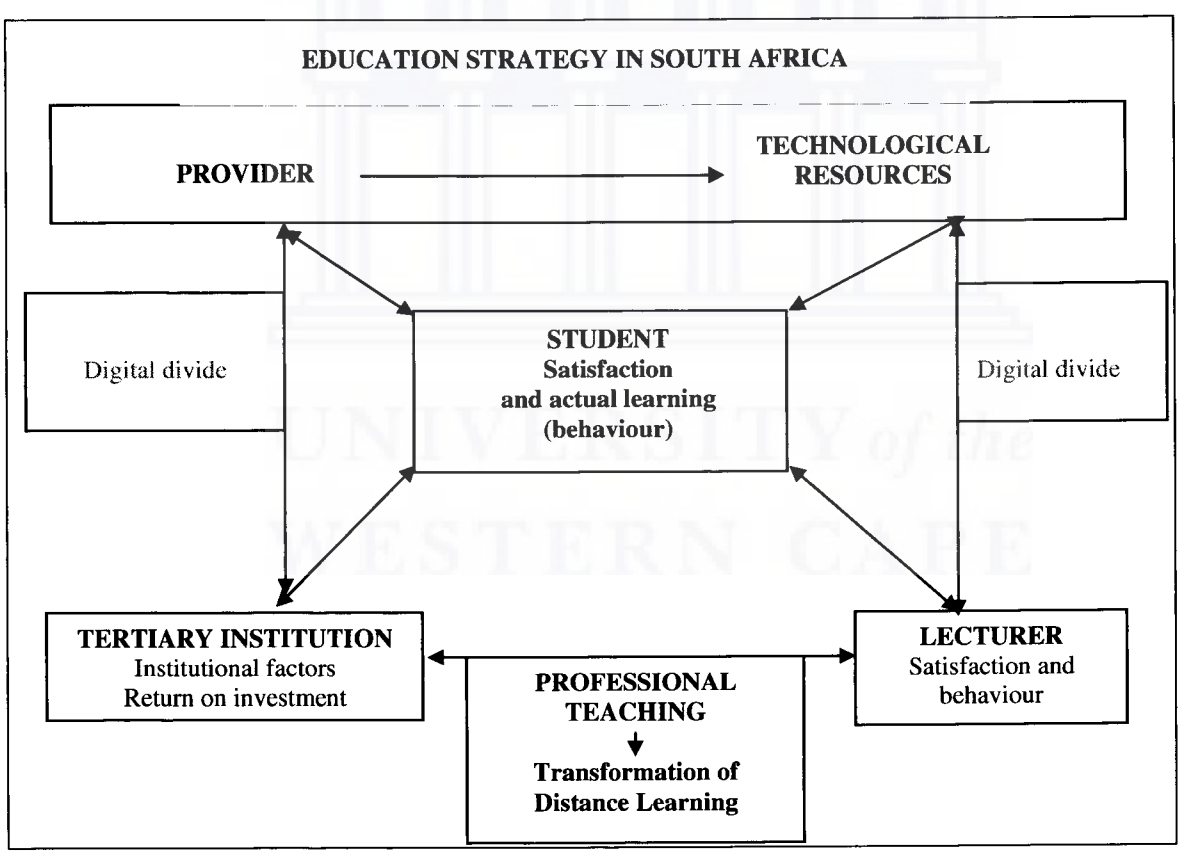


Fig. 1.1 Conceptual framework

***See chapter IV (p.79)**

- **Methodological framework.**

The methodological framework will develop out of the following statements:

- Distance learning is not technologically mediate residential learning.
- Avoid institutional red tape.
- Use subcontracting as a convenient escape mechanism.
- Position the institution as a full range supplier of distance learning programmes.
- Value chain and value innovation.
- Globalisation of distance learning.
- Unequivocal support of academic departments.
- Distance learning only manifests off-campus.

1.6 Research Design/Research Methodology

The general aim of the research is to get a better understanding of distance learning, technological resources and divide and the management thereof by means of developing a model that supports such management.

- ***Data sources***

a) Literature study.
b) Questionnaires.
c) Field studies.
d) Survey research.

- ***Research methods and techniques*:**

- The ***justification*** of the choice of methods and techniques include:

a) **Literature study.** This methodology is considered to be an important part of every research.
b) **Questionnaires** generate theories from practice.

c) **Field studies.** This method involves the manipulation and measurement of clearly defined variables and also seems to be appropriate for the validating in a small scale.

d) **Survey researches.** Discoveries made during data collection.

- The ***feasibility*** of the proposed project

a) **Literature study** will be performed on proceedings from current and past conferences, devoted to networks (electronic publications), Internet and books from libraries.

b) **Questionnaires** should provide contemporary data obtained from practitioners personally involved.

c) **Field studies** will include the evaluation and assessment of the questionnaires for comments and to examine the ability of the survey in producing the desired data.

d) **Survey researches** will validate the field studies and data collections.

- The plan for ***data analysis***

The main purpose of this research is to find an answer to the question of:

"How can we improve distance learning in South Africa with emerging technologies?"

Therefore the main purpose of the data analysis is to:

a) develop a conceptual framework (model);

b) analyse and test the model;

c) adjust the model;

d) continue testing.

1.7 Framework of the rest of the thesis:

CHAPTER 2 - ***Literature Review***

- Arguing the confines of the literature review.
- Explanation of the way intended to use the key concepts of this study.
- Organize and present the literature that was reviewed in a structured manner.
- The conclusion of the chapter will outline the mainframe of the literature review.

CHAPTER 3 - ***Research Design and Methodology***

- Discussion of the research instruments and the motivation for using specific instruments.
- Description of the details of the data collection processes and how the errors were eliminated in the findings.
- Development of the thinking behind the selection of the data procedures and the actual procedures used.
- Conclusion: debating the possible prerequisites in the data.

CHAPTER 4 - ***Results: Presentation and Discussion***

- Illustrate the actual sample and its attributes.
- Describe and classify the main results. Discuss the main trends and patterns that emerge from this research.
- Conclude this chapter by condensing the positive and negative of the known facts.

CHAPTER 5 - ***Conclusions and Recommendations***

- Summarize the findings, deviations and consequences and indicate the possible reasons.
- Indicate if there is reason to believe if further research is necessary.
- End this chapter with a discussion of the possible implication of the research.

CHAPTER II

Literature Review

2.1 Introduction

The previous chapter established the context of the research problem as well as the plan of action to develop a framework for providing answers to the research problem. To further assist in establishing the framework, this chapter reviews various literatures and discusses previous studies to provide insights and to establish why this study is unique and necessary, despite previous related studies. Figure 2.1 gives an outline of this chapter.

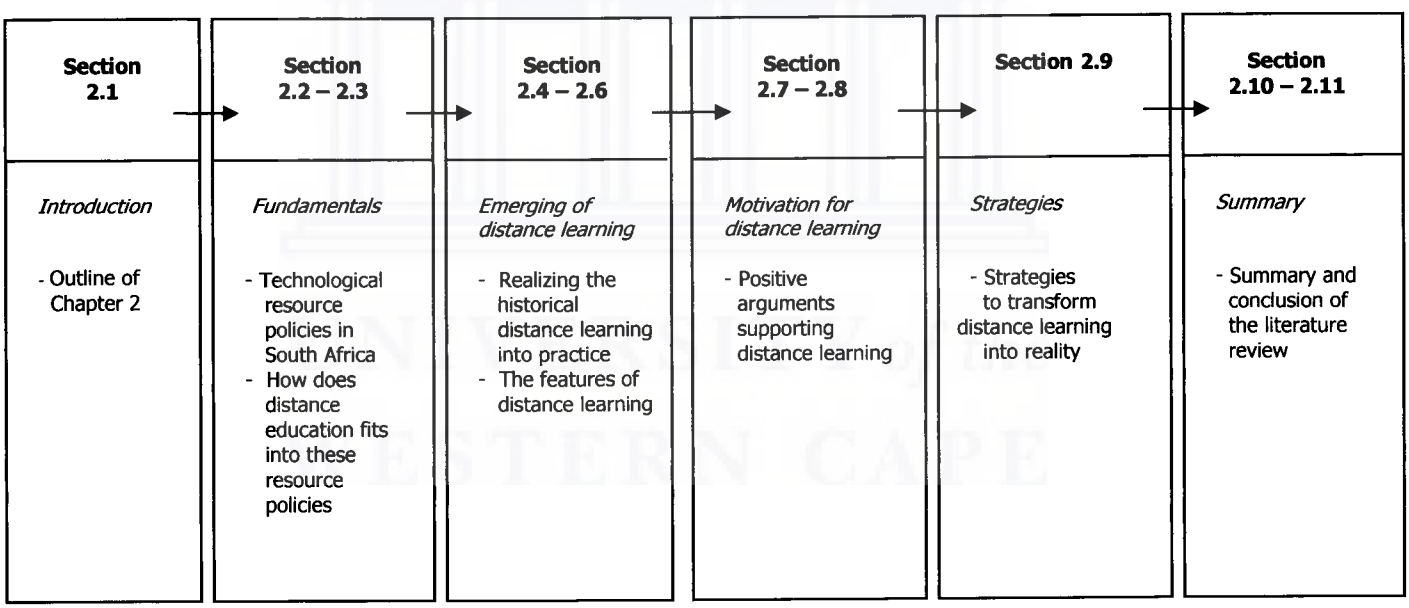


Fig. 2.1 Descriptive outline of Chapter 2

Growth of distance education methods and education strategies has been a key feature of education in the 20th century. These developments raise questions about what distance learning/education actually is, how it can contribute to solving education problems and strategies in developing countries, and what lessons we can learn from

deployment of distance education practices with the help of emerging advanced technologies, technological resources and electronic communication media.

Various frameworks have been proposed to analyse learning and to apply that analysis to the selection for information technologies. According to Perraton (2000: 228-233) Bloom's taxonomy stressed the distinction between cognitive, affective and psychomotor learning, and Gagné proposed an analysis in terms of a hierarchy and stressed the importance and effectiveness of learning at these levels.

Whether consciously or unconsciously, attempts to use distance learning methods over the past few years have been driven by a desire to build on some, or all of the following lessons, emerging from history of distance education practices and strategies:

1. Providing access to students who would, either because of work commitments, geographical distance, or poor quality or inadequate prior learning experiences, be denied access to traditional, full-time contact education opportunities. (Underprivileged students).
2. Seeking to expand access to educational provision to significantly larger number of learners.
3. Shifting patterns of expenditure to achieve economies of scale by amortising identified costs (particularly investments in course design and development and in effective administrative systems) over time and large student numbers. (Unesco report, 1999).

2.2 Fundamental technological resource policies in South Africa

South Africa confronts two fundamental technological resource policy issues:

1. The overall low quantity of skilled teaching professionals in the country, and the unequal distribution of these skills amongst different communities.
2. The low level of computer literacy due to the abovementioned and the lack of electronic resources and equipment.

These two policy issues therefore raised the questions of how to overcome the economical and digital divide in South Africa and how to improve the effectiveness of information technology in the tertiary institutions of South Africa.

Historically, South Africa's information and technology research and development, were to provide access to the small white minority who had access to first world infrastructure and education. Thus the aim for research and product development had, overall excluded the major population of South Africa.

However, with the change in the political environment, information technology research and development have also changed and for example the South African Research and Development Committee has been redirecting some of its efforts towards providing improved technology solutions to solve problems such as implementing a successful distance learning curriculum.

Many South African policy initiatives have their roots in the Reconstruction and Development Programme, adopted by the Government as a blueprint for decision-making over the next few years (Reconstruction and Development White Paper,1994). This Paper calls for an integrated approach to meet basic needs and enhance new and effective economic activity in order to overcome the economic divide. It stresses the importance of information technology, electronic communication media and high-quality education strategies to facilitate the upgrading of education and providing communities throughout the country with access to expertise and usable data.

"The use of information technology provides a major challenge in linking basic needs with information highways in innovative ways that improve the capacity of industry to successfully reintegrate into world markets. Southern Africa could lead the way in providing this link so vital to the developing world." (Reconstruction and Development White paper from the South African Government, 1994).

The Science and Technology White Paper (1996) present the government's vision for Science and Technology. It was founded on the notion that science and technology are central to creating wealth and improving the quality of life in contemporary society. The White Paper proposes a "National System of Innovation" and makes detailed policy recommendations. These include a new policy advisory body known as the National Advisory Council on Innovation, a new management and budgetary system for all government science and technology institutions (including tertiary institutions), the establishment of an Innovation Fund to promote large-scale projects, alignment of the country's intellectual property regime with international practice, and a policy of equity by redress and research capacity development at amongst other, historically disadvantaged tertiary institutions.

The Science and Technology White Paper (1996) makes several strong statements of relevance about the role of information and electronic communication media and emerging technologies in the context of the country and science and technology in particular. It states:
"South Africa currently lacks a national policy to facilitate the country's optimal integration into the global information society."

Distance Education.

The terms "distance education" and "distance learning" have been interchanged for years and, in principal, have the same meaning and goals. There is continuing discussion on which term should be used, with the pedagogical arguments centring in on the words "learning and "education". Education strategies incorporate a systematic

approach to learning, including the institution and the creation of a collaborative learning environment.

The definition that best describes distance education comes from the book Distance Education: A Systems View Michael G. Moore and Greg Kearsley (1996:P136-139) write:

> "Distance education is planned learning that normally occurs in a different place from teaching and as a result requires special technological resources, teaching techniques of course design, special instruction techniques, special methods of electronic communication media and other technologies, teaching professionals as well as special organisational and administrative arrangements."

> The technology has changed but the central issues and concerns of distance education especially in the area of superficial interpretation of course material, motivational and learning experiences and low retention rate remain (Abrami and Burns,1996).

Information technology offers distance education the opportunity to break loose of century-old misconceptions. Higher Education is now challenged to finally eradicate the misconceptions by incorporating and providing high quality distance courses and to do so in a synchronous environment.

"As asynchronous learning networks become more prevalent, it is imperative that colleges and universities identifies the full impact of this mode of learning on both the student and the institution institute a system analysis and design. By accomplishing the analysis and design, the end result will be the incorporation of a distance program into the overall educational system and, more importantly, into the institutional system. The future for distance education is dependent on system management". (Moore & Michael, 1993: P1-10).

There is no clarity or consensus on the impact, or the co-ordination of the process for an institution. Computer-based instruction has increased the need for efficient information flow establishing a whole new set of challenges and objectives.

2.3 Distance learning and technological resource-based learning

The Education White Paper 3 - A Program for the Transformation of Higher Education - Department of Education, Pretoria, 24 July 1997, proclaims the following:

> "There is a chronic mismatch between the output of higher education and the needs of a modernising economy. In particular, there is a shortage of highly trained graduates in fields such as science, engineering, technology and commerce (largely as a result of discriminatory practices that have limited the access of black and women students), and this has been detrimental to social and economic development."

And yet, in this same document the term "Information Technology" is only mentioned five times and not once in the same contexts as distance learning but more to the effect of poor information technology in classrooms, libraries and stocktaking.

What is being suggested here is that literacy promotion may need to adopt the use of existing academic parent institutions whose work is the promotion of various forms of literacy, technology and other emerging technological resources. This institution should then identify experts who are taken through information technology training and literacy material writing. Those trained by adult education departments can join this group. The main goal is to ensure that quality of instruction is assured through the use of information technology and the existing parent body committed to the course.

Modules are developed as the main medium of bridging the distance. The modules are usually made up of lessons or units. The format of the module relies on a set of principles, which have been tested over the years. These principles recognise that the learners are mostly adults, and that reducing the isolation between them and the lecturers would require the use of materials and electronic media that are sufficiently interactive, with appropriately paced content, well defined objectives, good summaries and emerging advanced technologies.

The use of support services by means of information technology in distance learning cannot be emphasised enough. The most important aim is to provide some room for human interaction with the learners in a way that helps cushion the effect of isolation.

"Empirical research has consistently shown that the academic achievement of distance learners is comparable to that of on-campus students taught face-to-face". (Dillon, & Walsh, 1992 P5-21).

Nevertheless, policymakers, academic leaders, government officials, school board members, company executives, and students continue to ask questions about the success of distance learners.

Another concern that surfaces from this literature, is the role of the distance educator in that he or she is longer in control of all aspects of instruction. For instance, distance education often uses a "team approach" to develop and deliver courses. This approach sees teachers working collaboratively with instructional designers, production technicians, administrative support personnel, and assessment specialists. "Another way the role of teacher changes for some distance education courses is that the teacher assumes the role of facilitator and adapts instructional goals and objectives to the delivering technology". (Duning, Van Kekerix & Zaborowski,1993: P5-21).

A review of the literature also tells us that technology intimidates some faculties. "Moving from the regular classroom into a television production room or putting it on-

line is not a natural transition for everyone. Interestingly, however, recent findings suggest that experienced and effective distance teachers often become better classroom teachers" (Dillon & Walsh, 1992:P5-21).

"A very important contribution that distance teaching has made to education in general, then, is the extent to which it encourages faculty to the revisit the question of what constitutes effective teaching and learning" (Olcott, 1997:P2-13).

Another issue that emerges in the literature is the cost effectiveness of delivering learning opportunities via distance education. "Evidence suggests that distance education does not necessarily save money in the short term, particularly when major capital investments are involved" (Gunawardena, 1990: P38-46).

Although the rhetoric of the 1980's insisted that distance education could serve more students at lower costs, in most cases it is extremely difficult to determine with any precision the costs of delivering technology enhanced distance courses. While high course enrolments suggest economic effectiveness, questions arise regarding the instructional quality of courses delivered to large groups of students who have little or no opportunity to interact with each other or with faculty members.

"Perhaps the most pervasive barrier to the expansion of distance teaching has been the absence at most tertiary institutions of equitable incentive and compensation models for faculty"(Dillon & Walsh, 1992:P5-21). "Among the common issues related to distance teaching compensation and incentives are applicability of distance teaching towards promotion and tenure, release time, instructional and administrative support, monetary compensation, teaching load and training" (Clark,1993:7(2). The paradox, however, is that these issues are often overlooked. Olcott & Wright (1995:P5-17) wrote "As crucial as these issues are, they often become lost in the distance education administrative process, only to re-emerge as salient barriers to faculty participation. In many aspects, distance learning is still sitting on the sidelines of higher education".

Another concern that surfaces from the literature are the inclination of tertiary institutions to focus on technology itself rather than to identify programme priorities and then, based on sound pedagogical decision making, determine the optimum technology mix. Simply stated, the progression of an institution's decision making often appears to be buying the technology and then trying to figure out what to do with this technology. Tertiary institutions obtain technology from many sources, before they have identified programme priorities. The tendency to select technology before programmes does not make financial nor pedagogical sense.

Another problem that some distance education institutions have experienced, is a persistent belief that video-based systems is the answer to distance learning and thus leads to economic efficiency and quality academic experiences. It is true that video can be a very effective technology and can serve many educational purposes well. However, tertiary institutions are increasingly exploring other technologies that are less costly.

Today, many "low tech-high touch" technologies, "such as audio teleconferencing, Internet, facsimile, voicemail, videotapes, and traditional print materials are being combined into effective synchronous and asynchronous distance teaching-learning systems" (Hardy & Olcott, 1995:P44-66). Whatever the viability of new video systems, such as desktop video and other digital technologies, the use of low-end technologies will increase rapidly as institutions recognise their economic and pedagogical effectiveness (Hardy & Olcott (1995). An important lesson resulting from this literature is that the ability of technology to transform traditional education, has fallen short of its earlier guarantee to change the old teaching pedagogy to new paradigms. This has been true for both campus and distance instruction. The tendency has been to "fit" technology into old patterns of teaching.

To summarise: these issues suggest that we must make major changes to the distance learning endeavour. Therefore we must renew our commitment to the potential of educational technology on distance learning. The renewal must begin with some fundamental changes in the way we approach technology and its educational applications.

The ultimate goal is to ease the strain on the learner, but the problem is how can it be achieved and where to begin?

2.4 The emergence of distance learning

"Article 41 of the Declaration of Human Rights issued by the United Nations in 1948 argued that basic education is a right for all human beings. And yet in the year of 2000, well over 900 million adults in the world are still illiterate" (Oxenham, 2000:P229-259). Most of these people live in the so-called "developing' countries of Asia and Africa. But even in Britain, it is estimated up to 15 million adults cannot read and write properly. Globally about 1.3 billion people are regarded as 'illiterate'. The consequences of not being able to read and write sufficiently, are very significant. For example, we know that there is a strong correlation between levels of literacy and education on the one hand, and poverty, health and economic well-being on the other. Without literacy, people cannot reach their potential or protect themselves from being exploited.

As we enter the 21st century, it is a serious question why so many people are unable to read and write, and why these problems are so difficult to solve. Can the availability of education technologies like technology resources and new electronic communication media facilities do anything to help reverse growing educational and economic inequality (economical divide), or will the so-called 'digital divide' just make matter worse.

In the dual mode distance education process commonly used in distance learning in South Africa, there is usually an institutional provider of conventional education. The structures in the institution help to provide needed assistance in the development of distance education programmes; quality is ensured and monitored, and the parent institution awards certificates, diplomas and degrees. Parity is aimed at. The institution usually sets up a unit or centre to provide distance education to clients

outside the conventional setting. There is also a great reliance on the internal system to ensure the quality of the non-traditional operations. Most of the writers of materials are the faculty members who are taken through various forms of training in material development and writing, but are not using emerging technologies and technological resources available.

