UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Cross-cultural transfer of learning materials for a Journalism course at a Higher Education Institution

A doctoral thesis
by

Marieta de Swardt

Submitted in fulfilment of the requirements for the degree Philosophiae Doctor (Computer Integrated Education)

in the

Faculty of Education

University of Pretoria

Promoter: Prof Dr JC Cronjé
Department of Curriculum Studies

2009

SUMMARY

This study reflects on an outreach initiative between two differing tertiary cultures established on different continents. The aim is to develop an understanding of what happens when a prestigious American university and a South African Higher Education Institution meet around a computer-mediated situation. Various inter-relating aspects such as cooperation and cooperative learning, educational technology, Higher Educational Institutions, globalisation, the international Digital Divide, cultural diversity, commonalities, cultural differences, an international learning programme, and power relations in international partnerships are explored. The effect of technology on education is that information is no longer restricted to a single geographical setting, instead it has expanded and became a dynamic international driving force. Increasing educational needs compel Higher Education Institutions to provide in these needs and to adapt to a more flexible learning style. Globalisation causes the world to get smaller, compressed, interconnected and resulted in a world that is in effect *flat.* Information communication technologies are changing the world. On the one hand the Internet promotes communication and freedom but on the other hand causes uneven development all over the globe. The Digital Divide pertains to the divide between the global well-resourced learners and the local under-resourced learners. Cultural differences between nations and organisations can be interpreted against the background of different models of cultural dimensions. The focus of the study is to explore the effect of commonalities and cultural differences on cooperative learning at organisational level. Power relations between international partners were challenging and resulted in conflict and differences of opinion.

The project started with the University of Pretoria's visit to Stanford University in November 2004. The preparation, organisation and planning phases continued through 2005. The ELISA project was intended as a three-year intervention from 2006 through 2008. The first year was supposed to be a pilot phase to gather and provide information for use in the second and third years. This study pertains to the pilot phase which started in February 2006 until June 2006. It was successfully completed and achieved a 93% success rate. However, in September 2006 Stanford unexpectedly informed the South African partners that the project would be discontinued due to several reasons. Their objections related to the lack of visible progress regarding content scheduling, media production, course logistics, and research practicalities. Although there were accommodating personalities among the project leaders on both sides interpersonal conflict between the remaining project leaders developed. The partners on both sides could not generate sufficient commonality regarding the need to continue. The situation was worsened by the fact that the initial rationale for the project lacked shared motivation among the project leaders on both sides. It is suggested that more research be conducted to explore possible differences of opinion and undercurrents among project leaders throughout the project, and to scrutinize the initial rationale as well as curriculum issues in good time, and to investigate the role of

power relations between international partners that are funded by international grants, and the effect of these power relations on the learning experiences of the students involved.

Key words: cooperation, cooperative learning, educational technology, Higher Education Institutions, globalisation, Digital Divide, cultural diversity, educational needs, commonalities, contextualization, power relations.

CONTENTS

List of Tables

List of Figures

List of Annexes

List of Abbreviations

ADDIE	Analysis, Design, Development, Implementation, Evaluation
ADSL	Asymmetrical Digital Subscriber Line
AIDS	Acquired immune deficiency syndrome
AMD	Advanced Micro Devices
APEC	Asia-Pacific Economic Co-operation
ATM	Automatic teller machine
AU	Africa Union
AWF	African Wildlife Foundation
CAI	Computer Assisted Instruction
CESP	Center for Environmental Science and Policy
CD-ROM	Compact Disc Read Only Memory
CT	Communication technology
CTC	Communication Technology Center
DVD	Digital video disc
ELISA	E-learning Initiative in South Africa
FDI	Foreign direct investment
FET	Further education and training
FISAC	Fellow at the Center for International Security and Cooperation
FSI	Freeman Spogli Institute
FSIIS	Freeman Spogli Institute for International Studies
GDP	Gross domestic product
GMT	Greenwich Mean Time
HEI	Higher Education Institution
IBM	International Business Machines
ICASA	Independent Communications Authority of South Africa
ICT	Information Communication Technology
IDL	International Distance Learning
IDV	Individualism
IP	Internet Provider
ISDN	Integrated services digital network
IT	Information telecommunication
ITU	International Telecommunication Union
IWS	Internet World Stats
KFC	Kentucky Fried Chicken
LTO	Long Term Orientation
MAS	Masculinity
NGO	Non-Governmental Organisation

OECD	Organisation for Economic Co-operation and Development
PDA	Personal digital assistant
PDI	Power Distance Index
ROI	Return on investment
SANLS	South African National Language Service
SCIL	Stanford Center for Innovations in Learning
SD	Sustainable development
SNO	Second national operator
SSA	Sub-Sahara Africa
STHC	Scientific and technical human capital
SU	Stanford University
SUIOP	Stanford University International Outreach Program
TNO	Third national operator
TUT	Tshwane University of Technology
UP	University of Pretoria
UAI	Uncertainty Avoidance Index
UK	United Kingdom
UL	University of Limpopo
UNAIDS	The joint United Nations programme on HIV/AIDS
UNEP	United National Environment Programme
UNESCO/COL	United Nations Educational, Scientific and Cultural Organization
UP	University of Pretoria
URL	Uniform Resource Locator
USA	United States of America
UWC	University of the Western Cape
WEF	World Economic Forum
WiFi	Wireless Fidelity
WRI	World Resources Institute

Chapter 1: Introduction

1 Introduction

This study aims to develop an understanding of what happens when two differing tertiary cultures established on different continents, meet around a common subject in a computer-mediated situation. Due to technology the focus has changed from an ordinary classroom to a virtual meeting place, resulting in the classroom being part of the international world. Technological progress can shift the teacher's activities from delivering content to that of facilitator, ensuing interactive learning. Online courses presented from remote national and international institutions can be assessed while the student is enrolled at a local institution.