We look first at levels of adult illiteracy in Africa. Table 2 gives figures for selected countries. The countries included are there because we also include data on their access to information technology. It can be seen that in most cases there is a clear gender divide. More women than men are illiterate in Africa. Secondly, the southern countries generally have lower illiteracy rates than those on other parts of the continent.

On both a national and community level, information technology and distance learning is a crucial factor in reducing exclusion from Information Technology.

Table 2.2: Estimated illiteracy rates in the age group 15 years + in selected Sub-Sahara African countries 2000

Country	% Illiteracy Rate	% Male	% Female	Total Illiterate Population 000's	Male 000's	Female 000's
Botswana	23	26	20	213	115	98
Ivory Coast	53	45	62	4,457	1,952	2,505
Ethiopia	61	56	67	20,664	9,497	11,116
Gambia	64	56	70	494	214	279
Ghana	30	21	39	3,427	1,166	2,260
Guinea	59	45	73	2,186	816	1,370
Kenya	18	11	24	3,015	946	2,068
Malawi	40	26	53	2,296	718	1,577
Niger	84	77	92	4,688	2,083	2,065
Nigeria	36	28	44	22,803	8,639	14,163
Tanzania	25	16	33	4,551	1,431	3,120
Zimbabwe	7	5	10	504	347	718
Zambia	22	15	29	1,065	347	718
Rwanda	33	26	39	1,394	543	851
Senegal	63	53	72	3,290	1,368	1,921
South Africa	15	14	16	3,916	1,814	2,102

Source: Adapted from UNESCO statistical yearbook 1999-2000 cited in Laugo 2000.

Comparing these statistics (per capita), South Africa's illiteracy is one of the highest in Africa. The question is why so many adults in South Africa are illiterate?

First and foremost there is a problem of supply. South Africa simply does not have enough schools to accommodate all the children. And many of these schools provide a poor quality of education. If children cannot get to school, or when they do, the quality of the schooling available to them is so poor they do not learn. The levels of illiteracy will inevitably rise and stay high.

The apartheid era produced a proliferation of government departments as many national and provincial authorities divided along ethnic lines. At the same time international embargoes made it difficult and expensive for the S.A. government to acquire adequate information technologies.

To address the gaps between needs and reality, the recently published White Paper on Education announced the intention to create an Education Management Information System. This will link all schools to the provincial education department, link the provinces to the national department, and generate information. (It is called IQMS and has been in practice since 2004)

There is a very limited use of Information Technology in the pedagogic process, except at affluent private schools. However, at the provincial level effort is underway to obtain funding for the deployment of desktop computers in schools and connectivity over the Internet. In the Western Cape, money has been allocated to establish leased line connections to outlying areas, so schools can connect to each other and the Internet. Several grassroots initiatives have led to the connection of many South African Schools to the Internet.

The Department of Education has stated that it views distance education, media and technological services as a driving force for social participation and economic development of all communities. Technology is seen to provide the essential multiplication factor for training resources to be utilised to the full potential.

And yet, Education Administration suffers similar problems as those in Health Care and elsewhere in South African government, because a number of authorities split on ethnic lines. Where specific systems have been written to handle examination administration, for instance, they have been for particular ethnic groups and must now be applied to a unified set of education strategies and structures.

2.5 Realizing the historical distance learning experiences into practice

1. The concept of faculty participation in distance education must be expanded to encompass a broader role that includes instructional and scholarly leadership. Olcott & Wright (1996:P5-17) addressed this concept:

> "Faculty participation in distance education, first and foremost, involves providing instructional leadership beyond the fundamental role of teacher, first and foremost, involves providing instructional leadership beyond the fundamental role of teacher. Instructional leadership suggests that faculty members are intimately involved in the instructional design process, the design of student support services, in student advising, and in the rigorous evaluation of technologically-mediated instruction. Moreover, faculty participation includes engaging in discipline-based research that will be disseminated to the broader academic community and to professional colleagues regionally and nationally."

> "The distance teaching faculty must play a role in the development of technology training programmes and serve as ambassadors to potential distance teaching faculty members. The faculty can also play an advocacy role for distance teaching to departmental chairpersons, deans, the executive administration, and, perhaps most importantly to underprivileged students. To summarise, participation in distance education offers faculty the opportunity to take unique leadership roles in technology-based instruction and in scholarship that can provide invaluable assistance to the institution in meeting its extended mission". Smith T, (1998):P63-72.

2. Due to the fact that some educators resist distance teaching because they are concerned that distance courses will significantly increase an already heavy workload, it

is proposed that incentive structures be formed for the participating distance teaching faculty.

> "Distance teaching deserves equal weight in promotion and tenure, commensurate release time for course development and departmental and college resources for course development and outstanding teaching professionals". Smith T, (1998).

3. It is the task of higher education institutions to identify and choose the correct programmes of studies and then combine these methodologies with the most appropriate, suitable technology systems.

> "Technology, in and of itself, is only a delivery system and not a panacea for resolving major institutional issues of access and cost efficiency" Smith T, (1998).

4. The underprivileged student must be accommodated in such a way curriculum wise, that he or she will walk out of this tertiary institution fully equipped to face a professional career. High tech programmes are not the answer to successful lecturing methods.

> "Institutional investments in human resource development must be elevated to levels to sustain training, course development, and the range of administrative and learner development services necessary to deliver a high quality programme" Smith T, (1998).

5. Professional partnerships between tertiary institutions (among themselves) as well as the private and public sector must be formed in order to alleviate costs and programme duplications. Also in order to share resources in far-off distance education information labs.

> "Distance learning transcends geographical boundaries and creates unlimited opportunities for extending existing and new programmes to new audiences anywhere, anytime, and through a variety of media. Higher

education will be available in the traditional classroom, the workplace, and the home at the convenience of the learners rather than at times that serve the interests of these institutions". Smith T, (1998)

6. Higher education institutions of the future will be a business driven, market related tertiary concern. And instead of concentrating on old policies, curriculum and technologies, we must provide to the (especially the underprivileged) student a distance education environment that is market driven, and yet affordable for the student.

7. Yet, we must not lose track of the fact that educational technology must supplement and improve the teaching methodology.

"Technology by itself will not transform the teaching-learning process. Technology has unequivocally failed to meet this challenge. We must recommit ourselves to this fundamental goal if we are to harness the full capacity of technology in education". Smith T, (1998):P63-72.

8. Outcome-based assessment will replace traditional evaluation methods and the focus will be on the performance and competencies of the student rather than theory driven standards.

2.6 The features of distance learning

The following are some features of distance education and open learning:

- Distance education creates opportunities for the learner to choose the location and time to enhance his studies.

  > " Distance education is a non-traditional approach to teaching and learning, as it veers away, most of the time, from the traditional face to face practice common in traditional classroom situations classroom situations" (Adenkanmbi, G, 1999).

- There is virtually no direct contact between the lecturer and learner, except for periodical visits by tutors.
- Outcome-based assessments take the form of projects, practical assessment and assignments (practical combined with theory).

  > "In bridging this, a mediated form of instruction, possibly through the use of written materials, emerging technologies and other technological resources take place" (Adenkanmbi, G, 1999).

- A great lot of effort is put into the designing of study guides and materials, training of the distance educators, the planning and implementation of a distance learning milieu to minimize costs and to ensure a high-quality pass rate.
- The working student obtains an improved knowledge in his/her line of studies and applies and combines the acquired proficiencies in his/her line of duties in the working environment.

2.7 Motivations for distance learning

1. There is a drastic increase of students registering at the traditional higher tertiary institutions and the newly formed technology universities. And to handle this influx of students and to prevent a high failure rate for first year students, it is advisable to form distance education departments to accommodate the first year students of different faculties and let them obtain a generic first year diploma through a bridging, also called a foundation year.

2. Distance education will not only help to decrease the failure rate of first year students, but also encourage the adult learner to better his qualification and to work independently in a distance class environment.

3. This will not only lead to a cut in the expenditure rate of the institution (due to the fact that failure rates are down and bursaries not paid back), but will also have a significant impact on the image of the institution which will lead to increased levies paid by the government.

4. The Institution can now direct a significantly larger proportion of "total expenditure to the design and development of high quality resources, as a strategy for building and assuring the quality of educational provision and to bridge the economic divide" (Saide Report, 2000).

On both national and community level in South Africa, information technology education and training is a crucial factor in reducing exclusion from information technology. Although many basic and professional information technology skills are acquired through informal means either at work or at home, formal education remains an important component of the learning process. This is especially important for large proportions of the South African population who do not have home access or are not employed, or are employed in jobs that do not bring them into contact with computers on a regular basis (SAIDE Report,2000)

2.9 Strategies to make distance learning a reality

Given the need to transform our institutional conception of distance learning for the next century, steps which will be essential for institutions must be considered. The following summarises some of the key strategies for success. They can form the basic principles for resolving the aforementioned issues related to a renewed vision for educational technology and distance learning.

1. The financial dependency of tertiary institutions in South Africa is something of the past. These institutions should see themselves as market driven business and the client, the student. The institution should therefore concentrate on delivering successful service in the form of high quality education which can only be reached by making use of the combination of traditional and distance learning practices.

> An institutional inventory should be conducted to determine what barriers currently impede responsive, efficient delivery of programmes to the marketplace. Are your policies for maintaining quality working? If not, what modifications will empower your institution? (Olcott,1996).

2. Institutions should work hand-in-hand with the private sector to form partnerships and to obtain the necessary grants and in-service training for students. Thus the student can attend distance learning classes while completing his in-service training.

3. Distance learning centres must be well equipped in order for the student to reach a certain outcome, specified in the curriculum and study guides. These centres should also have the necessary technical assistance from qualified technicians.

4. Technical assistance is not the only support needed by this student in question. When starting the course, the necessary guidance, counselling, support and student orientation should be available at these centres.

Validity can be classified into two groups:

- Content validity, according to Leedy & Ormod (2001:142-144)) is the extent to which a measurement instrument is a representative sample of the content area being measured.
- Face validity refers to the degree to which a test appears to measure what it intents to measure according to Gay (1992:P151-188).

Questionnaire

A questionnaire is a self-report data collection instrument that each research respondent fills out as part of a research study (Johnson & Christensen, 2004:P498-523).
A questionnaire is completed by respondents at their own time or completed by respondents under the supervision of the researcher. A questionnaire is a versatile tool available and it includes multiple questions and statements. A good supervised questionnaire is still the most suitable instrument to educe information concerning the findings of the research.

"A questionnaire not only has the advantage of involving a large number of respondents in a single test, and makes it possible to obtain a high proportion of usable responses, but also accumulates an enormous amount of information in a short space of time" (Best & Khan, 1989:P188-192).

The main purpose of this questionnaire is to generate theories from practice and should provide current data that is obtained from practitioners personally involved.
The researcher accumulated the material in the questionnaires with reference to the text and remarks in the literature study.

The main reasons for this field study were:

- to evaluate the wording of the questions and items in the questionnaires and the comments received from the educator and student participation;
- to assess the responses to the questions in order to examine the ability of the survey in producing the desired data.

Field Studies

"Field testing involves the actual use of the materials with students and teachers interacting within the normal education setting for which the materials have been designed for future use." (Freeman, (1995).

It can be noted that in the above-mentioned quotation there is talk of "the normal education setting", but it can be argued that distance education is not part on the conventional normal education. "But according to Martin & Rainey, conversely, as reported by other researchers, there are no significant differences in grades for distance education students versus traditional students" (Freeman, 1995).

Studies also conclude that similar factors determine successful learning whether the students are distance or traditional learners. These factors include:

- willingness to initiate calls to instructors for assistance,
- and possessing a more serious attitude toward the courses.

Some researchers may feel that, in proposing a set of principles for conducting and evaluating interpretive field studies, we are going too far because we are violating the developing nature of interpretive research, while others may think just the opposite.

Survey researches and data analysis

Survey research is the technique of analysing accumulated data from respondents thought to be representative of some population group, using an instrument composed of closed structure or open-ended items (questions).

> Critics of survey research methodology hold it to be a method which artificially forces respondents to formulate opinions, masking the complexity of conflicting views and unconscious biases within each respondent, and critics note that in many arenas (e.g., race relations) survey items poorly predict actual behaviour (Behling & Kenneth, 2000).

Through research, certain advantages and disadvantages of survey researches were identified:

The advantages of survey researches

- A survey research produces empirical data. Empirical data is information that is gathered through observation, in other words it is actual.
- Due to fact that survey research can generate a large amount of data in a short time the cost is comparatively low.

  Consequently, very large samples are feasible, making the results statistically significant especially when analysing variables. Therefore many questions can be asked about a given topic giving considerable flexibility to the data analysis (Colorado State University, 1993 – 2008).

Disadvantages of survey researches

- The importance of the data can become obsolete if a researcher concentrates too much on the collection of data rather than the implication of the data.

> "A methodology relying on standardisation forces the researcher to develop questions general enough to be minimally appropriate for all respondents, possibly missing what is most appropriate to many respondents" (Colorado State University, 1993 – 2008).

- The information that is collected through this survey research can lack detail that is required for this research methodology

> "Survey researches are inflexible in that they require the initial study design (the tool and administration of the tool) to remain unchanged throughout the data collection" (Colorado State University, 1993 – 2008).

The main purpose in this research is to use the survey research and data analysis to validate the data collections.

> "Rather than jump from one technology fad to another or leap to conclusions that new technologies require new planning and design processes or radically different learning paradigms, it appears reasonable to consolidate what we know works best in which various learning and work environments, and to identify known gaps in our knowledge and areas where new technologies simply do not fit well into existing frameworks" (Jesshope, Heinrich & Kinshuk, 2000).

In conclusion it can be stipulated that the main purpose of survey research methodology and data analysis is to develop a conceptual framework (model)

Organising the data

"Data should be organized before it is analyzed. This is a process of reading, and reading once more through the data" (Marshall, 1995:P43-54). As this is a literature study, this means that the researcher will have to read through all the literature that was collected. This will ensure that the researcher becomes familiar with the data in intimate ways. The

researcher has to structure the process of data collection by means of a systematic process. Data categories will also be compared with each other on an ongoing basis.

All the data will be analysed qualitatively based on analytic procedures from the Sloan-C Five Pillars of Quality Online Education and Kirkpatrick's Four-Level Model of Evaluation (See Fig. 4.1 - Pg. 71 of this Chapter). Further still, all the factors were extracted and incorporated in to the Five Research Questions and to find a 5-factor solution.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

Educationalists' interest enhanced dramatically over the last twenty years as a result of the great developments in the telecommunication technology, which resulted in an increase in the subjects offered by distance education programmes.

However, although computer-based instruction is very popular and appropriate for many students, it is characterised by many delivery and pedagogical problems.

Though numerous studies and research examine the aspects of on-line learning, an important question is being overlooked: How the use of e-learning influences the learners' motivation, learning environment, and academic success. This chapter will therefore concentrate on the following data sources to corroborate the findings of the research project:

- Literature studies.
- Questionnaires.
- Field studies (observation used to collect the information).
- Survey research (methods used to validate the findings of the research project).

The main rationale of the chapter is that the methodology used must be seen as an operational structure within which the facts are placed in such a way that their significance may be seen more clearly and to reach the objective of the study: "To

transform the way of Distance Education in South Africa with emerging technologies"

To obtain objective data, able to be corroborated by facts and figures and statistically illustrated, there had to be looked at the justification and feasibility of the research methodology.

- *The **justification** of the choice of methods and techniques*

  a) **Literature studies.** This methodology is considered to be an important part of every research since an objective view of the current status of the research topic is obtained.

  b) **Questionnaires.** The rationale of a questionnaire is to collect information that presents a genuine manifestation of the attitudes and beliefs of people. Thereby the questionnaire gives the researcher greater confidentiality, because the interaction between the respondent and the researcher is limited, so that the questions can be answered more thoroughly and generate theories from practice.

  c) **Field studies.** This method involves the manipulation and measurement of clearly defined variables and also seems to be appropriate for the validating in a small scale. The assessment of combined technology is best done through field studies.

  d) **Survey researches.** Although survey researches are inflexible to discoveries made during data collection, the goal in survey research is that every respondent should interpret both the questions and answers similarly. Special attention must be given both to the wording of the questions and their possible responses, as well as to their placement in the schedule.

- *The **feasibility** of the proposed project*

a) **Literature study.** In order to evaluate the viability of distance learning a literature study will be a feasible method to follow and will be performed on a basis of proceeding of current and past conferences, devoted to networks (electronic publications), Internet and books from libraries. A literature study will evaluate to what extent distance learning can be implemented successfully.

b) **Questionnaires** should provide present-day data from practitioners and learners, personally involved in an objective manner that will help the researcher in answering the research question.

c) **Field studies** will include the evaluation and assessment of the questionnaires for comments and examine the ability of the survey in producing the desired data.

d) **Survey researches** will validate the field studies.

- *The plan for **data analysis***

The main purpose of this research is to find an answer to the question:
"How we can transform distance learning in South Africa with emerging technologies", therefore the main purpose of the data analysis is:

a) to develop a distance learning model that will succeed and improve education in South Africa,

b) continue testing in order to continue improving the education situation.

3.2 Justification and feasibility of the choice of methods and techniques used in this research

3.2.1 Literature Studies

The "Justification of Literature Review" necessitates the need and validation for the literature review. In a sense, this section is an introductory literature review of the problem or need. This section does two things:
(1) It makes the proposed assessors aware of the need for this review and;
(2) convince the proposed assessors that the writer understands the research topic.

As data collection planning is very important in the study, there must be what Rudestam & Newton (1992:P23-51) state "making sense of the data in naturalistic sense". "The goal of a methodology chapter is to provide a clear and complete description of the specific steps to be followed. It is necessary to describe these steps in sufficient detail to permit a naive reader to replicate your study".

Gall, Borg & Gall (1996) write: "The following validity types are reported in the literature concerning experimental and quasi-experimental research: a) statistical conclusion validity, b) internal validity, c) construct validity, d) external validity, and e) face validity".

In conducting this study, two populations groups were acknowledged for this study: lecturers who have taught computer-based distance learning classes in one of the higher education institutions in South Africa, and students who registered in the computer-based distance education in one of the higher education institutions in South Africa. The main criterion for the lecturer was that he or she taught a computer-based distance learning class. The main criterion for the students was to be registered in one of the computer-based distance learning classes offered by one of the higher education institutions.

Validity can be classified into two groups:

- Content validity, according to Leedy & Ormod (2001:P142-144) is the extent to which a measurement instrument is a representative sample of the content area being measured.

- Face validity – refers to the degree to which a test appears to measure what it intents to measure according to Gay (1992:P151-188).

3.2.2 Questionnaires

The main purpose of this questionnaire is to generate theories from practice and should provide current data that is obtained from practitioners personally involved. The researcher accumulated the material in the questionnaires with reference to the text and remarks in the literature study.

Students' questionnaire

The questionnaire for the students was formulated into one section: close-form questions. This was divided into five categories:

- biographical and demographic information;
- respondents' perception of their own knowledge and experience in their learning environment (skill level);
- the availability of technological resources and electronic communication media in their institution (computer application and tools);
- their perception of the educators' knowledge and experience in their field of teaching (education experiences);
- the advantages of this teaching method, delivery, and the students' concerns.

Lecturer questionnaire

Section A - will concentrate on prescribed responses – comparable to multiple choice questions – close-form questions. Closed questions are questions in which all possible answers are identified and the respondent are asked to choose one of the answers.

Section B - will be in the form of an essay question – open-form questions. Open questions are questions that allow the respondents to answer in any way they wish.

"Closed-form questions mean that the questions permit only prearranged responses and open-form questions mean that the respondents can make any response they wish" (Best & Khan, 1989:P188-192).

Section A:

The questionnaire for the educators was divided into four categories, namely:

- respondents' perception of their own knowledge on e-learning, their teaching experience and their skills level in ICT and communication;
- the availability of technological resources and electronic communication media in their institution;
- the advantages and disadvantages of this method of delivery and their concerns;
- their personal future education strategy and that of their department.

Section B:

In this section (open form questions) the focus is on the core skills of the lecturer and how he/she deals with organisation pressures of being an e-learning educator and how it will influence distance learning.

- *Questions that are concentrate on*

i. the role of the responsible educator in e-learning,
ii. technological factors,
iii. scholar factors and
iv. institutional factors

} Reaction

- *Questions that deal with*

i. defining and analysing the current education,
ii. strategy on e-learning,
iii. electronic sustainable courses,
iv. the students' attitudes, knowledge and skills.

} Learning

Questions that determine

i. the tutors' support and satisfaction,
ii. the learner satisfaction and behaviour,
iii. the learner participation.

} Behaviour

- *Questions that revolve around the*

i. the management of the education strategy, on e-learning by the tutors,
ii. financial viability of e-learning.

} Results

The foundation of the questionnaires was based on the assessment of the literature in the field. The literature review provided valuable data and facts about which questions should be asked in order to cover the computer and telecommunications skills, technology support, training programmes and education experience in computer-based distance education in South Africa.

3.2.3 Field Studies

This method involves the manipulation and measurement of clearly defined variables and also seems to be appropriate for the validating on a small scale.

The main reasons for this field study were:

- to evaluate the wording of the questions and items in the questionnaires and the comments received from the educator and student participation;
- to assess the responses to the questions in order to examine the ability of the survey in producing the desired data.

"Field testing involves the actual use of the materials with students and teachers interacting within the normal education setting for which the materials have been designed for future use." (Freeman,1995).

It can be noted that in the above-mentioned quotation there is talk of "the normal education setting", but it can be argued that distance education is not part on the conventional normal education. "But according to Martin & Rainey, conversely, as reported by other researchers, there are no significant differences in grades for distance education students versus traditional students" (Freeman, 1995).

Studies also conclude that similar factors determine successful learning whether the students are distance or traditional. These factors include:

- willingness to initiate calls to instructors for assistance,
- and possessing a more serious attitude toward the courses.

Some researchers may feel that, in proposing a set of principles for conducting and evaluating interpretive field studies, we are going too far because we are violating the developing nature of interpretive research, while others may think just the opposite.

What is important here is the recognition that these types of concepts were extracted from common, everyday experiences such as misinterpretation or misunderstandings in everyday communications (breakdowns). Therefore, interpretive research is the attempt to relate particulars as may be described under

the principle of contextualisation to very theoretical categories; unique instances can be related to ideas and concepts that apply to multiple situations.

Field studies is part of formative evaluation, in that the main purpose of the field studies is to determine if changes need to be made, based on use of the information retrieved from the questionnaires.

The conclusion is that field studies is a complex social process and there is a need to recognise the impact of those underlining processes deriving from questionnaires.

3.2.4 Survey researches and data analysis

Survey research is the technique of analysing accumulated data from respondents thought to be representative of some population groups, using an instrument composed of closed structure or open-ended items (questions).

In conclusion it can be stipulated that the main purpose of survey research methodology and data analysis is to develop a conceptual framework (model)

3.2.4.1 Development of a conceptual framework

The underlying principle is to address the transformative role of information technological resources on distance learning and to promote the education strategy, professional lecturing at tertiary institution to students (especially underprivileged students), with specific focus on South Africa's education system. But also to concentrate on related factors influenced by the spread of electronic communication media and the digital divide and to consider cost benefit factors and long term consequences of growing rates of improved digital knowledge and the utilisation thereof.

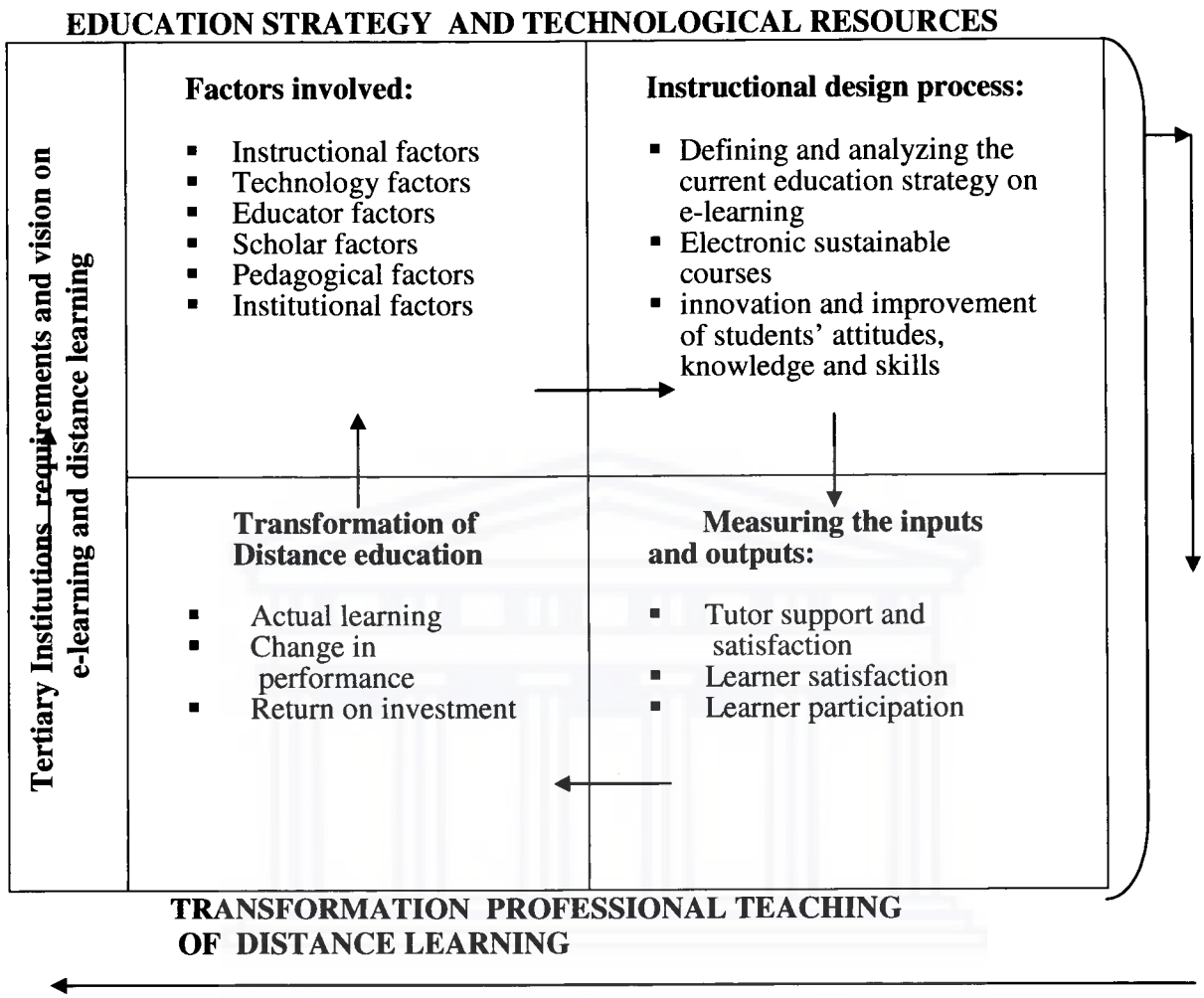


Fig. 3.1 Concept ional framework (model) to transform the way of distance learning in South Africa with emerging technologies. (Kirkpatrick D.L.,1998. Educating Training Programs - The Four Levels [2nd ed]. San Francisco: Berret-Koehler.) Here, for the first time, you acknowledge your source correctly!

3.3 Summary of intended analysis of the data collected

Organising the data

- Generating categories.
- Testing the research question against the data.
- Searching for alternatives explanations of data.

- Writing the report or conclusion.

Graphic presentation of the data analysis process

Step 1: Organising the data.

Step 2: Data cleaning (sifting of data).

Step 3: Generating categories and patterns.

Step 4: Formulation of themes.

Step 5: Recording data.

Step 6: Data verification:

Testing the research question and searching for alternative explanation

Organising the data

All data collected will be structured by means of a systematic process. Data categories will also be compared with each other on an ongoing basis.

Generating categories, themes and patterns

At this stage, this will all be raw data material, in the form of notes from the literature collected. The researcher will identify ways of converting data into the specific units of information (already identified in the model - Chapter III) that could be analysed.

Formulation of categories and patterns

Themes will be formulated from topics within the developed categories. This will be the recurring pattern from different literature that the researcher gathered.

Recording data

This step is about recoding the existing material. The researcher will go back to the edited literature notes, read the material to verify that the data material was correctly placed.

Data verification

The researcher will now validate the data by means of the model designed in chapter III. The researcher will look at various authors' perspectives, relevant to the South African situation on distance learning and e-learning. As categories and patterns emerge, the researcher will engage in the critical act of challenging the very patterns that seem so apparent. The researcher will do this by searching for other plausible explanations for the data, which are either confirming or differing from data that is recorded.

3.4 Conclusion

Before concluding this chapter with the possible prerequisites (fundamentals) in the data there are certain key indicators that have to be identified.

1. To what level can web/e-mail facilitate and enhance distance learning with the use of e-learning.
2. What is necessary to facilitate adequate and effective communication among distance learners and between these learners and tutors.
3. How can the disadvantaged student be accommodated in the distance learning milieu.
4. How does e-learning affect learner/tutor roles.
5. What scale of computer/telecommunication equipment is required to accommodate the distance learner with e-course material.
6. To what degree can e-learning influence or facilitate individual or group projects in distance education.
7. To what point can e-learning elevate the distance learner to educe motivation with their studies.
8. What design features will help with the smooth progress of distance learning via web-based material.

9. What other resources will help to reach the ultimate success of distance learning to the disadvantaged student.
10. Costs involved to develop distance learning with the help of e-learning:
    - development
    - implementation
    - delivery
    - support/maintenance
    - evaluation and
    - access (especially to the disadvantaged student)
11. To what extent can this approach to distance learning, generate cost savings for:
    - tutors and
    - learners.
12. The role distance learning, with the help of e-learning, can play in the academic results of a tertiary institution.

The most important raison d'être of the survey was to establish the suitability of distance learning with e-learning systems. It was argued (Schwan, S., 1997) that the characteristics of the communication mediums which are available in distance learning fundamentally alter and limit the process of knowledge acquisition which is made available in such distance learning. This research further argues that although there are superficial similarities between traditional teaching paradigms and the new technology, there are more fundamental differences than similarities. The primary need for tertiary institutions in South Africa is to find out which competences are already available within the institution staff, of technological resources and support services.

In the final evaluation and conclusion of the survey, certain basic fundamentals were established for the success of distance learning with the use of e-learning systems.

- The learning strategies and support service for the e-learning support must form a crucial part of online learning in this milieu of higher education at a tertiary institution.
- A well structured course and an organised online support service will assist the student to retrieve knowledge easily and help with learner's studies.
- This in turn leads to the basic fundamental that access to technical resources should be available at all times.
- The required instructor training courses are necessary to ensure a successful presentation of a course content of high standard which should be reviewed and updated at a regular basis according to the needs of the distance learner.
- Well prepared, informative feedback to students will guarantee unequalled supportive system and will motivate the distant learner to achieve his/her ultimate goal with their studies.
- The tertiary institutions' management, the technical support services, the distance learner lecturing staff should liaise on a regular basis, in order to guarantee an effective online learning faculty which will show a quality service with an above average success (pass) rate.
- As the tertiary institutions in South Africa will be seen as marketing enterprises in future (due to Government pressure to reduce subsidies to higher educational institutions), a well construed budget should be structured to obtain and to provide adequate funding per capita learner, technical resources and services rendered.

Within these fundamentals it is also a necessity to needs.

- Young/mature learners
- Ethnic origins
- Underprivileged students
- Language skills
- New learner / experienced learner
- Subject studied
- Distance learner

This chapter embraces the research instruments that were used and the full details of the date collection processes. It also explicates the thinking behind the selection of the data ratiocinated procedures and the actual procedures that was used. The final part (conclusion) was to debate and establish the possible prerequisites or fundamentals in the data.

	Research methods			
Research objectives	Literature study	questionnaires	field studies	survey research
1. To determine key aspects	√			
2. To develop the model	√	√	√	
3. To test the model in real cases		√	√	√

Fig. 3.2 Summary of Research Methodology

CHAPTER IV

FINDINGS

4.1 Introduction

Chapter Three explained the methodology used for this study, the design of the survey instruments and the management of the survey. The analysis of the data collected for this study assisted to illustrate what situation existed for the participants with regard to online learning in higher education and what role it could play in distance learning.

4.2 Synopsis of this chapter

This chapter portrays the findings for the research question *"How can we transform distance learning in South Africa with emerging technologies?"*

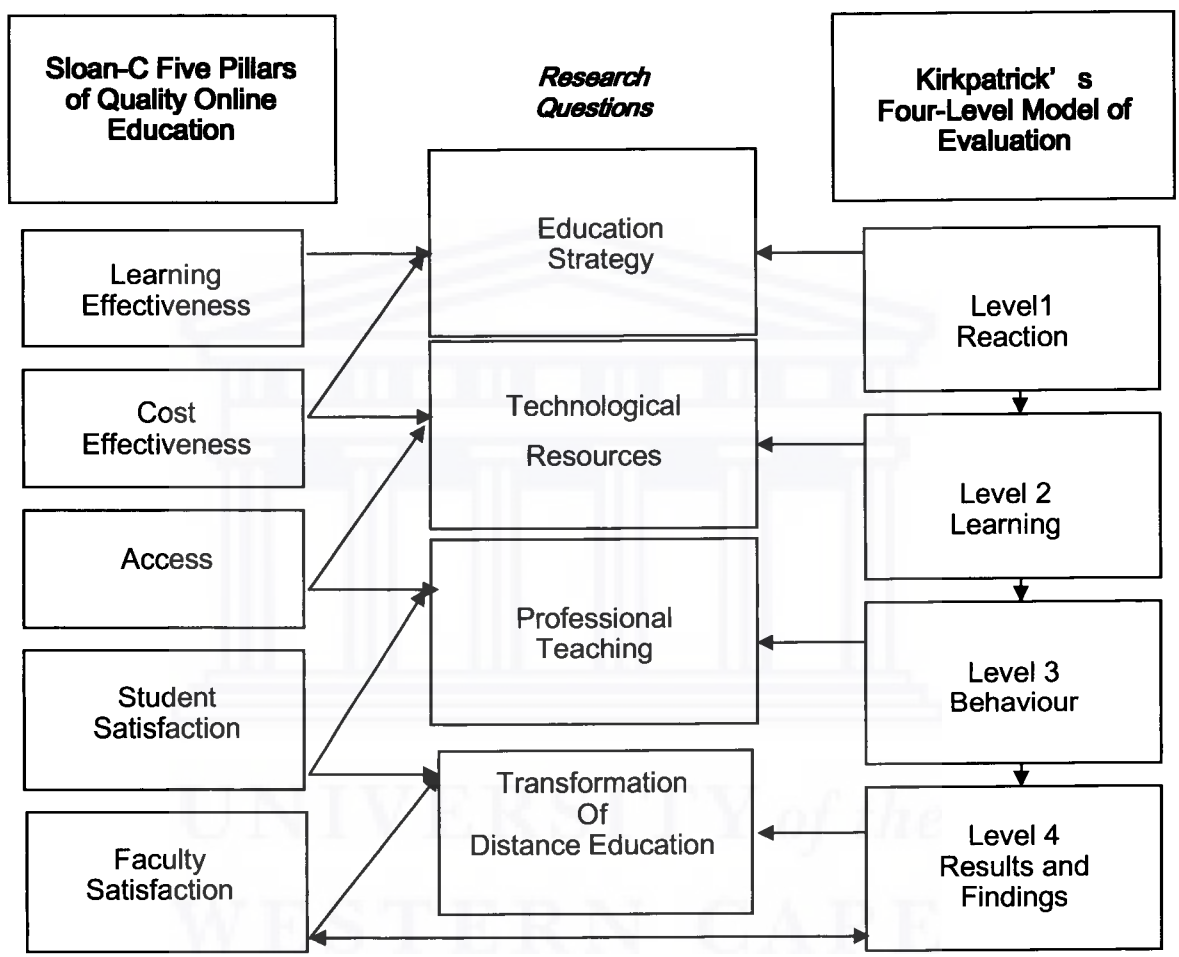
The chapter's intent is to examine the response data using the quantitative measure to determine the extent; importance and the level of involvement of e-learning on distance learning and how online-learning can enhance distance education and specially facilitate the disadvantaged student.

The quantitative demographic instrument - consists of closed and open ended questions for lecturers and learners to acquire faculty information about the following

a) lecturer and the lecturer status,
b) student and the student status,
c) educational accomplishment of both,
d) formal distance learning training of the lecturer,
e) distance learning experience of the lecturer,
f) teaching experience,
g) level of course taught,
h) academic program taught, and
i) delivery mechanism.

This chapter will therefore address the following matters:

Fig 4.1



- Analysis of the quantitative data collected from the student and lecturer questionnaires as they relate to the research question will be done.
- A conclusion of the results that was attained in this chapter will be given.

4.3 Introductory discussion

4.3.1. Student Questionnaire (Appendix 1)

Bear in mind that in e-learning, the students must be seen as the ultimate clients (end-users) of e-learning products and therefore user-evaluation of web-supported learning has a significant role to play in the quality assurance process in distance learning in South Africa.

This questionnaire therefore contained a variety of questions which sought students' impression of the effectiveness of e-learning in regards to issues relating to instructional design and learning strategies:

- online availability - *Reaction*
- control over hardware and software - *Learning*
- lecturer assistance and course material - *Behaviour*
- motivation to further studies - *Result*

This survey also included questions with personal characteristics such as age, gender, possession of personal computers and personal background. These questions were designed to be generic enough for all students in higher education to answer, yet no group comparison was made.

4.3.2 Lecturer Questionnaire (Appendix 2)

As the lecturer can be seen as the main instructional client in the support of e-learning, Section A of the questionnaire for the educators was based on Sloan-C Five Pillars of Quality Online Education. (The Sloan Consortium Report to the Nation (2006): Five Pillars of Quality Online Education).

Section A (Closed-ended questions)

- *Question 1 – 23* (Learning Effectiveness)
  Respondents' perception of their own knowledge and skills, their fellow lecturers' teaching experience in e-learning (in other departments), and the communication level and support students experience at their institution.

- *Question 24 – 39* (Cost Effectiveness and Access)
  The availability of technological resources and electronic communication media in their institution are examined through these questions.

- *Question 40 – 48* (Student and Faculty Satisfaction)
  The advantages and disadvantages of this method of delivery and their concerns are tested.

- *Question 49 – 55* - Results
  Their personal future education strategy and that of their department are examined.

Section B (open-ended questions)

The focus is on the core skills of the lecturer and how he/she deals with organisation pressures of being an e-learning educator and how it will influence distance learning. It must be remembered that the primary rationale for creating an e-learning unit for distance education is to support academic staff wishing to implement and produce e-learning of high paradigms.

Section A:

- Questions 1 concentrates on:

  The role of the responsible educator in e-learning,

  i. technological factors,
  ii. scholarly factors and
  iii. institutional factors

  } Reaction

- Question 2 deals with:

  i. defining and analysing the current education system
  ii. strategy on e-learning,
  iii. electronic sustainable courses,
  iv. the students' attitudes, knowledge and skills.

  } Learning

- Questions 3 determines:

  i. the lecturers' support and satisfaction
  ii. the learners' satisfaction and behaviour
  iii. the learners' participation

  } Behaviour

- Questions 4 revolves around the:

  i. the management of the education strategy
  ii. on e-learning by the lecturers
  iii. financial viability of e-learning

  } Result

The questionnaires were construed on the example of the Demographic Instrument (Page Three of this Chapter), in such a way to amass data that can assist with portraying the current trend with online learning in South Africa and the influence it can have on distance learning and how it can enhance the learning and education of the disadvantaged student.

The main trend and patterns that emerged out of this research were discussed and the design model revisited and then the positive and negative facts condensed.

This study mainly concentrated on previously disadvantaged Technikons (now Technology Universities) who are members of online learning and education who pursue the use and success of particular mechanisms of online learning.

Due to ethical commitments with survey participants, the analysis reported in this chapter will not attempt to look for similarities or difference between the tertiary institutions and courses of these institutions. The questions, therefore, were designed to be basic for all students and lecturers in higher educations to be able to answer indifferent of what institution or course they are associated with. The main object was to concentrate on the accessibility to the class Website and the motivation, control and the satisfaction of e-learning (for the learner).

Consequently to conclude the introductory discussion, Kirkpatrick's Four-Level Model of Evaluation was revisited and the different levels assessed. (1998:P289)

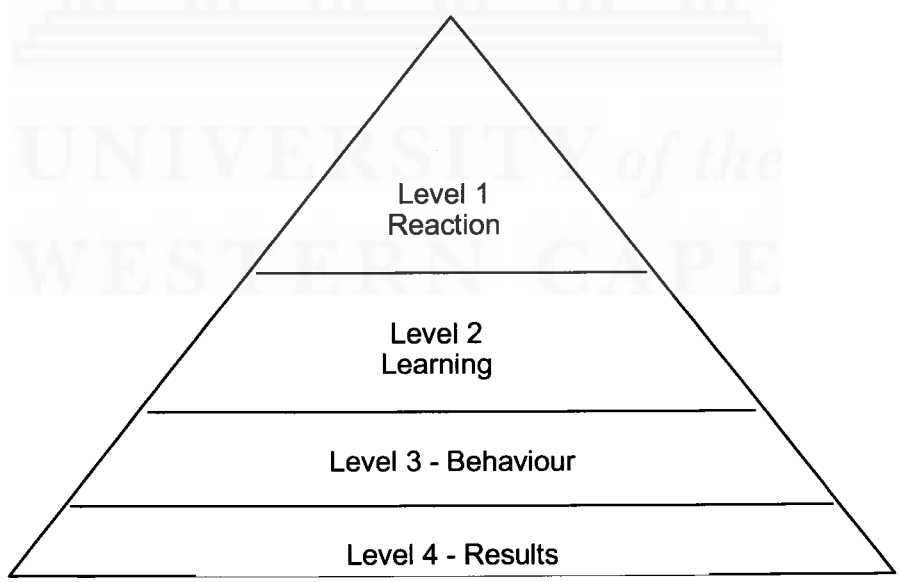


Fig. 4.2 Kirkpatrick's Four-Level Model of Evaluation on E-learning

> "This model is structured and provides various options in terms for the depth and level of evaluation which suits evaluation of e-learning programs in tertiary environments. Evaluating any program is complex and challenging because the goals of evaluation involve multiple purposes at different levels and vary among stakeholders" (Hum and Simpson, 2002:P119-138).

Bober (2001) identified seven factors which influence the implementation of the outcomes of a training program evaluation: communication quality; timeliness; commitment to and/or receptiveness to evaluation; evaluation quality; relevance; credibility; trustworthiness of findings.