2 Background

In 2004 two Professors from the Department of Education of the University of Pretoria (UP), South Africa together with a research assistant visited Stanford University, United States of America to explore the possibilities of cooperation between Stanford and UP. The purpose of the collaboration was to introduce an existing Stanford international security course to a South African Higher Education Institution (HEI). Stanford first offered this same course in Russia in the fall 2000 to the following institutions: Amur State University, Moscow Higher School of Economics, North Ossetian State University, Petrozavodsk State University, Saratov State University, Southern Ural State University, Ural State University, Yakutsk State University, and Yaroslavl State University. The instructor was a Professor from the Center for Environmental Science and Policy (CESP) at Stanford. The course was contextualised by complementing excellent English-language articles with the best of the Russian-language articles. This was done a) to present the Russian point of view on topics sensitive to both Russia and the United States and b) to offer students a broader view than only the Stanford employed Russian instructors at each institution. The instructors held weekly seminar sessions with the students in an attempt to apply students' feedback from the lectures to the Russian context. The sessions also served as quality control and motivation for the students. From the outset it was decided that UP would play an *investigative* role, and that other South African universities will be invited to participate in the project as South African partners whose students should benefit from the course. The investigative role was to find out what happens when two differing tertiary cultures meet around a common subject in a computer-mediated situation, and why does it happen? The research assistant acted as data collector at this early stage as no researcher was available. Her instructions were to record as neutrally and accurately as possible what was happening during the first discussions - effectively acting as administrative and general support assistant. She acted as such during the UP team's initial visit to Stanford in November 2004.

During this initial visit to Stanford it became clear that positive as well as negative aspects would be part of the project. One of the first differences arose around basic terminology. Stanford and UP did not necessarily attach the same connotations to concepts such as course, component, module, programme and unit. However, both institutions had the same interpretation of the integration of teaching and research, the utilisation of technology to enable distance learning to take place, and the use of a model of local support.

Early in 2005 meetings were conducted with various role players in Limpopo and Pretoria, with the research assistant still acting as administrative and general support assistant. These role players included representatives from the University of Limpopo (UL), Tshwane University of Technology (TUT) as well as a delegation from Stanford. The purpose of the discussions was to identify possible future partners, encourage participation and to establish a potential strategic partnership network. At that stage it became clear that the cultural divide between Stanford and South Africa was presenting enormous obstacles.