Level 1 Evaluation

Level 1 may be considered as the surface or minimum level of evaluation. These survey questions assessed the factors involved with the education strategy of e-learning with special reference to distance learning. It involved instructor's methods in learning, training facilities and the online teaching aids used. In fact, with Level 1 it was impossible to determine the success of the survey because it was only response methodology and that lead to confusion in the sense that it created the perception that the participants were the only individuals that were involved with e-learning while that was not the case. This level consequently incorporated institutional and pedagogical factors such as evaluating the end product with management and organisational goals in mind.

Level 2 Evaluation

The second level of evaluation, learning, determines e-learning's success and effectiveness by providing the learner with the opportunity to demonstrate which facts, techniques or skill they have mastered. Level 2 evaluation may be considered one layer deeper than Level 1 and is measured through defining and analysing the current

education strategy on e-leaning in South Africa and the improvement of students' attitudes, knowledge and skills through this type of learning.

This level also gives an indication of the lecturers' involvement and motivation towards e-learning. This in turn influences priorities for the structural organisation of e-learning, workforce development, equipment purchase, and expectations placed on lecturers. Tertiary institutions at earlier stages of development tend to focus on the management of learning, which has less impact on student outcomes.

Level 3 Evaluation

Kirkpatrick (1998) calls this level of evaluation "behaviour". The profundity of e-learning evaluation is defined as the extent to which change of behaviour has occurred with the learner and the level of satisfaction reached by both the lecturer and the learner. These levels of evaluation establish the rate of success reached with e-learning training, and which learned skills are still not being used. When evaluating e-learning at this level (determining the rate of satisfaction), data is also collected to establish constraints of e-learning. Level 3 evaluations can be a very valuable tool to determine the findings of the research question of *"How can we transform distance learning in South Africa with emerging technologies"*

Which brings us back to the key words in this research that will be assessed and measured in the conclusion in Chapter 5: digital divide, distance learning, education strategy, electronic communication media, emerging technologies, teaching professionals, technological resources, tertiary institutions, transforming education and last but probably the most important key factor of transforming distance education – the disadvantaged (underprivileged student).

Level 4 Evaluation

This level's evaluation deliberates the final results that transpired from the outcomes of the previous levels. The viewpoint of this evaluation is to determine the level of success reached with the actual learning, and if the organisational culture both in the

training department and in organisational management play a supportive role of reaching the goal of the institution to improve their return on investment. The core element of this evaluation is to determine if online learning can help with transformation of distance learning and to change distance learning to a viable teaching instrument.

4.4 Analysis of the quantitative data

4.4.1 Student questionnaire

4.4.1.1 Critical analysis of student questionnaire

As part of the research students' perceptions were investigated concerning the component of transforming the education system to a more viable e-learning method.
It was planned in such away that the information gathered in this study contributed towards the viability of e-learning (virtual learning) for distance learning students (especially disadvantaged students), and if online education could improve and transform the quality of professional teaching and learning in distance tertiary institutions. (55 learners from previously disadvantaged tertiary institutions took part in this survey)

Section I:

(Open-ended Questions)

i. Gender

Female	71%
Male	29%

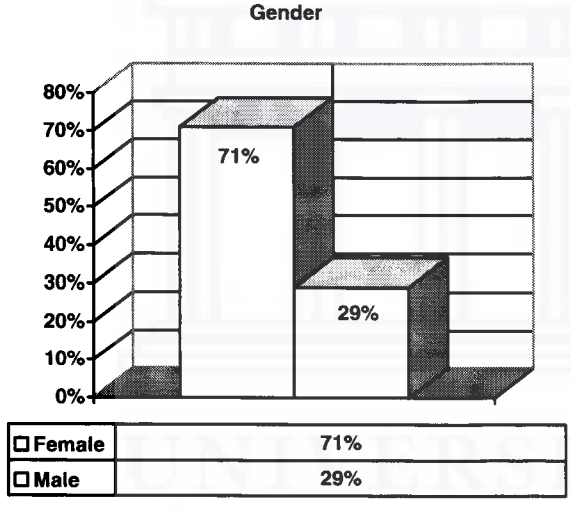


Fig. 4.3

2. Home Language

English	10%
Other	90%

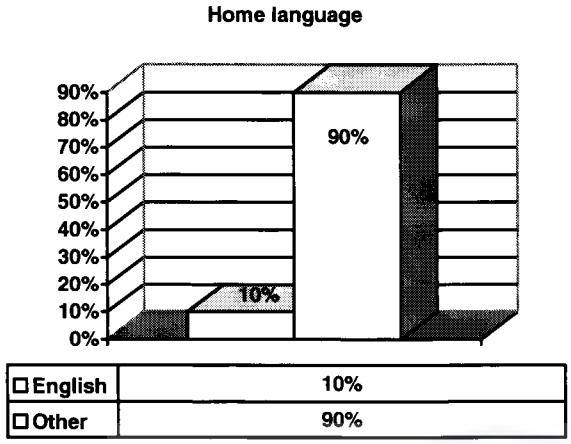


Fig. 4.4

3. Occupation of the primary bread winner (55 students' responses)

Artisan or driver	6
Domestic worker	2
Labourer	2
Office worker	7
Pensioner	8
Professional	10
Unemployed	20

Unemployed	45%
Employed	55%

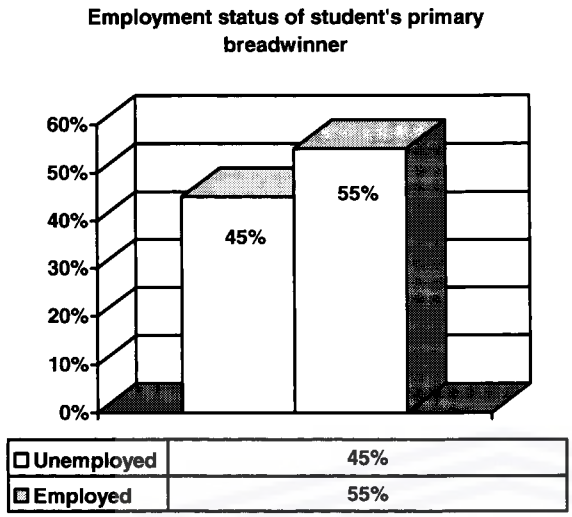


Fig 4.5

4. Highest education level of the primary breadwinner in your family

Uneducated	29%
Primary School	9%
High School	31%
Diploma	18%
Degree and higher	13%

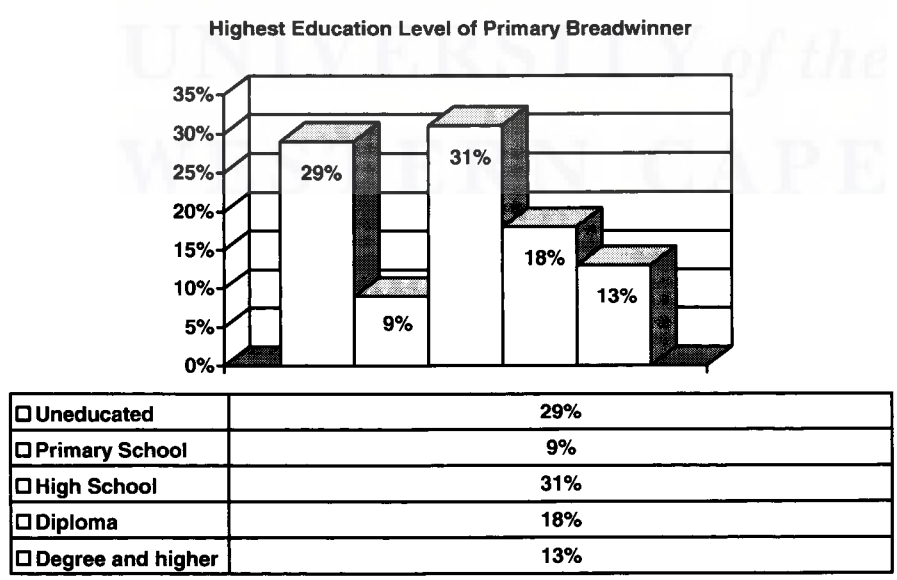


Fig. 4.6

5. Are you the first person in your immediate household to go to university?

Yes	67%
No	33%

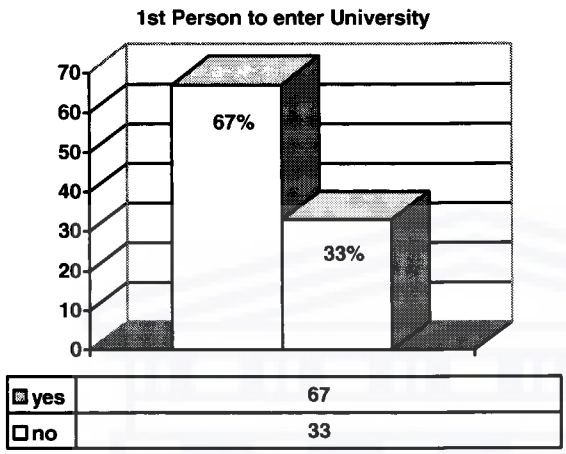


Fig 4.7

6. Where do you access computers except at Institution?

Own computer	18%
Other places	44%
Nowhere	38%

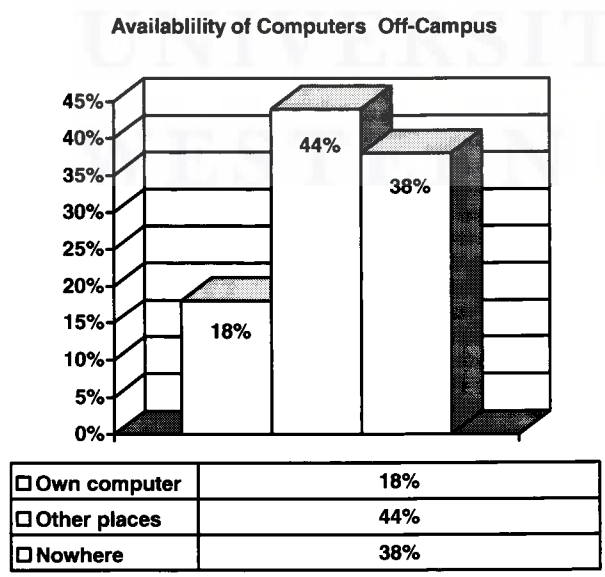


Fig 4.8

7. Where do you stay while studying?

Home	20%
Residence (Hostel)	49%
Elsewhere	31%

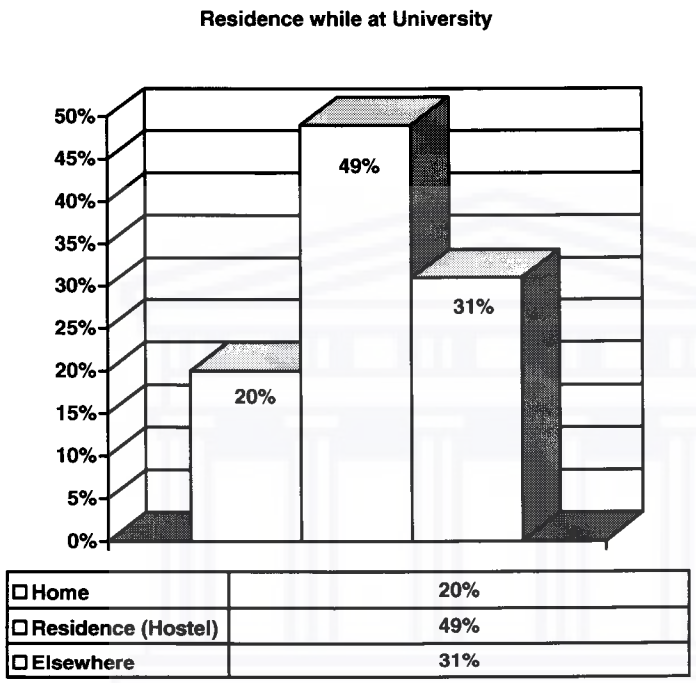


Fig. 4.9

Section II:

(Closed-ended Questions)

	ONLINE AVAILABILITY	QUESTIONS
E-learning		4. Success was easier to achieve in a class situation with an online component than the old hands on teaching
	√	13. I was able to communicate on a frequent basis with other students online to discuss notes, questions and assignments
		14. Online learning provided me with flexibility such as being able to study when it was convenient for me
	√	16. Communications channels are of high standard with this online course
	√	18. I responded to other students' discussions and questions online on a frequent basis
		20. The interaction that I had with other class members affected the outcomes of my assignments
	√	21. I was able to read other students' answers and to discuss the assignments and tests with my fellow students online
	√	22. I actively found information and facts on the web for myself
	√	23. I was able to discuss real-life situations in my online class discussions
	√	27. The general outlook of the class website was pleasant and consistent
	√	29. The online lecturer' s office hours and links to other relevant sites were easily accessible
		30. The icons/graphics identified what the buttons would do if I clicked on them
	√	33. The graphics and the pages on the class website loaded fast enough
		38. There was adequate help provided with the class website and other online learning instructions
	√	44. I found the online discussions with my lecturer valuable
	√	45. There have been times when I was not able to contact my lecturer/lecturer or fellow students online
	√	46. I feel there is room for improvement with the design and access of the class website

	√	47. I am able to find course content on the Internet that has been relevant to South Africa 48. I was satisfied with the reaction I got from my lecturer/lecturers when help was needed online It was more enjoyable to study in a class situation with online components than one of hands on teaching (white board etc.) 51. The use of online learning is likely to result in more valuable learning experiences 52. The use of electronic media is likely to improve communication between students and lecturers
Control over e-learning	 √ √ √	5. I had more control over the sequence in which I approached the topics on the class website 6. I understood from the content on the class website what I was expected to learn 7. I sometimes felt frustrated using the class website and would have preferred hands on education (traditional teaching) 10. I spent too much time figuring out how to interpret the instructions of my course work 12. The class website was interesting and pleasant to use 15. I discussed the topics and assignments with my lecturer through the class website 24. I needed extra instruction from lecturer/lecturers to find my way around on the class website 39. I worked collaboratively with other students on the class assignments 43. I clearly understood when to use the non-online support material such as tutorials
Motivation towards studies induced by online learning	√ √	11. The online discussions with my lecturer and fellow students motivated me to succeed in this online course 25. I took more responsibility towards my own learning, in an on line class situation 26. This class (with an online component) gave me more opportunity to learn through my own experience 35. The material that was presented stimulated my interest for the subject 54. E-learning can give valuable support to my courses 55. I can express myself better through e-learning than the usual class setup learning
Lecturer' s assistance		1. I could clearly see and read all the information presented on each of the pages on screen (instructions

		and reading material) 2. I received adequate feedback from my lecturer about my performance during the semester 3. I needed to constantly jump from page to page to find what I was looking for on the class website. 8. The website lecturing materials are synchronous with the lecturer' s instructions 9. The test/s provided a clear indication of what I have learned on line 17. The topics presented by the lecture online were interesting and it opened new view points (perspectives) 19. My lecturer' s expectations were clearly communicated to me 34. The assignments were clearly stated. No need to ask my lecturer/tutor for clarification 32. The material that was presented related to skills and knowledge that I had learned prior to commencing this unit 36. The course information was presented in a variety of ways to help my learning 37. The learning was provided when it was needed to complete and assignment or questions online 40. There were clear instructions on how to submit assignments 41. I was promptly notified that my submitted assignments had been received 42. I wished there were more online discussions about the topics or the assignments 48. I was satisfied with the reaction I got from my lecturer/tutor when help was needed online 49. There was too much printing required for this unit of study 53. The computer resources that I use for studying is available in the language of my choice

√ This symbol above represents online questions.

QUESTIONNAIRE STUDENTS				
		SATISFIED	DISSATISFIED	E-LEARNING POSITIVE INFLUENCE ON STUDIES
1	ONLINE AVAILABILITY	13%	87%	N/A
2	E-LEARNING	66%	34%	86%

		Marks	Percentage
1	ONLINE AVAILABILITY	770	
	SATISFIED	98	13%
	DISSATISFIED	672	87%
2	E-LEARNING*		
2a	*CONTROL	275	
		119	43%
3	LECTURER,COURSE MATERIAL ASSISTANCE	1650	
	SATISFIED	1085	66%
	DISSATISFIED	565	34%
2b	*MOTIVATION	275	
		237	86%
	Total marks	2970	
	Total Questions	55	

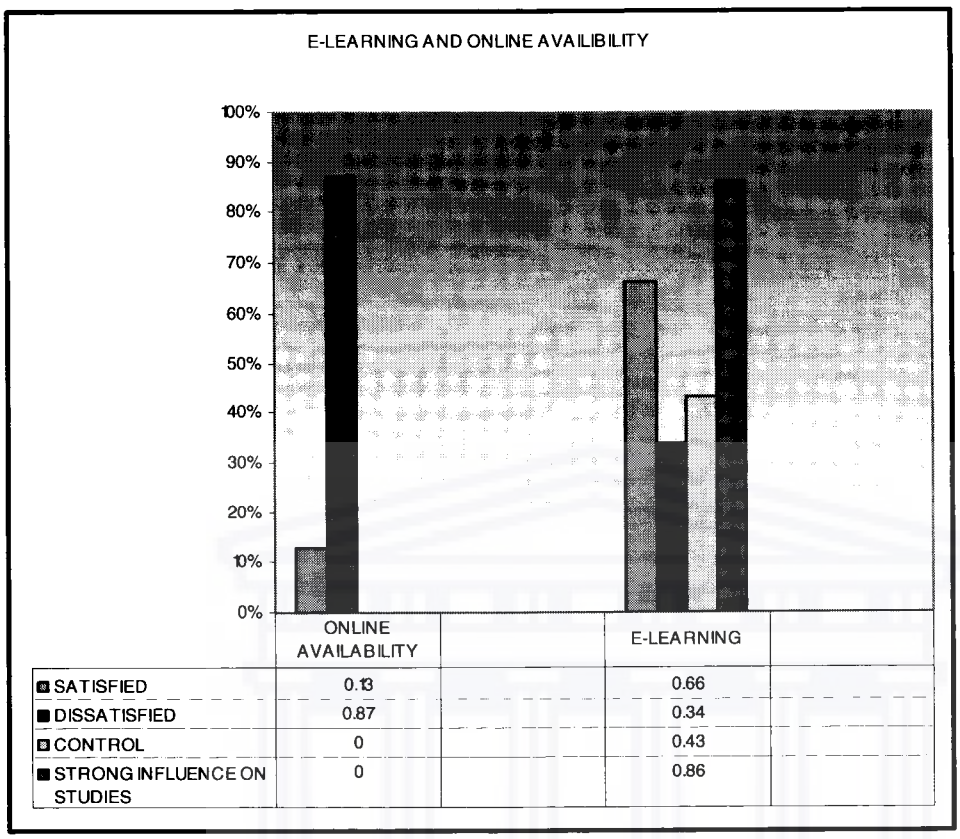


Fig. 4.10

Fig 4.9 indicates the students' satisfaction on:

- online availability - *Reaction*
- control over hardware and software - *Learning*
- lecturer assistance and course material - *Behaviour*
- motivation to further studies - *Result*

INFLUENCE ON E-LEARNING (STUDIES) According to Kirkpatrick' s Four Level Model of Evaluation				
			Satisfied	**Dissatisfied**
1	**Reaction**	**ONLINE AVAILABILITY**	13%	87%
		E-LEARNING*		
2	**Learning**	*Control over hardware and software	43%	57%
3	**Behaviour**	*Lecturers' assistance and course material	66%	34%
4	**Results**	*Influence on studies (Motivation)	86%	14%

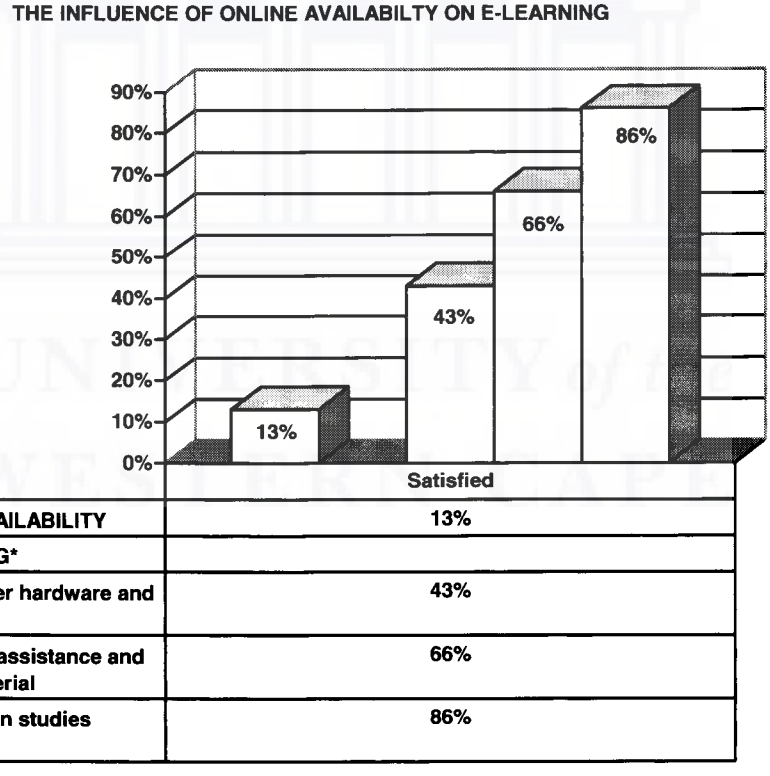


Fig. 4.11

4.4.1.2 Student survey findings

The quantitative data collected from the student questionnaire were analysed and transcribed into Microsoft Word and saved as plain text files. Excel charts were also imported into Microsoft Word and saved.

As cited before, the student questionnaire contained a variety of questions which sought students' perceptions of the effectiveness of their class Website with regards to issues relating to instructional design/factors, learning strategies, students' attitudes, knowledge and skills. This questionnaire also embraced the lecturer's support and learner satisfaction and participation.

The survey instrument was designed (as depicted in Chapter Three Fig 3.2) to amass informative data relating to e-learning. The data will be used to depict the current online structure that exists in e-learning in higher education (especially previously disadvantaged institutions). The data were then interpreted to support the development of an instructional designed model for transforming distance learning in higher education with the help of technological resources and e-learning.

In this section the findings of the student survey are elucidated, beginning with general findings (demographic and usage statistics), followed by the findings contributing to the four research questions (See Fig 4.9)

Section I - Demographic statistics

- Nearly three quarters of the students are female (Fig 4.2)
- Only10% of the students' home language is English (Fig 4.3)
- 45% of the primary breadwinner are unemployed (Fig 4.4)
- 29% of the primary breadwinner are uneducated (Fig 4.5)
- 67% of the students' are the 1st person in the family to study at a University (Fig. 4.6)

- Only 18% of respondents have their own computer (Fig 4.7)
- Only 20% of the students stay at home while studying
- The majority of the students who participated in this survey are undergraduates.

Section II - Findings concerning the four research questions

Most of the students indicated a need for specific areas of e-learning especially online availability and control over software and hardware. These results reflect back to the original research questions:

- Education Strategy and
- Technological Resources
- Professional Teaching
- Transformation of Distance Education

This in turn reflects on the first four pillars of Sloan-C Five Pillars of Quality Online Education:

- Learning Effectiveness
- Cost Effectiveness
- Access and
- Student Satisfaction
- Faculty Satisfaction

4.4.1.3 Research questions

1. *Reaction* - Students are extremely frustrated with online availability at the institutions (the lack of exposure to e-mail, Internet and the Web). Insufficient computers and printing facilities on campuses are also a major problem.
They feel that the role of the responsible educator in e-learning is of the utmost importance, but expressed the desire that there should be more online communication

and lecturer's availability (consulting hours) as this is their first experience with online learning.

Technological factors such as the upgrading of software and hardware in the laboratories and the funding predicament are in reality institutional matters, but according to the participants' opinions they would desire a greater say in the matter.

2. *Learning* – Overall students are experiencing problems with open Labs as they reported that they spend less than 2 hours a week dealing with technology concerns.

The instructors of the course should provide more opportunity for questions and the voicing of concerns and opinions.

Technological factors beyond the control of the student or instructor contribute to frustration with the students, however students find the course and study material intellectually stimulating which in turn leads to ample motivation to further their studies.

3. *Behaviour and Results* – The students' level of satisfaction towards web-based learning is average but they are satisfied with online learning with special reference to course material, lecturer assistance in class and the assessment criteria. They consider that the marks are a fair reflection of their knowledge and abilities.

Some students appeared to be divided on whether the learning was provided just when it was needed. Students also appeared divided on whether they received adequate feedback and assistance from their lecturer.

There is a strong indication that they found online discussions with their lecturer and peers valuable. This indicates areas that need attention for further investigation into the variety of weaknesses and strengths of the class Websites.

The e-learning classroom metaphor proved to be an effective medium for motivating students. It provides a simple but effective interface to course material and useful links if properly implemented and managed.

4.4.2 Lecturers questionnaire

4.4.2.1 Critical analysis of lecturer questionnaire

As with the student questionnaire, each of the closed-ended questions, for lecturers included the four dimensions of learning: reaction, learning, behaviour and result findings.

GENERAL INFORMATION:

1. Age

Age	Lecturers
20-29	10%
30-39	10%
40-50	80%

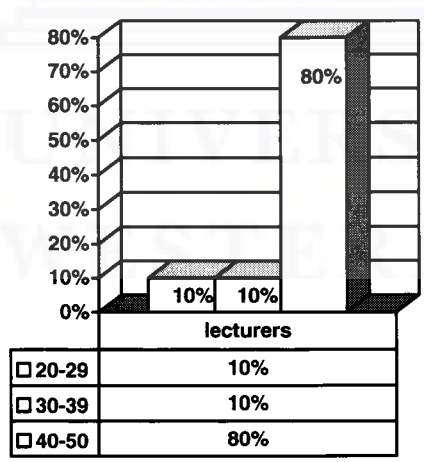


Fig 4.12

2. Gender

Gender	Lecturers
Male	90%
Female	10%

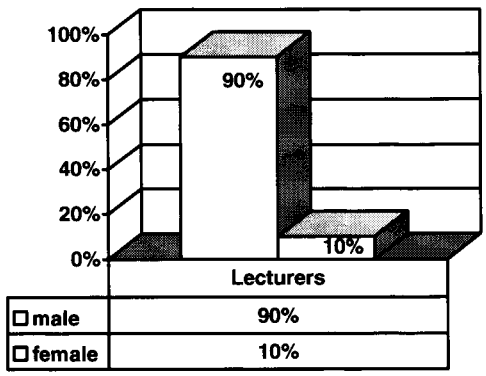


Fig 4.13

3. Qualification

Qualification	Lecturers
M Degree or higher	86%
B Degree	14%

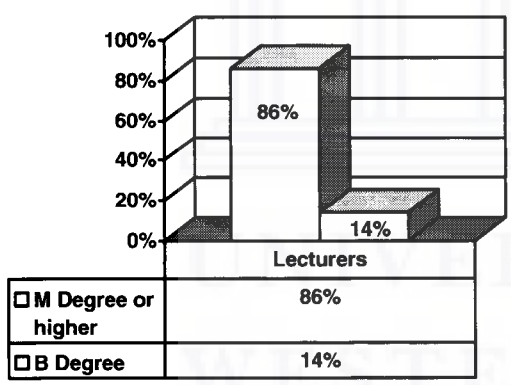


Fig. 4.14

4. Faculty involved

Faculty Involved	Lecturers
ICT	90%
Other	10%

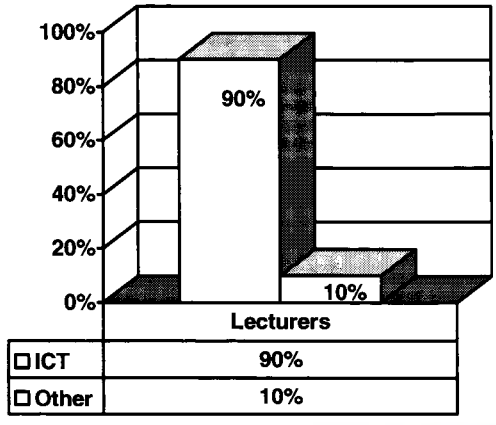


Fig 4.15

5. Lecturing experience at tertiary Institutions

Years of Experience	Lecturers
5	30%
5-10	10%
11-15	45%
16-20	5%

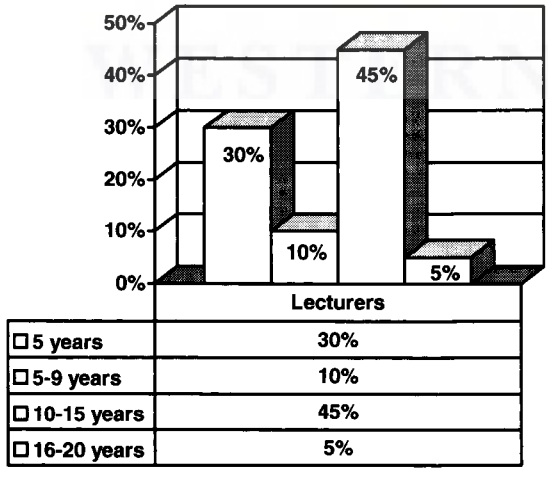


Fig 4.16

6. Course with online component

Course	Lecturers
Programming	50%
Technical	30%
End-user computing	10%
Other	10%

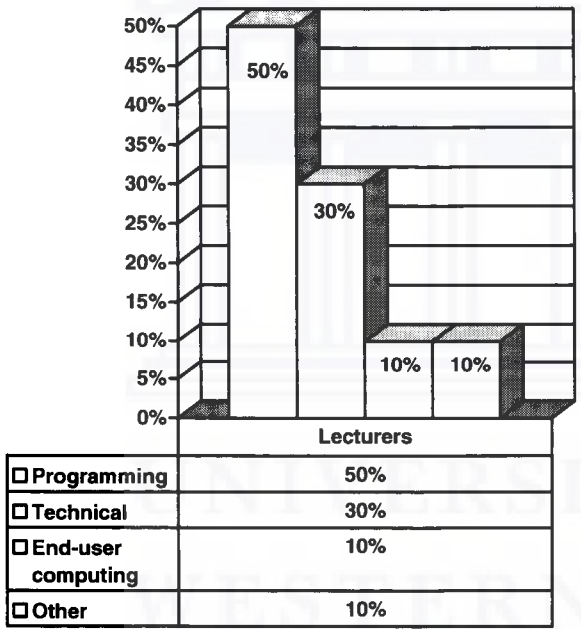


Fig 4.17

7. Involvement with distance learning courses

Yes	10%
No	90%

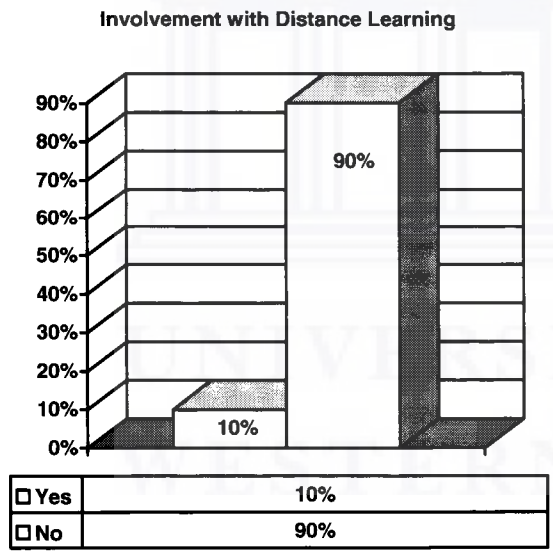


Fig 4.18

8. Total students per class

Total	Students
25-50	27%
51-80	43%
81-100	0%
101-120	30%

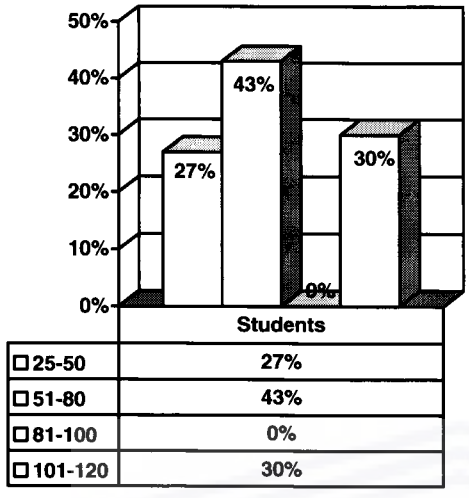


Fig 4.19

Section A:

- *Question 1 – 23* (Learning Effectiveness)

  Respondents' perceptions of their own knowledge and skills, their fellow lecturers' teaching experience in e-learning (in other departments), and the communication level and support students experience at their institution.

Proficiency	Learning Effectiveness*
Knowledge & Skills	70%
Experience of fellow lecturers	29%
Communication with students	57%
Support to students	43%

* Overall (average) Learning Effectiveness: 56%

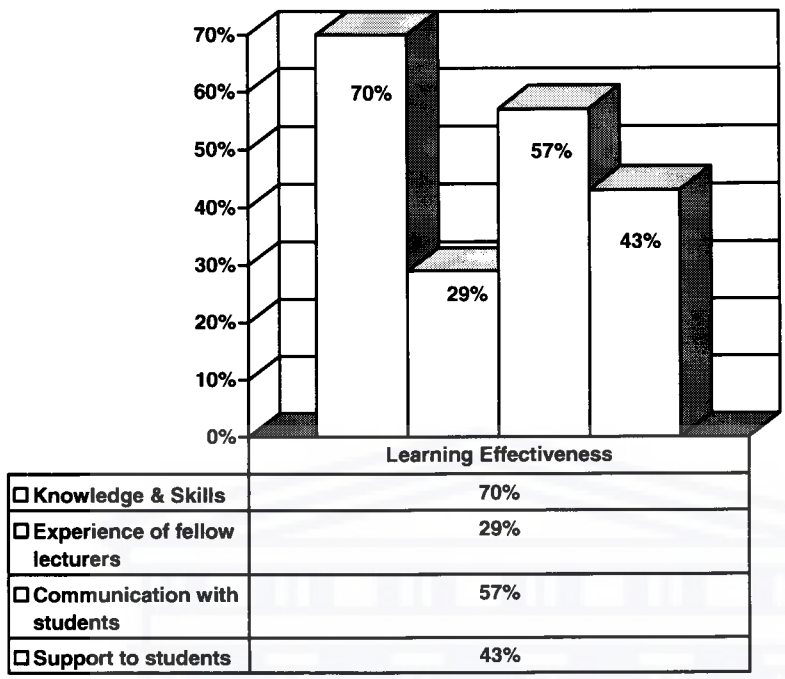


Fig 4.20

- *Question 24 – 39* (Cost Effectiveness and Access)

  The availability of technological resources and electronic communication media in their institution

Electronic Communication Media	Cost Effectiveness and Access
Technological Resources	48%
Access	37%
Cost Effectiveness	31%

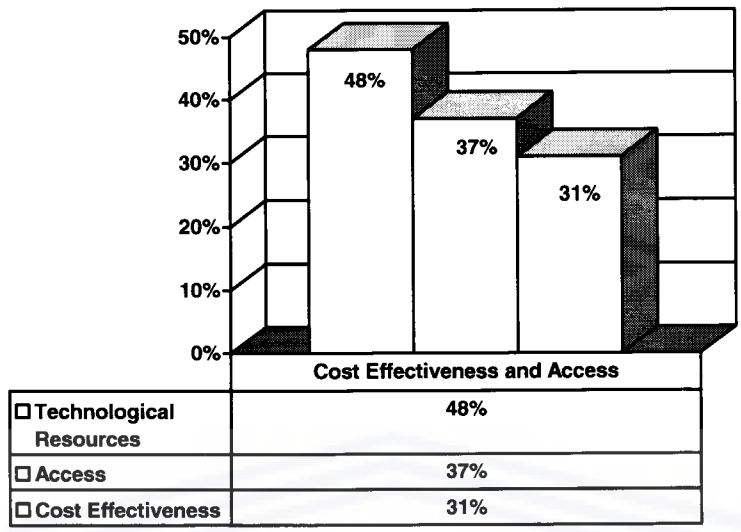


Fig 4.21

- *Question 40 – 48* (Student and Faculty Satisfaction)

  The advantages and disadvantages of this method of delivery and their concerns

Method of Delivery	Student and Faculty Satisfaction
Positive	92%
Negative	8%

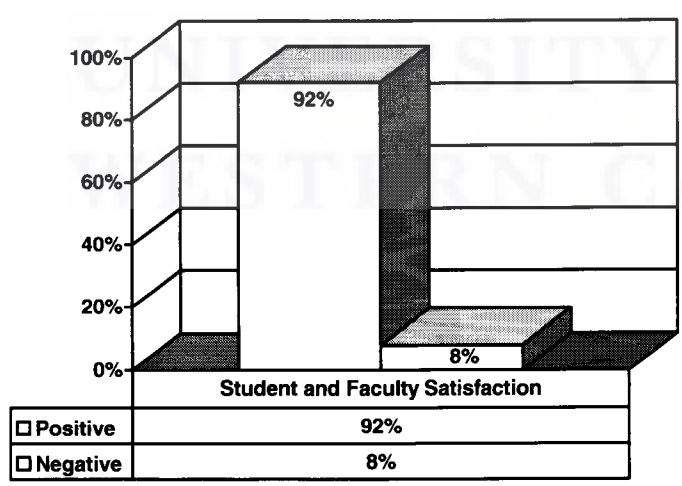


Fig 4.22

- *Question 49 – 55* - Results

The lecturer's personal future education strategy and that of their department.

Lecturers Future Education Strategy	Results
Within their department	86%
Distance education	80%

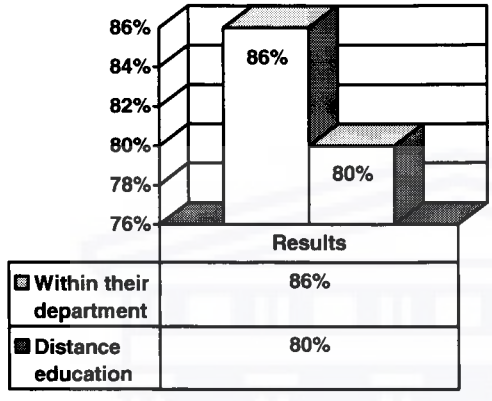


Fig. 4.23

Section B:

In this section (open-ended questions) the focus is on the core skills of the lecturer and how they deal with the organisation's pressure of being an e-learning educator and how e-learning will influence distance learning.

- Questions 1

i. the role of the responsible educator in e-learning,
ii. technological factors,
iii. scholarly factors and
iv. institutional factors

} Reaction

Question 1	Reaction (Constructive)
i) The role of the responsible educator in e-	37%

learning – staff development	
ii) Technological factors	56%
iii) Scholarly factors	47%
iv) Institutional factors	49%

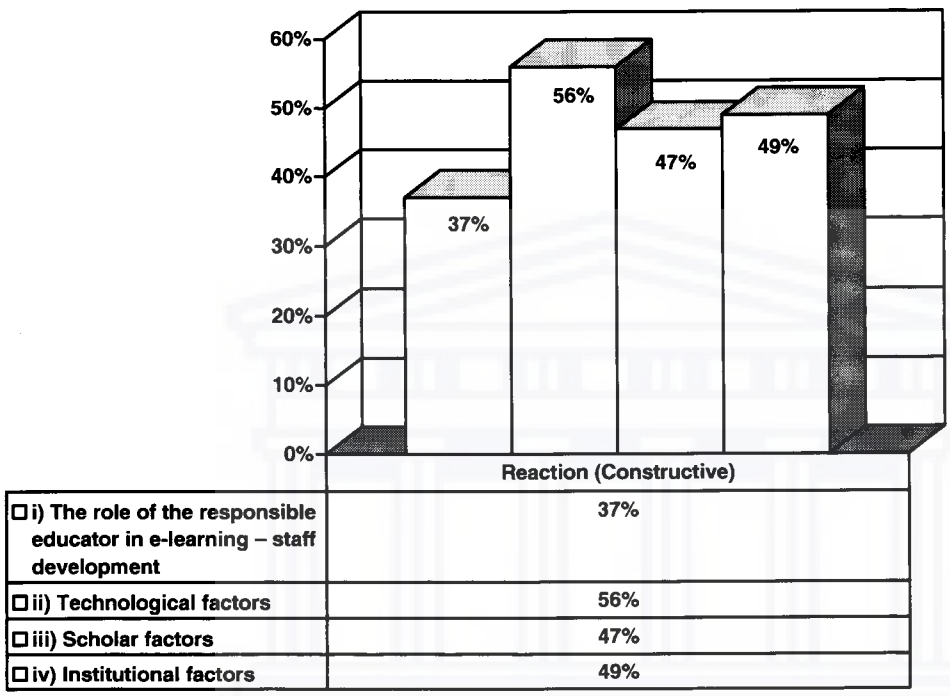


Fig 4.24

- Question 2

i. defining and analysing the current education,
ii. strategy on e-learning,
iii. electronic sustainable courses,
iv. the students' attitudes, knowledge and skills.

} Learning

Question 2	**Learning (Constructive)**
i) Analysing the current strategy – e-	20%

learning	
ii) Electronic sustainable courses	50%
iii) Students attitude, knowledge and skills	71%

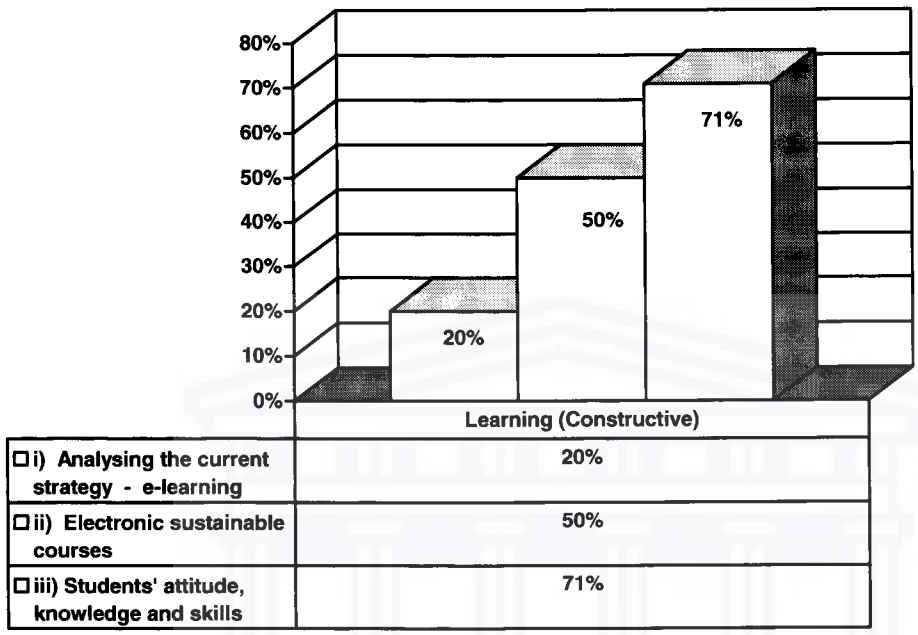


Fig 4.25

- Questions 3

i. the lecturer support and satisfaction
ii. the learner satisfaction and behaviour
iii. the learner participation

} Behaviour on E-Learning

Question 3	**Behaviour (Constructive)**
i) Lecturers support and satisfaction	69%
ii) Learner behaviour and satisfaction	70%
iii) Learner participation	

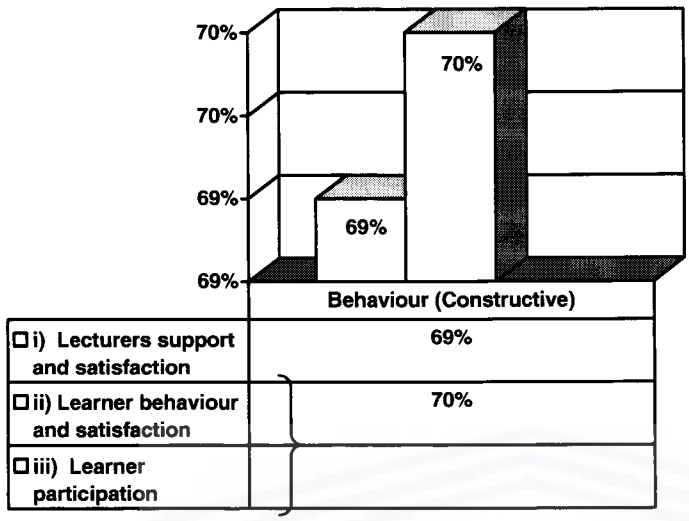


Fig. 4.26

- Questions 4
  - i. the management of the education strategy
  - ii. on e-learning by the lecturers
  - iii. financial viability of e-learning

} Results

Question 4	Results (Constructive)
i) The management of e-learning by lecturers (education strategy)	70%
ii) Financial viability of e-learning	76%

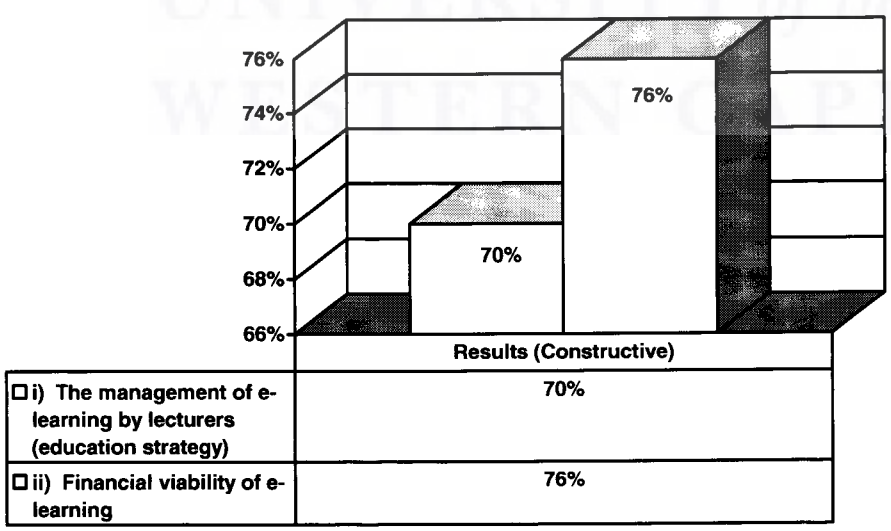
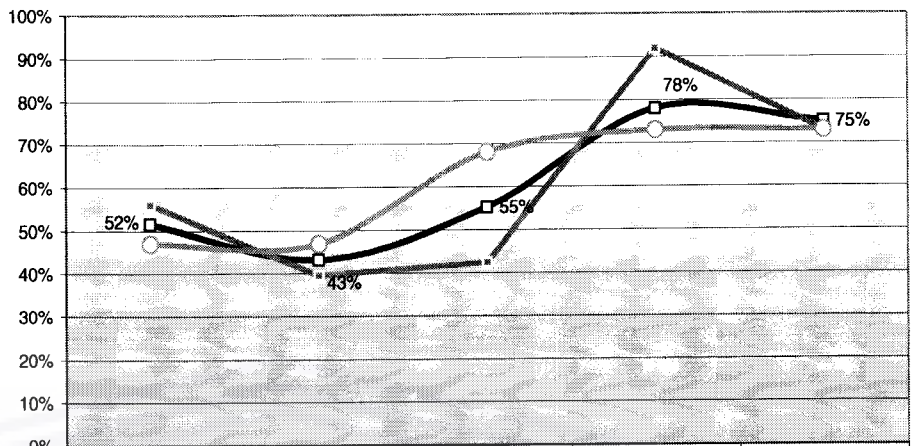


Fig. 4.27

Schema of the Research Questionnaire for Lecturers:

RESEARCH QUESTIONNAIRE FOR LECTURERS					
Sloan-C Pillars of Quality Online Education (Lecturer Closed-ended Questionnaire)	***Outcome***	**Kirkpatrick's Four-Level Model of Evaluation (Lecturer Open-ended Questionnaire)**	***Outcome***	**Research Question**	***Outcome***
Learning Effectiveness	56%	**Level 1 Reaction**	47%	**Education Strategy**	52%
Cost Effectiveness	40%	**Level 2 Learning**	47%	**Technological Resources**	43%
Access	43%	**Level 3 Behaviour**	68%	**Professional Teaching**	55%
Student and Faculty Satisfaction with E-learning	92%	**Level 4 Results**	73%	**Transformation of Distance Learning**	78%
Results	73%				

Research Questionnaire for Lecturers



	Education Strategy	Techonlogical Resources	Professional Teaching	Transformation of Distance Learning	End Result
Researh Question	0	0	0	0	0
Outcome	52%	43%	55%	78%	75%
Sloan-C Pillars of Quality Online Education (Lecturers Questionnaire)	0	0	0	0	0
Outcome	56%	40%	43%	92%	73%
Kirkpatrick's Four-Level Model of Evaluation (Students Questionnaire)	0	0	0	0	
Outcome	47%	47%	68%	73%	73%

Fig. 4.28

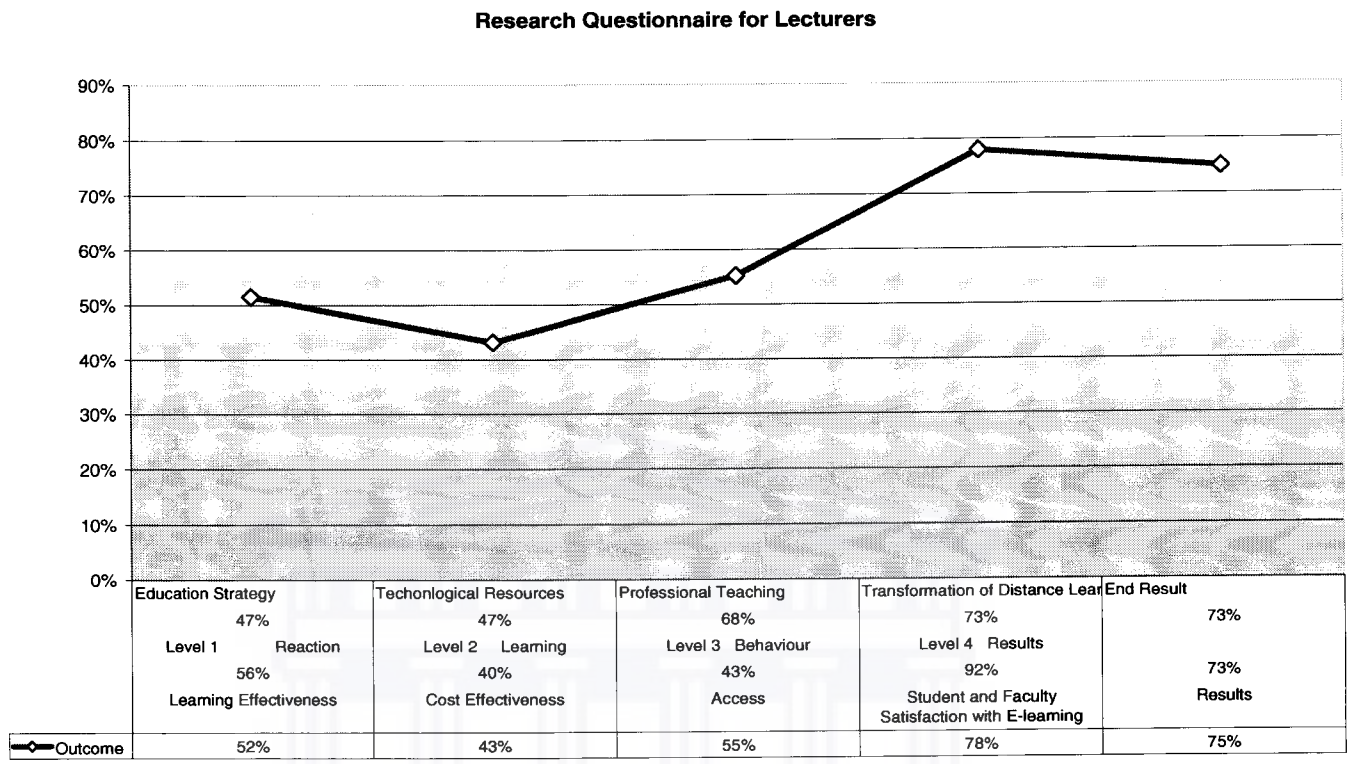


Fig 4.29

4.4.2.2 Lecturer survey findings

The study employed two types of instruments. The first was the closed-ended questionnaire which included 55 statements on the 7-point Likert scale ranging from "very strongly disagree" to "very strongly agreed", used for collecting data from academic staff of previously disadvantaged Universities in South Africa. Another was the open-ended questionnaire, with 34 items based on short answers that were designed to collect data from.

All the data were analysed qualitatively based on analytic procedures from the Sloan-C Five Pillars of Quality Online Education and Kirkpatrick's Four-Level Model of Evaluation (See Fig. 4.1 - Pg. 71 of this Chapter). Further still, all the factors were extracted and incorporated in to the Five Research Questions and to find a 5-factor

solution. This factor transformation matrix indicated that relatively acceptable correlations exist between the factors.

Similar to the students' questionnaire, the quantitative data collected were analysed and transcribed into Microsoft Word and saved as plain text files. Excel charts were also imported into Microsoft Word and saved.

The survey instrument was designed (Chapter Three Fig 3.2) to portray the learning effectiveness, course design, education strategy and the cost effectiveness of online learning in higher education. The data were interpreted in such a way to assist with the development of an instructional design model for transforming distance learning in higher education with the assistance of management, faculty, lecturers and technological resources.

In this section the results of the lecturers' survey are put across, opening with general findings (demographic and usage statistics), followed by the findings that substantiate the four fundamental research questions (See Schema on Pg. 105 in this Chapter). The page number has changed

Demographic profile of the lecturers

As revealed by the findings, the majority of the respondents were males (90%), whose age range is within 23-45 years old. The majority of the respondents have a high level of teaching experience that range between five to twenty years.
Their qualifications are of a comparatively high standard varying from PhD. Masters to BCom and BSc. The majority of the respondents are remarkably skilled in the required computer software, hardware, databases, presentation software, copy and transferring of files and creating PDF files. Fifty percent of the participants are lecturing in programming while the rest are lecturing in technical support, web design, end user computing, engineering and tourism, but not one lecturer is involved in distance learning.

4.4.2.3 Research Questions

Section A

(Closed-ended Questions)

- *Question 1 – 23 (Learning Effectiveness)*

The majority of the respondents' rank their insight into the knowledge and skills, with reference to their subject content in e-learning above average, but do not share the same sentiment about fellow colleagues from other faculties and departments.

The level of communication between the lecturer and the student is statistically quite low and is rated at 57%, while they feel that the support (e.g. distance learning) the students are experiencing only on average 43%.

- *Question 24 – 39 (Cost Effectiveness and Access)*

E-learning includes learning practices enabled or enhanced by technological resources that support the development, exchange, and application of knowledge, skills, attitudes, aspirations, or behaviours for the purpose of improving teaching and increasing student achievement and yet this segment of questions reflects an overall low cost effectiveness and access to technological resources at the Tertiary Intuitions in question (±40%).

- *Question 40 - 48 (Student and Faculty Satisfaction)*

Although the above-mentioned questions reflect an overall positive reaction, it must be remembered that lecturers face a constant change as students increase demands on tertiary institutions concerning e-learning and technological resources. Change of this magnitude requires ongoing professional teaching and learning. The field of professional development will explode as more and more educators strive to keep abreast of current research and the best practice in teaching and learning to meet student educational needs.

- *Question 40 - 55 (Results)*

Even though it seems (according to the above-mentioned questions) that e-learning is slow in terms of take-up, institutions clearly feel they should be offering it. Almost all institutions studied have some form of central strategy for e-learning or are in the process of developing one.

Development:

The participants clearly state that:

- the development and integration of e-learning and all its elements is of the utmost importance;
- the development of multimedia interactive resources take place at the institutions;
- the communication skills of the lecturer should be improved.

Distance learning

The participants cannot emphasise the following points enough:

- Distance learning has a future in South Africa
- More distance education courses should be implemented with the help of e-learning

- Distance learning will improve the education of underprivileged students in rural areas.

Section B

(Open-ended Questions)

Question 1 - Reaction

1(i)

a. Please describe any staff development provision offered by your institution concerned with helping faculty utilising e-learning.

- The majority of the lecturers stipulated that no staff development takes place.
- Two lecturers indicated training schedules.

b. In your experience, which subject areas, types, level of programme and learning activities are best suited to e-learning? (e.g. web, fully on line or mix mode – online discussions)

- Different disciplines use different types of e-learning.
- there is no single technological solution that applies for every teacher, every course, or every view of teaching
- All streams of IT diplomas
- "Quality teaching requires developing a nuanced understanding of the complex relationships between technology, content, and pedagogy, and using this understanding to develop appropriate, context-specific strategies and representations". (Mishra, P. & Koehler, M.2006:P1017-1053).

c. Please outline key 'lessons learned' from any such staff development activities at your institution for e.g. what new content could be added to your course material.

- The biggest challenge for staff is to find the time to engage with the use of Information Computer Technologies.
- Staff needs just-in-time, hands-on support
- Integrating e-learning into curriculum design seems to improve practice
- Basic computer and web literacy skills as well as lack of confidence are a major barriers to using Information Computer Technologies in teaching and learning.

d. Have you established any internal mechanisms to ensure collaboration and sharing of e-learning material between the different campuses of your institution?

- Most of the lecturers stipulated "none".

1. (i)

a. Describe in short the technological resources available for e-learning at your institution e.g. hardware, software, flash disks for students, library resource and open labs at all hours

- One Lecturer indicated:
  Learning management system, plagiarism detection systems, Bibliographic Management System, electronic databases, computers in open-access public labs, post-grad labs, departmental labs, audio-visual equipment in lecture venues
- One lecturer indicate PCS, Sinew/EC/WebCT
- No open labs
- Hardware not functioning properly

b. Are the same resources available for students at your distance campuses? If you specify "no", what do you think what is the reason?

n/a

c. Does your institution update the technological resources on a regular basis to be on par with other institutions?

Yes, but not frequently

1(iii)

a. In your opinion do you feel that your students have a disadvantage compared to other institutions' learners concerning online activities such as online discussions, assessment and collaborative work?

Certainly with some other institutions, yes

b. Do you have a student portal system? How extensive is this, in terms of function and reach?

Yes, but limited to laboratories only. Students cannot communicate with staff properly

c. Please describe the current balance between open computer labs and computers purchased by students independently.

The is no balance because overall students cannot afford to buy PC's

d. What network facilities can students access when connecting from off-campus, are these arrangements likely to change over the next few years?

▪ One lecturer mentioned on their campus most facilities (including learning management) do have access ▪ The rest stipulated : none

1(iv)

a. Is your institution part of an 'online learning consortium or other significant partnership in this area?

"no"; "not sure"; "yes".

b. To what extent have your institution moved administrative systems such as admissions, registration and fee payments, online? How does that influence aspirant students who are living in rural areas (disadvantaged students)?

▪ Apart from making information available, none of these processes are available online. ▪ No ▪ It has just started in 2007 and is limited

The answers to the abovementioned questions give a good indication of how far the e-learning process have been developed at the tertiary institutions in question, and it is evident that there is a lot of room for improvement especially with staff development and the availability of technological resources for students (see Fig. 4.21 of this Chapter)

Question 2 - Learning

2(i)

a. Does your institution have a formal, written online learning strategy or do some faculties/departments have their own e-learning strategies

- Neither
- Some faculties have
- Not Sure
- Not to my knowledge

b. Please describe in short any important strategic differences between your Educational centre and faculty/departments involved in e-learning.

- This was not a clearly identifiable question
- Not sure

c. How does your institution's e-learning strategy or equivalent relate to your institution's mission or general strategic plan?

- n/a
- might occur in some faculties
- not sure

2(ii)

a. Have your e-learning programmes/courses been changed or improved during the last few years and what changes do you envisage.

- Courses are regularly updated as lecturers engage in teaching activities.
- They are continually updated

b. What electronic sustainable courses are available at your campus and at your other campuses?

- Not sure what you mean by this question
- Web design
- Accounting programs such as Pastel
- Web development

c. Has your institution devised particular strategies to facilitate co-operation between faculty and other staff (technical, instructional designers, library) in developing sustainable courses on e-learning.

- There is a specific drive to incorporate information literacy in curriculum design
- Not sure
- Overall the answer is" yes".

2(iii)

a. Please comment on the balance of interest in e-learning and traditional learning at your institution by the students, and do you think that e-learning is more popular?

- No. I think students want both face-to-face and online interaction
- The majority believe it is much more popular than traditional classroom learning.

b. How does the 'non-traditional student (student that is less academically prepared – disadvantaged student) respond to e-learning at your institution?

Yes, but not differently from any other student
In the beginning with apprehension until comfort is realised

c. Give your impression of how students acclimatise to greater use of e-learning.

- Students seem to be requiring that resources be made available online.
- Good and excellent

The answers to above-mentioned questions give an indication that the e-learning strategy and electronic sustainable courses at the previously disadvantaged institutions should be upgraded and successfully implemented, but the observation can be made that the students have a very positive attitude towards e-learning. (See Fig. 4.25 of this Chapter)

Question 3 - Behaviour

3(i)

a. Describe the support offered by the e-learning tutors at your institution to the students e.g. making use of the correct methodology of demonstrating skills and knowledge

- We don't have e-learning tutors
- In all aspects of e-learning
- E-learning study materials are loaded for students

b. To what extent did the learner react to this support and was the lecturer satisfied with the change in behaviour of the students attending the course

▪ Students reacted positively ▪ Not sure

3(ii) and (iii)

What has been the 'teaching and learning' impact of greater use of e-learning at your institution?

a. Specifically the student participation and satisfaction

The answer here is overall good

b. Teaching and learning approaches

Evolving and rising

c. Student retention rate

Low to very low

In short the answers to these questions indicated an average to high satisfaction rate with the e-learning instructional methods and techniques:

- with the lecturers' support and
- with learners' behaviour and participation

(See Fig 4.22 of this Chapter)

Question 4 - Learning

4(i)

a. What scenario do you foresee for the management of the e-learning strategy at your institution?

- Hopefully more research-based practice integrated in curriculum design and implemented through course teams.
- Answer overall - Distance learning

b. Do you foresee the implementation of distance learning at your other campuses with the use of online learning methodology?

Majority answers: "yes"

c. What are viewed as major barriers to further online learning development at your institution?

- The biggest challenge for staff is to find the time to engage with the use of Information Computer Technologies.
- Staff needs just-in-time, hands-on support
- Integrating e-learning into curriculum design seems to improve practice
- Basic computer and web literacy skills as well as lack of confidence are major barriers to using Information Computer Technologies in teaching and learning.

4(ii)

a. Has the greater use of e-learning generally increased course development and delivery costs, or have ways been found to offset higher development cost over time?

In the long run it will be financially viable

b. Has the increased/decreased/other cost impact of greater use of e-learning had any impact on tuition fees at your institution of online learning methodology?

No

c. Please give your views on the role national government in South Africa might improve their strategy/funding online distance learning

- Cheap bandwidth would go a long way in supporting e-learning
- Need for funding e-learning awareness and facilities
- Need funding for implementing distance learning

The result of the afore-mentioned questions indicates, overall, that lecturers are using e-learning positively and proactively. Their attitudes towards the role of e-learning in supporting their teaching practice are constructive.

In summary, the analysis signals a positive attitude toward the adaptation of e-learning at tertiary institutions and the readiness the lecturers and students are experiencing shows that e-learning confidence is improving and there is a strong affirmative assertion with e-learning lecturers to implement and secure distance learning into our education policy in South Africa.

CHAPTER V

CONCLUSION

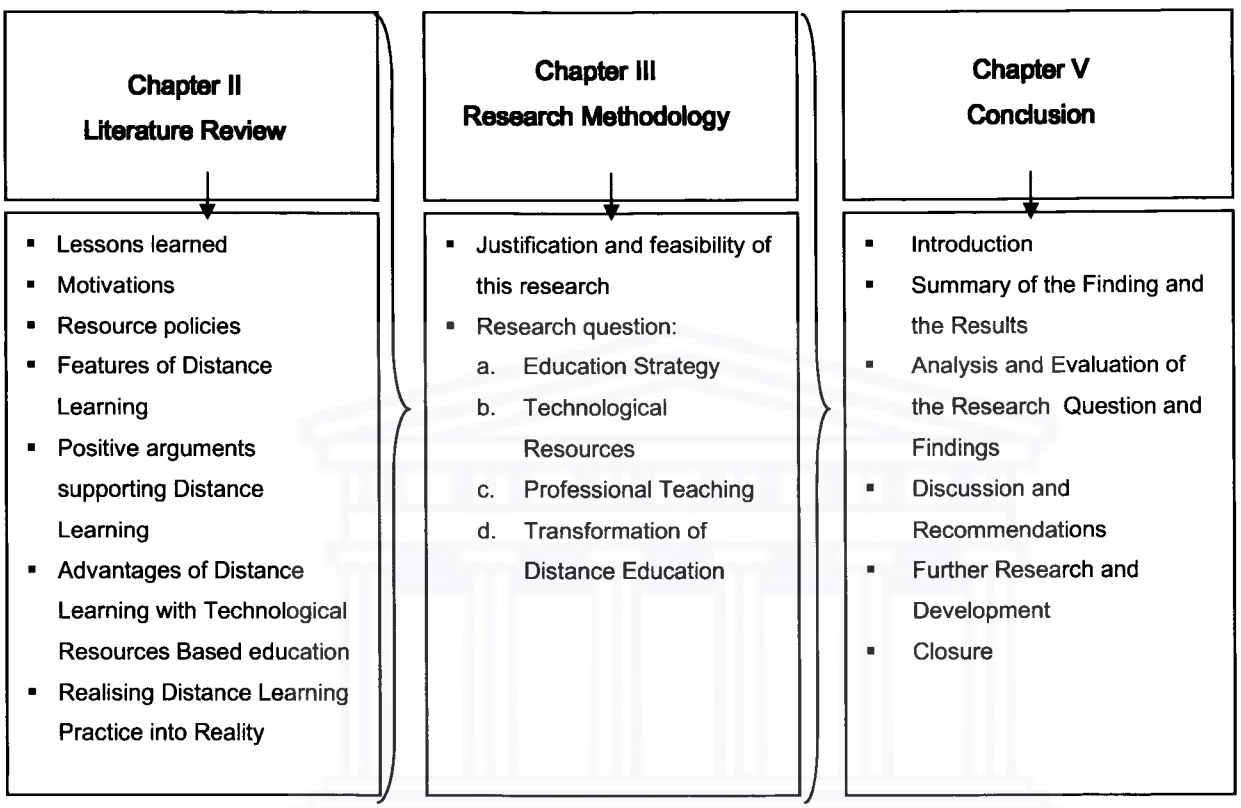
The aim of the research was to determine how successful distance learning can be transformed in South Africa with the help of emerging technologies such as virtual classrooms and e-learning. In this chapter the findings and results will be elucidated and correlated to the context created in the literature review (Chapter II) and the research methodology (Chapter III).

Chapter II provided an in-depth literature review of distance learning and the particular areas addressed by the research questions. Chapter III presented the research design and methodology and the justification and feasibility for the research question. The findings of the research question were made evident in Chapter IV in the form of a classification of factors to promote distance learning with the help of emerging technologies.

Chapter V commences with an introduction, ensued by a summary of the findings and results with the support of the literature review. It is followed by an analysis and evaluation of the research question and findings according to research methodology. Finally the chapter will focus on a discussion and recommendations and further research and developments.

The research strategies used were a student survey (Appendix 1) and a lecturer survey (Appendix 2) and some informal interviews with participating lecturers.

Figure 5.1 illustrates how Chapter Five will be analysed and completed.



5.1 Introduction

The academic goal which steers the study, attempts to reduce the gap between traditional classroom learning and distance learning, which until recently have not coalesced in South Africa.

In all truthfulness, traditional classroom learning in the 21st century is becoming an inappropriate delivery method especially within the context of outcomes-based education in South Africa. With the wealth of technological resources and e-learning at our disposal we are on the brink of making crucial decisions to implement distance learning into our higher education system and to adapt our education strategy accordingly.

According to the results and findings, the research indicates the socio-economic and educational background of the typical underprivileged student in South Africa are still exceptionally pitiable and therefore the tertiary institutions are forced to find more effective ways to address the educational strategy and to adapt to a more effective learning experience such as transforming to distance learning.

5.2 Summary of the findings and the results

The literature review identified certain statements and motivations (lessons learned) in the history of distance learning:

- enhanced learning facilities to students,
- larger groups of students can be accommodated for education purposes,
- improved cost effectiveness,
- effective education strategies to shift the role of the educator.

The literature review also exposed two fundamental technological resource policy issues specifically.

- The shortage of skilled teaching professional with a low overall level of computer literacy.
- Inequality of access to existing education and training systems.

The results and findings, however, illustrate an overall improvement in the qualifications and skills of lecturers and a transformation to equality education and training systems in the previously disadvantaged learning centres. The availability of technical resources at tertiary institutions has also improved, however, room for improvement still exists (e.g. open labs). This aspect indicates the digital divide in South Africa is diminishing but at a very slow pace.

The positive arguments supporting distance learning favourably enhance the thought and design of distance learning in South Africa:

- to meet the educational needs of students, especially the disadvantaged student
- lecturer enthusiasm towards e-learning
- geographical and topographical conditions in South Africa
- the growth of technological resources in South Africa
- the availability of communication channels for example Internet and Web designed courses.

Although the educational needs will be addressed by distance learning, there is evidence of growth of technical resources in South Africa and despite lecturers' enthusiasm and assistance in e-learning (results and findings), the students are experiencing frustration towards the availability and use of technological resources and the communication channels. This in turn leads to three crucial questions the researcher singled out from the surveys conducted:

- What factors promote quality web-supported learning?
- What factors contribute to client (student) satisfaction (or frustration) with web-supported education?
- What factors can ensure cost effective distance learning? (With special reference to the demographic circumstances)?

The above-mentioned questions are defined as "crucial" as they will have a definite influence on the transformation to distance learning.

The Educational White Paper 3 - 1997 of South Africa, stipulates a number of advantages which emerges from the transformation of higher education with the help of technological resources such as the following.

- Expanding access of education to learners.
- Enhance the quality of education.
- Lower study costs for students.

- Flexible learning environment.
- Improvement of course material.
- Integrating lifelong learning into higher education.
- Facilitate distance learning to the fullest.

Above-mentioned advantages carry us to the next issue in the first section of Chapter V: realising the distance learning practice into reality. The reader should retrace his/her steps to fundamental technological resource policies and ask himself the following questions:

- What is the overall quantity of information technology teaching professionals.
- How extensive is the inequality of access still in South Africa (digital divide).

Additional concerns are raised by the White Paper.

- additional investments, especially in learning technology, staff development and student support;
- refocusing of tertiary institutions missions, modernise courseware, improve student support;
- the need also exists for an increasing range of educational methods and strategies most appropriate to the context within which lecturers will operate.

In order to establish a quality based education approach toward distance learning brings one back to the drawing board to appraise the cost-effective planning.

Although the rhetoric of the 1980s insisted distance education could serve more students at lower costs, it is in most cases extremely difficult to determine with any precision the costs of delivering technology enhanced distance courses. While high course enrolments suggest economic effectiveness, the question arises regarding the instructional quality of courses

delivered to large groups of students who have little or no opportunity to interact with each other or with faculty members.

The use of support service by means of information technology in distance learning cannot be emphasised enough. The most important aim is to provide some room for human interaction with the learners in a way to help cushion the effects of isolation. This fact surfaced from the questionnaire, namely the lack of direct communication between the lecturer and student such as consultation hours and discussions on course and study material.

"Empirical research has consistently shown the academic achievement of distance learners is comparable to on-campus students taught face-to-face" (Dillon & Walsh, 1992:P5-21); Duning, Van Kekerix, & Zaborowski, 1993). Nevertheless, policymakers, academic leaders, government officials, university board members, company executives, and students continue to ask questions about the success of distance learners.

"Perhaps the most pervasive barrier to the expansion of distance teaching has been the absence at most tertiary institutions of equitable incentive and compensation models for faculties" (Dillon & Walsh,1992; Olcott & Wright, 1995) such as promotion and tenure, release time, instructional and administrative support, monetary compensation, teaching load and training (Clark,1993; Koontz, 1989), and the paradox is these issues are often overlooked.

When discussing the findings of the open-ended questions with the lecturers they overwhelmingly stipulated there is a great need for hands-on support from their academic peers at their institution concerning release time, instructional and administrative support, monetary compensation, teaching load and training and staff development.

Another concern emerging from the literature review and the lecturers' survey, is tertiary institutions focus on technology in and for itself rather than to identify programme priorities based on sound pedagogical decision making and every lecturer will have to become more

involved with programme and course development. Tertiary institutions have the tendency to obtain technology from many sources, before it has identified programme priorities and this makes neither financial nor pedagogical sense.

According to the findings and results there is an increased interest in the application of distance learning into tertiary institutions in South Africa. If this leaning is to be implemented by a given institute, strategies should be put in place to support the application of technology and the successful delivery of learning solutions. In order to establish a culture of support for ongoing learning and ensuring such support from management, deliberation should take place surrounding the three crucial questions asked in this Chapter:

- What factors promote quality web-supported learning.
- What factors contribute to client (student) satisfaction (or frustration) with web-supported education.
- What factors can insure cost effective distance learning? (With special reference to the demographic circumstances).

This directs us to the next argument.

5.3 Analysis and evaluation of the research question and findings

5.3.1 Justification and feasibility of this research

Distance learning is opening the door to new learning paradigms and new methods of knowledge transfer. It is a new philosophy that we all have to learn. In practical terms, the distance learning culture means that the participants and their institutions are fully convinced of the efficiency of distance learning methods as they are convinced today of the efficiency of face-to-face learning activities.

Until recently, distance-learning activities (such as using Internet and web-based education) were limited in South Africa due of the lack of technological infrastructure. Whilst it is true

that, generally speaking, in South Africa and other African countries the lack of computer, internet and web access have always been a real barrier to organise activities through the net, this situation is now changing.

The consequence of this lack of infrastructure in the past was a limited exposure to distance learning methods. Now that the e-learning infrastructure is developing at a fast pace in South Africa, the development of a distance learning culture is urgently needed especially with the view to the underprivileged student. Distance learning should therefore be seen as an alternative (or a complement) to the face-to-face courses in higher education.

5.3.2 Research question

"How can we transform Distance Learning in South Africa with Emerging Technologies?"

Table 5.2 The students' expectations and requirements from e-learning and to what extent e-learning met these needs and requirements:

Question	Needs and Requirements	How and to what extent needs and requirements were met by e-learning	Research Question
1	Online availability	▪ Not enough e-communication channels a) Student portal b) Lecturer c) e-mail d) WWW ▪ Due to the lack of access to computers after hours study time is not flexible	Education Strategy (Reaction) (Learning Effectiveness)
2	Control over hardware and software	▪ Experiencing difficulties with work station due to technical problems ▪ Problems interpreting the instructions (software) on class website ▪ Students need more opportunity for questions and the voicing of concerns and opinions with reference to the software and hardware	Technical Resources (Actual Learning) (Cost Effectiveness)
3	Lecturer assistance and course material	▪ Overall the students experienced a fair amount off satisfaction with lecturer teaching skills, assistance and evaluation methods ▪ There was some indication that some students experienced difficulty in understanding and interpreting the course material and tutorial instructions	Professional Teaching (Behaviour) (Access)
4	Motivation of e-learning for further studies	▪ Students feel motivated to complete the online course ▪ They feel that they are learning through their experience in the online classroom ▪ They feel that they can express themselves better in a e-learning class	Transformation of Distance Education (Results and Findings) (Student and Faculty Satisfaction)

Table 5.3 The lecturers' experiences and expectations of e-learning and the evaluation of this knowledge.

Question	Experiences and Expectations	Dimension of the experiences , expectations and support	Research Question
1	Learning Effectiveness	▪ Lecturers rate their own knowledge and skills as high, but not of their fellow lecturers in other faculties and departments ▪ Communication levels and support to students are quantified as low due to the lack of e-communication channels and other technological support ▪ Lack of staff development - Lack of institutional support	Education Strategy (Reaction) (Learning Effectiveness)
2	Cost Effectiveness and Access	▪ The complexity to access computers after hours on-campus (students) ▪ Cost effectiveness is valued as low ▪ Current e-learning strategy deliberated as inadequate ▪ Electronic sustainable courses are quantified as average ▪ Lecturers rate students attitude, knowledge and skill as especially good	Technical Resources (Actual Learning) (Cost Effectiveness)
3	Student and Faculty satisfaction	▪ Method of Delivery rates as excellent ▪ Lecturers support of high-quality ▪ Learners satisfaction and participation in class – of high standard	Professional Teaching (Behaviour) (Access)
4	Future Departmental and personal education strategy	▪ Lecturers foresee a better quality of e-learning for the future ▪ Feel that e-learning is financially viable ▪ The management of e-learning by lecturers is of high standard ▪ and foresee an transformation of distance learning	Transformation of Distance Education (Results and Findings) (Student and Faculty Satisfaction)

5.4. Discussion and recommendations

5.4.1 Discussion

With the analysis of the research it becomes clear that some constraints in the e-learning sphere are present which affects the learners, staff, infrastructure and organisation.

- A new education strategy and policies for e-learning should be implemented by both the government and institutions in order to accommodate distance learning.
- Research indicated that an improvement in the instructional design and application of technological resources reduces the strain on lecturers and students.
- Overall the students experienced a lack of electronic interaction between themselves and the lecturer. This can become a major problem in distance learning because the distance learner already distinguishes himself as the "isolated student".
- Students are of the opinion that not enough communication means are available after hours due to the lack of access to computers on the campus.
    a. In order to lessen the cost factor for both the student and the institution staff development and institutional support and effective design of electronically sustainable courses must be addressed.

In general the research shows that the method of delivery in e-learning is excellent and students' experience a high degree of satisfaction towards their studies which helps them become motivated to complete their studies.

All the above constraints influence the practicality of distance learning, and one must bear in mind that the main object of distance learning is to provide the student, especially the underprivileged and disadvantaged student, with adequate specialised professional teaching which lay the foundation of an effective learning process.

5.4.2 Recommendations

Constraint 1

A new education strategy and policies for e-learning should be implemented by both the government and institutions in order to accommodate distance learning.

Recommendations

- Leaders in e-learning and state education policymakers should begin functioning together to help form a distance learning practice. Such a dialogue will help education policy leaders understand the unique dimensions of the e-learning practice and also enable distance learning to operate successfully.
- Stakeholders in e-learning should participate in professional forums to lay a common ground for distance learning.
- Existing policies and strategies for e-learning must be revisited to incorporate the distance learning practice.

Constraint 2

Research indicated that an improvement in the instructional design and application of technological resources reduced the strain on lecturers and students.

Recommendations

- All concerned parties should support the development and improvement of instructional designing and application of technological resources.
- The policymakers should collaborate to assist with the implementation of a scientific research agenda relating to the instructional design practices to optimise student achievements in distance learning.

Constraint 3

Overall the students experienced a lack of electronic interaction between themselves and the lecturer. This can become a major problem in distance learning because the distance learners already distinguish themselves as the "isolated student".

Recommendation:

- On operational level lecturers need training in effective communication methods and skills to demonstrate conclusively that they are competent distance lecturers.
- Hybrid courses, combining face-to-face and online instruction should be implemented to ensure better quality learning outcomes and to overcome the barrier of isolation with the distance learner.

Constraint 4

Students are of the opinion that not enough communication means are available after hours due to the lack of access to computers on the campus.

Recommendations

- To accommodate the learners located in remote areas, optimal resource configuration and instruction design practices must take place at satellite campuses of tertiary institutions. Virtual classrooms must be allocated and established at strategic places in rural areas with the necessary professional online instructional materials and course materials.

- District employees will oversee these virtual classrooms and they will also participate in the development of these online instructions and course materials. These employees must be financially compensated by the Institutions they are working for.

Constraint 5

In order to lessen the cost factor for both the student and the institution:
a. staff development and institutional support and effective design of electronically sustainable courses must be addressed.

Recommendations

- Online lecturers should be required to complete an approved professional development curriculum ensuring their competency as distance learner instructors.
- Online lecturers should be required to complete an appropriate specialised professional development concerned with the design and implementation of distance learning environments.
- Specialised professional development programmes will be implemented to help the online lecturer to design effective electronically sustainable courses for distance learning practices.

Additional Recommendations

It becomes clear when examining the increasing demand for quality learning in higher education that tertiary institutions should acknowledge distance learning will form a substantial part of traditional learning in future.

- These institutions should therefore gather and share their knowledge resources with other intuitions and work together. Communication is extremely important in the design and development of a constructive sustainable distance learning philosophy.
- Individual departments at the institutions should make e-learning part of their constructive professional development to overcome the barrier of inadequate instructional quality.
- E-learning development should be based on a pedagogical knowledge but in practice it is determined by technical developers. To overcome this barrier all role players should participate in the development process such as learners, lecturers and designers and information technology specialists.
- Continuous evaluation as from day one of the distance learning systems, plays an essential role and can determine the success of the project. Projects have to determine what to evaluate such as social and cultural needs, the learning process, the learning environment and the management.

5.5. Further research and development

Recommendations for further research include

- how new communication and information technologies can influence the delivery of effective distance learning practices in South Africa,
- how to increase learner participation and improve the quality of education practices involved in distance learning,
- how the constraints associated with distance learning can be identified and measured. Insignificant statistics are available on the success rate of distance learning,
- how to formulate and test these identified constraints in experimental conditions,
- how to establish a database that consists of case studies related to field studies taken from real life situations,

5.6 Conclusion

The future success of distance learning in South Africa mainly depends on the development and the delivery of effective learning programmes. Although there are considerable investments in information technologies infrastructure at tertiary institutions for the development, delivery and administration of e-learning, the emphasis should rather be on the improvement of the quality of the education strategy and methodology of distance teaching (teaching per excellence).

Distance learning is just the means to the end and not the end itself. The design of formal courseware for distance education in South Africa is lacking behind the rest of the world, due to the country's unique topographic and demographic circumstances. More than often the lecturers are up to their own devices compiling their own syllabi and methodologies in a "slap dash" manner. The result is that many students experience confusion and frustration with the distance teaching method adapted by the lecturer.

An important hypothesis therefore is to design and develop a new centralised curriculum and a national co-ordinating framework for distance learning by the Higher Education Board of tertiary institutions (South Africa). This curriculum and framework must be designed in such a way that it will succeed in practice and help the institutions to work in unification instead of isolation.

The next important stage in particular, is to educate the educator for the future. A definite degree or diploma should be designed and put into practice at universities to accommodate the aspirant lecturer who wants to specialise in distance education.

The edification of the distance lecturer (like any other educator) forms the foundation and leads to the success of the education strategy and policy of any country. The upgrading of the distance educator will provide a conventional starting point for the initialisation of the process of change in distance learning.

The "distance lecturer education" will not only lay the foundation for the future success rate of distance learning but will also help with the improvement of effective interaction between the lecturer and student.

The lecturers already concerned with distance education should be provided with necessary ongoing workshops and training sessions, in order to strengthen their methodology and pedagogical approach to distance learning. These training sessions will help to build a team spirit between the lecturers from different education centres and will also contribute towards new education models for the future. These education activities will help to identify the lecturers' strengths and weaknesses and help to identify the students' needs and interests in distance learning.

Due to the overall computer illiteracy of the inhabitants of South Africa, more interaction between communities should take place in order to alleviate the situation.

For example, an informal research conducted by the Department of End Using Computer at Tshwane University of Technology, showed that approximately 80% of the population of the Northern Province are computer illiterate.

A practical computer course (Word, Excel, PowerPoint and E-mail) was therefore designed and delivered as part of a community project at the satellite campus in Polokwane. School children, teachers, housewives, street vendors and adult learners participated in this course, with a remarkable success rate. Already there is a waiting list of virtually thousands of people for future courses at this satellite campus.

Such community projects will ease the enormous burden that is placed on the distance educator to achieve positive results from the students in a course, diploma or degree and it will also assist the disadvantaged, underprivileged distance learner to overcome the barriers of computer technology and fulfil a life long dream of high-quality education.

Very little statistics are available on the success rate of distance leaning and no research has given a final answer of how effective distance learning is. Researcher are positively persuaded that with the help of emerging technologies distance learning can be transformed to higher international educational levels, but only if the correct education structures are implemented and in place and the correct principles and values are followed.

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APPENDIX A

29th September 2007

TO WHOM IT MAY CONCERN:

My name is Margaretha Erasmus and I am currently working on my M thesis at the University of the Western Cape. The aim of this research project is to examine the effectiveness of information technology and electronic communication media on education and how it can be incorporated into distance learning. As part of this research I am investigating what students' perceptions are about the component of transforming the education system to a more viable e-learning method.

I would therefore greatly appreciate it if you could spare about 15 minutes of your time to fill in a questionnaire regarding the online component of your studies. The questionnaire will not ask questions of a personal and intrusive nature. This is not a test – it is your opinion I am after.

It is planned in such away that the information gathered in this study will contribute towards the viability of e-learning (virtual learning) for distance learning students (especially disadvantaged students), and if online education can improve and transform the quality of professional teaching and learning in distance tertiary institutions.

Please be assured that all the information gathered from this questionnaire will be totally confidential.

Therefore the strictest confidentiality and anonymity shall be preserved. Your name shall not be publicised in the final report nor will there be any cross-references made that can link the results of the questionnaire to you.

M. Erasmus
Lecturer Computer Studies
And Campus Co-ordinator for end user computing
Soshanguve Campus
Faculty of Information Technology
Tshwane University of Technology

STUDENT QUESTIONNAIRE

E-LEARNING IN HIGHER EDUCATION USING ELECTRONIC TECHNOLOGY

1. This survey aims to find out what you think of E-Learning with the use of learning materials, obtained from the course homepage or some other online courseware that enables you to access your course material.

   There are no **correct** or **incorrect** answers.

2. Your information and answers will not be shown to anyone else.
3. Throughout the following you will find a number of statements. Read the statements carefully and think about how well the statement describes your class website and network setup and the teaching methods and instructions you have received. (Just click on the letter X on your keyboard or use a pen in the column you choose)

   Example:

	Strongly disagree(SD)	**Disagree (D)**	**Uncertain (U)**	**Agree (A)**	**Strongly Agree(SA)**
The class website and network is always easy to assess			x		

4. The questionnaire is based on close-ended questions.
5. You may find that some of the questions seem to be repeated in different sections of the questionnaire. This is to assist the researcher with the analysis of the questionnaire. Please answer all the questions.

SECTION I:

Please provide an answer for each question:

1. Age (for e.g. 20-30 or 30-40)

2. Gender

3. Home language (e.g. isXhosa)

4. Tertiary Institution

5. Faculty

6. Department

7. Mode of Study (full time, part time)

8. Qualification you are studying towards (e.g. Diploma, degree, and postgraduate)

9. Years enrolled at a Tertiary Institution (e.g. 1-2, 3-4 etc)

10. Current level of study (e.g. 1st year, 2nd year etc)

11. Occupation of the primary breadwinner in your family

12. Highest education level of the primary breadwinner in your family

13. Are you the first person in your immediate household to go University? (Yes, No)

14. Where do you live whilst you are attending (e.g. with relatives, hostel, on my own)

15. Do you access to a computer elsewhere off campus (Yes, No)

16. If you said " Yes" to no. 15, where do you access this computer? (e.g. Friend, library)

17. Think about the computer that you most often use when not at your institution. How many other people share use of the computer? (E.g. only me, 2 people, 4 people, more than 4 people)

SECTION II:

STATEMENTS	Strongly disagree (SD)	Disagree (D)	Uncertain (U)	Agree (A)	Strongly Agree(SA)
1. I could clearly see and read all the information presented on each of the pages on screen (instructions and reading material)	(SD)	(D)	(U)	(A)	(SA)
2. I received adequate feedback from my lecturer about my performance during the semester	(SD)	(D)	(U)	(A)	(SA)
3. I needed to constantly jump from page to page to find what I was looking for on the class website.	(SD)	(D)	(U)	(A)	(SA)
4. Success was easier to achieve in a class situation with an online component than the old hands on teaching	(SD)	(D)	(U)	(A)	(SA)
5. I had more control over the sequence in which I approached the topics on the class website	(SD)	(D)	(U)	(A)	(SA)
6. I understood from the content on the class website what I was expected to learn	(SD)	(D)	(U)	(A)	(SA)
7. I sometimes felt frustrated using the class website and would have preferred hands on education (traditional teaching)	(SD)	(D)	(U)	(A)	(SA)
8. The website lecturing materials are synchronous with the lecturer' s instructions	(SD)	(D)	(U)	(A)	(SA)
9. The test/s provided a clear indication of what I have learned online	(SD)	(D)	(U)	(A)	(SA)
10. I spent too much time figuring out how to interpret the instructions of my course work	(SD)	(D)	(U)	(A)	(SA)
11. The online discussions with my lecturer and fellow students motivated me to succeed in this online course	(SD)	(D)	(U)	(A)	(SA)
12. The class website was interesting and pleasant to use	(SD)	(D)	(U)	(A)	(SA)
13. I was able to communicate on a frequent basis with other students online to discuss note, questions and assignments	(SD)	(D)	(U)	(A)	(SA)
14. Online learning provided me with flexibility such as being able to study when it was convenient to me	(SD)	(D)	(U)	(A)	(SA)

15. I discussed the topics and assignment with my lecturer through the class website	(SD)	(D)	(U)	(A)	(SA)
16. Communications channels are of high standard with this online course	(SD)	(D)	(U)	(A)	(SA)
17. The topics presented by the lecture online were interesting and opened new view points (perspectives)	(SD)	(D)	(U)	(A)	(SA)
18. I responded to other students discussions and questions online on a frequent basis	(SD)	(D)	(U)	(A)	(SA)
19. My lecturer' s expectations were clearly communicated to me	(SD)	(D)	(U)	(A)	(SA)
20. The interaction that I had with other class members affected the outcomes of my assignments	(SD)	(D)	(U)	(A)	(SA)
21. I was able to read other students' answers and to discuss the assignments and tests with my fellow students online	(SD)	(D)	(U)	(A)	(SA)
22. I actively found information and facts on the web for myself	(SD)	(D)	(U)	(A)	(SA)
23. I was able to discuss real-life situations in my online class discussions	(SD)	(D)	(U)	(A)	(SA)
24. I needed extra instruction from lecturer/tutor to find my way around on the class website	(SD)	(D)	(U)	(A)	(SA)
25. I took more responsibility towards my own learning, in an online class situation	(SD)	(D)	(U)	(A)	(SA)
26. This class (with an online component) gave me more opportunity to learn through my own experience	(SD)	(D)	(U)	(A)	(SA)
27. The general outlook of the class website was pleasant and consistent	(SD)	(D)	(U)	(A)	(SA)
28. The lecturer' s topic, lecture, tutorial and laboratory notes were self explanatory	(SD)	(D)	(U)	(A)	(SA)
29. The online lecture' s office hours and links to other relevant sites were easily accessible.	(SD)	(D)	(U)	(A)	(SA)
30. The icons/graphics identified what the buttons would do if I clicked on them	(SD)	(D)	(U)	(A)	(SA)
31. There was a good mix of media (e.g. graphics, sound and animation) presented in the notes	(SD)	(D)	(U)	(A)	(SA)
32. The material that was presented related to skills and knowledge that I had learned	(SD)	(D)	(U)	(A)	(SA)

prior to commencing this unit					
33. The graphics and the pages on the class website loaded fast enough	(SD)	(D)	(U)	(A)	(SA)
34. The assignments were clearly stated without asking my lecturer/tutor for clarification	(SD)	(D)	(U)	(A)	(SA)
35. The material that was presented stimulated my interest in the subject	(SD)	(D)	(U)	(A)	(SA)
36. The course information was presented in a variety of ways to help my learning	(SD)	(D)	(U)	(A)	(SA)
37. The learning was provided when it was needed to complete and assignment or questions online	(SD)	(D)	(U)	(A)	(SA)
38. There was adequate help provided with the class website and other online learning instructions	(SD)	(D)	(U)	(A)	(SA)
39. I worked collaboratively with other students on the class assignments	(SD)	(D)	(U)	(A)	(SA)
40. There were clear instructions on how to submit assignments	(SD)	(D)	(U)	(A)	(SA)
41. I was promptly notified that my submitted assignments had been received	(SD)	(D)	(U)	(A)	(SA)
42. I wished there were more online discussions about the topics or the assignments	(SD)	(D)	(U)	(A)	(SA)
43. I clearly understood when to use the non-online support material such as tutorials	(SD)	(D)	(U)	(A)	(SA)
44. I found the online discussion with my lecturer valuable	(SD)	(D)	(U)	(A)	(SA)
45. There were times when I was not able to contact my lecturer/tutor or fellow students online	(SD)	(D)	(U)	(A)	(SA)
46. I feel there is room for improvement with the design and access of the class website	(SD)	(D)	(U)	(A)	(SA)
47. I am able to find course content on the Internet that is relevant to South Africa	(SD)	(D)	(U)	(A)	(SA)
48. I was satisfied with the reaction I got from my lecturer/tutor when help was needed online	(SD)	(D)	(U)	(A)	(SA)
49. There was too much printing required for this unit of study	(SD)	(D)	(U)	(A)	(SA)
50. It was more enjoyable to study in a class situation with online components than one of hands on teaching (white board etc.)	(SD)	(D)	(U)	(A)	(SA)

51. The use of online learning is likely to result in more valuable learning experiences	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
52. The use of electronic media is likely to improve communication between students and lecturers	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
53. The computer resources that I use for studying is available in the language of my choice	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
54. E-learning can give valuable support to my courses	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
55. I can express myself better through e-learning than the usual class setup learning	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**

Thank you for taking the time to participate in this survey, I really appreciate your input

Retha Erasmus

APPENDIX B

29th September 2007

TO WHOM IT MAY CONCERN:

My name is Margaretha Erasmus and I am currently working on my M thesis at the University of the Western Cape. The aim of this research project is to examine the effectiveness of information technology and electronic communication media on education and how it can be incorporated into distance learning. As part of this research I am investigating what lecturers' perceptions are about the component of transforming the education system to a more viable e-learning method.

I would therefore greatly appreciate it if you could spare about 15 minutes of your time to fill in a questionnaire regarding the online component of your lecturing. The questionnaire will not ask questions of a personal and intrusive nature. This is not a test – it is your opinion I am interested in.

It is planned in such away that the information gathered in this study will contribute towards the viability of e-learning (virtual learning) for distance learning students (especially disadvantaged students), and if online education can improve and transform the quality of professional teaching and learning in distance tertiary institutions.

Please be assured that all the information gathered from this questionnaire will be totally confidential.

Therefore the strictest confidentiality and anonymity shall be preserved. Your name shall not be publicised in the final report nor will there be any cross-references made that can link the results of the questionnaire to you.

M. Erasmus
Lecturer Computer Studies
And Campus Co-ordinator for end user computing
Soshanguve Campus
Faculty of Information Technology
Tshwane University of Technology

LECTURERS' QUESTIONNAIRE

E-LEARNING IN HIGHER EDUCATION USING ELECTRONIC TECHNOLOGY

4. This survey aims to find out what you think of e-Learning with the use of learning materials obtained from the course homepage or some other online courseware that enables you to access your course material.

   There are no **correct** or **incorrect** answers.

5. Your information and answers will not be shown to anyone else.
6. Throughout the following you will find a number of statements. Read the statements carefully and think about how well the statement describes your class website and network setup and the teaching methods and instructions you are using.
   (Just click on the letter X on your keyboard or use a pen in the column you choose)

Example:

	Strongly disagree(SD)	**Disagree (D)**	**Uncertain (U)**	**Agree (A)**	**Strongly Agree(SA)**
The class website and network is always easy to assess			x		

4. The questionnaire is based on close-ended questions.
5. You may find that some of the questions seem to be repeated in different sections of the questionnaire. This is to assist with the analysis of the questionnaire. Please answer all the questions.

GENERAL INFORMATION:

Please provide an answer for each question:

5. Age (for e.g. 20-30 or 30-40)

6. Gender

7. Tertiary Institution employed

5. Faculty

6. Department

7. Mode of lecturing (full time, part time)

8. Highest Qualification (e.g. Diploma, degree, and postgraduate)

18. Years lecturing at a Tertiary Institution (e.g. 1-2, 3-4 etc)

19. Please mention your training in the field of e-learning

20. Name of the course and the unit (module) with the online component

21. Are you involved with adult learners some of the time (Yes, No)

22. Are you involved with distance learning courses some of the time?

23. How many students on average do you accommodate per class

24. Do think enough is being done to improve the availability of technological resources and electronic communication media for the students at your institutions?

25. Do you feel that you are sent on enough courses to improve your teaching skills in your field?

SECTION A:

STATEMENTS	Strongly disagree (SD)	Disagree (D)	Uncertain (U)	Agree (A)	Strongly Agree(SA)
1) I feel confident with the planning and developing of learning materials for online delivery	(SD)	(D)	(U)	(A)	(SA)
2) The experience of the tutors at our institution in e-learning is of a very high standard	(SD)	(D)	(U)	(A)	(SA)
3) The tutors are regular users of standard applications	(SD)	(D)	(U)	(A)	(SA)
4) The tutors are pioneers with new applications in e-learning	(SD)	(D)	(U)	(A)	(SA)
5) There is a climate of change among the instructors at our institutions to use ICT in teaching	(SD)	(D)	(U)	(A)	(SA)
6) The level of support for instructors with respect to the use of ICT for teaching purposes is very high	(SD)	(D)	(U)	(A)	(SA)
7) E-learning in education counts towards promotion and is of a permanent status	(SD)	(D)	(U)	(A)	(SA)
8) The use of e-learning in education is part of regular external quality assurance exercises	(SD)	(D)	(U)	(A)	(SA)
9) The use of online learning in education forms an integral part of staff assessments	(SD)	(D)	(U)	(A)	(SA)
10) Professionalism of staff in ICT competencies is mandatory	(SD)	(D)	(U)	(A)	(SA)
11) Financial incentives to individual staff are provided for development of e-learning in higher education	(SD)	(D)	(U)	(A)	(SA)
12) I feel that the use of e-learning in higher education should be mandatory	(SD)	(D)	(U)	(A)	(SA)
13) E-learning can play an important role in distance learning	(SD)	(D)	(U)	(A)	(SA)
14) I feel that our Faculty should implement distance learning	(SD)	(D)	(U)	(A)	(SA)
15) More community projects should be put into practice to serve the disadvantaged students in rural areas in South Africa	(SD)	(D)	(U)	(A)	(SA)

16) Distance learning is bound to be a success with the use of e-learning	(SD)	(D)	(U)	(A)	(SA)
17) The use of online learning should be mandatory in schools in S.A.	(SD)	(D)	(U)	(A)	(SA)
18) I have developed online assessments systems	(SD)	(D)	(U)	(A)	(SA)
19) I have put teaching material for delivery online	(SD)	(D)	(U)	(A)	(SA)
20) I encourage regular discussions with my students via the student discussion website	(SD)	(D)	(U)	(A)	(SA)
21) I understand the structures and purposes of higher education and the role that e-learning plays	(SD)	(D)	(U)	(A)	(SA)
22) I am able to assess the outcomes of e-learning and learners' achievements	(SD)	(D)	(U)	(A)	(SA)
23) I am able to make use of – learning and to integrate it into my learning environments	(SD)	(D)	(U)	(A)	(SA)
24) The course material and class notes that we use for e-learning are inadequate	(SD)	(D)	(U)	(A)	(SA)
25) We have a powerful server and a fast network in our department	(SD)	(D)	(U)	(A)	(SA)
26) We do have after hours IT support for evening classes	(SD)	(D)	(U)	(A)	(SA)
27) We have a lack of access to computers and printers for the students after hours	(SD)	(D)	(U)	(A)	(SA)
28) We have a lot of malfunctions, errors, illegible files and links not working	(SD)	(D)	(U)	(A)	(SA)
29) Attachments to files is malfunctioning and difficult to open in e-learning labs	(SD)	(D)	(U)	(A)	(SA)
30) There is enough technical support available in the e-learning labs of our department	(SD)	(D)	(U)	(A)	(SA)
31) Web-based course management systems are on par and running 100%	(SD)	(D)	(U)	(A)	(SA)
32) Externally available courses and modules are accessible via the Web	(SD)	(D)	(U)	(A)	(SA)

33) E-mail systems, web resources and wireless solutions are freely available for students at our campus	(SD)	(D)	(U)	(A)	(SA)
34) Video conferencing tools is a necessity for online learning	(SD)	(D)	(U)	(A)	(SA)
35) There is a great deal of technical problems with respect to new software versions' integration and the campus IT infrastructure	(SD)	(D)	(U)	(A)	(SA)
36) There is a lack of e-learning strategies and policies at this institution	(SD)	(D)	(U)	(A)	(SA)
37) There is a reduced accessibility to information resources for disadvantaged students	(SD)	(D)	(U)	(A)	(SA)
38) There is a lack of clear, accessible IT communication channels at this institution	(SD)	(D)	(U)	(A)	(SA)
39) The use of the internet for learning prepares students for an increasingly technological life	(SD)	(D)	(U)	(A)	(SA)
40) Teaching online is rewarding and enjoyable	(SD)	(D)	(U)	(A)	(SA)
41) The use of e-learning helps to provide opportunities for the disadvantaged students who do not have computers at home	(SD)	(D)	(U)	(A)	(SA)
42) Using e-learning reduces the disadvantaged students' isolation in the world of information technology	(SD)	(D)	(U)	(A)	(SA)
43) Using online learning allows me to find out about new teaching practice that I may want to use or to adapt	(SD)	(D)	(U)	(A)	(SA)
44) Use of e-learning can help to overcome remoteness or geographic isolation of disadvantaged students in rural areas	(SD)	(D)	(U)	(A)	(SA)
45) E-learning component adds value	(SD)	(D)	(U)	(A)	(SA)

to the learning experience of the student					
46) E-learning promotes active learning/problem-based learning and learner-centred activities	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
47) The e-learning component contributes to the achievement of subject specific learning outcomes	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
48) E-learning improves the self-confidence/self-discipline of the student especially the disadvantaged student	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
49) I foresee a future for distance learning in South Africa with the help of certain factors especially the use of e-learning	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
50) More distance educational courses should be implemented with the help of online learning	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
51) The development and integration of e-learning and all its elements is of the utmost importance	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
52) To develop multimedia interactive resources for distance learning specialized software is needed	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
53) The cost involved with the establishment of e-learning based distance learning centres is viable feasible and practical	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
54) The training of tutors in the use of communication in e-learning should be upgraded.	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**
55) The use of Information technology in distance education is sufficient in South Africa	**(SD)**	**(D)**	**(U)**	**(A)**	**(SA)**

SECTION B:

1(i)

e. Please describe any staff development provision offered by your institution concerned with helping faculty utilised e-learning.

f. In your experience, which subject areas, types, level of programme and learning activities are best suited to e-learning? (E.g. web, fully on line or mix mode – online discussions)

g. Please outline key ' lessons learned' from any such staff development activities at your institution for e.g. what new content could be added to your course material?

h. Have you established any internal mechanisms to ensure collaboration and sharing of e-learning material between the different campuses of your institution?

1.(ii)

d. Describe in short the technological resources available for e-learning at your institution e.g. hardware, software, flash disks for students, library resource and open labs at all hours

e. Are the same resources available for students at your distance campuses? If you specify " no" , what do you think what is the reason?

f. Does your institution update the technological resources on a regular basis to be on par with other institutions?

1(iii)

a. In your opinion, do you feel that your students have a disadvantage in comparison to other institutions' learners concerning online activities such as online discussions, assessment and collaborative work?

b. Do you have a student portal system? How extensive is this, in terms of function and reach?

c. Please describe the current balance between open computer labs and computers purchased by students independently.

d. What network facilities can students access for connecting from off-campus? Are these arrangements likely to change over the next few years?

1(iv)

a. Is your institution part of an online learning consortium or other significant partnership in this area?

b. To what extent have your institution moved administrative systems such as admissions, registration and fee payments, online? How does that influence aspirant students who

are living in rural areas (disadvantaged students)?

2(i)

a. Does your institution have a formal, written online learning strategy or do some faculties/departments have their own e-learning strategies

b. Please describe in short any important strategic differences between your educational centre and faculty/departments involved in e-learning.

c. How does your institutions' e-learning strategy or equivalent relate to your institutions' mission or general strategic plan?

2(ii)

a. Have your e-learning programmes/courses been changed or improved during the last few years and what changes have you envisaged.

b. What electronic sustainable courses are available at your campus and at your other campuses?

c. Has your institution devised particular strategies to facilitate co-operation between faculties and other staff (technical, instructional designers, library) in developing sustainable courses on e-learning.

2(iii)

a. Please comment on the balance of interest in e-learning and traditional learning by the students at your institution, and do you think that e-learning is more popular?

b. How does the ' non-tradition student (student that is less academically prepared – disadvantaged student) respond to e-learning at your institution?

c. Give your impression of how students acclimatise to greater use of e-learning.

3(i)

a. Describe the support offered to the students by the e-learning tutors at your institution e.g. making use of the correct methodology of demonstrating skills and knowledge

b. To what extent did the learner react to this support and was the tutor satisfied with the change in behaviour of the students attending the course

3(ii) and (iii)

What has been the ' teaching and learning' impact of greater use of e-learning at your institution?

a. Specifically the student participation and satisfaction

b. Teaching and learning approaches

c. Student retention rate

4(i)

a. What scenario do you foresee for the management of the e-learning strategy at your institution?

b. Do you foresee the implementation of distance learning at your other campuses with the use of online learning methodology?

c. What are viewed as major barriers to further online learning development at your institution?

4(ii)

a. Has the greater use of e-learning generally increased course development and delivery costs, or have ways been found to offset higher development cost over time?

b. Has the increased/decreased/other cost impact of greater use of e-learning had any impact on tuition fees at your institution of online learning methodology?

c. Please give your views on the role national government in South Africa might improve their strategy/funding online distance learning

Thank you for completing this survey. I really appreciate your input and the effort you made.