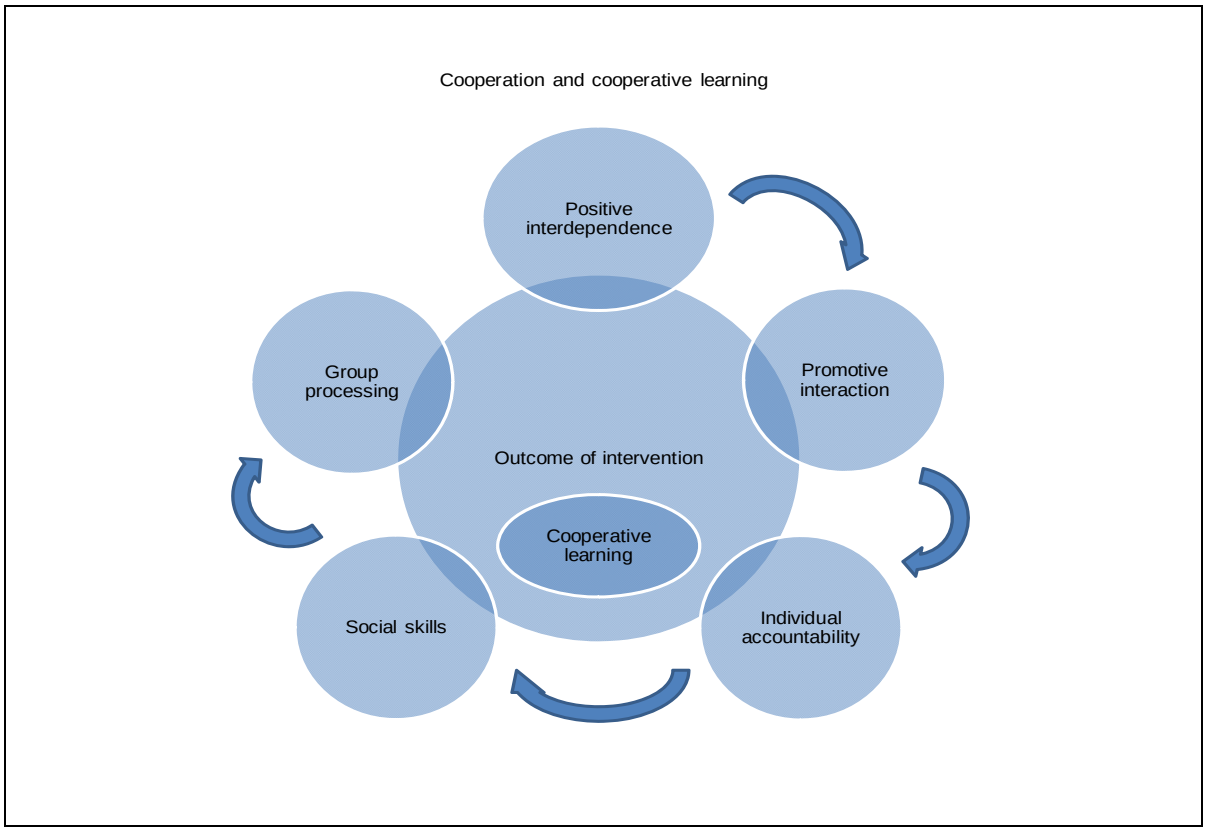
The conflict arose because different institutional goals were pursued. UP wished to generate research results, Stanford wished to put into effect an externally funded project, while TUT wished to be part of an international project. Yet initially there was a mutual will to participate. A central research question thus emerged: *What happens when an international learning module, compiled by an American university is adapted for a South African HEI, and implemented in a computer-mediated situation, and why does it happen?* The project was registered at Stanford under the code-name “ELISA” (e-Learning Initiative in South Africa). This study involves the pilot phase of the Stanford e-Learning Initiative in South Africa. In short the purpose of this project was to find out what happened when two differing tertiary cultures meet around a common subject in a computer-mediated situation, and why does it happen? At this stage the administrative and general support assistant had to withdraw from the project to concentrate on her own Doctoral studies, and I was asked to continue in her role as research assistant. My instructions were to continue recording data from an epistemologically neutral perspective.

3 Theory and methodology

The organic nature of this project has to be acknowledged from the start. In the same way as the research question came into being as the project developed, I started exploring the concept of cooperation and cooperative learning at organisational level. The purpose of cooperation was to work together in order to accomplish shared goals. It became evident that the essential elements of cooperative learning at organisational level could be used in which to frame the research, resulting in a theoretical framework as illustrated in figure 1. I used the following five elements of cooperative learning to construct the outer frame of the theoretical framework: Positive interdependence,

promotive interaction, individual accountability, social skills, and group processing (Johnson & Johnson, 1994). The problem statement namely what happened in the ELISA international partnering intervention, is represented in a second frame within the layer framework. Finally, the purpose of the study, namely cooperation, shared meaning, shared goals, and commonality, is represented by the innermost frame.

Figure 1: Theoretical framework



Source: Johnson, Johnson & Holubec (1994)

International outreach programmes are often characterised by various cultural questions and issues such as differences and commonalities. In order to find middle ground between the two very diverse cultures, I explored some cultural differences and commonalities. Initially the work of Geert Hofstede (1980a) was considered. Hofstede is well known in the field of computers and culture, as he investigated cultural differences in branches of the IBM corporation in 72 countries. Hofstede's view on culture is mentioned under cultural dimensions (Chapter 1, 9.6.3). However, Professor Cronjé's work in Sudan (Cronjé, 2006) showed that, while Hofstede was strong on cultural differences, he was not good at explaining commonality. Professor Cronjé used a conceptual framework to illustrate the difference between local and global role players and how to achieve commonality (Chapter 1, figure 2). At the other end of the scale Henry Giroux's border pedagogy, while interested in crossing borders,

was not strong on cultural clashes. Furthermore, consultations with a cultural expert (UP cultural expert, personal communication, October 31, 2006) showed that, whatever theoretical foundation one would choose (multi-culturalism, interculturalism, etc.) would mean that one would necessarily exclude the other, thus there was a constant “lose-lose” situation.

Differing conceptions of culture are discussed under cultural differences (Chapter 1, 9.6.3). The research was about the effect of commonalities and cultural differences on cooperative learning at organisational level. A clear African perspective was missing, as was a clear American perspective. The UL was not interested in cooperation with Stanford, resulting in Stanford, UP and TUT as main participants in the ELISA project. I started taking notes in the real-life situation by analysing all emails between Stanford, UP and TUT. All emails form part of the data as discussed under Data (Chapter 1, 12). From the 578 emails between these institutions I identified various different connotations. While taking notes I realised that the emails reflected values such as truth, justice, fairness, performance, enterprise, authority, personal power, conflict, personal insecurity, survival of self, victimisation, aggression and destruction, particular obsession, particular ability, creativity, innovation, anger, bitterness, revenge, negativity. It also included affinity, trust, selection, succession, speed of decision, influence, impulsiveness, charisma, short documentation, individualism, role division, stability, predictability, efficiency, conformity, problem solving, expertise, task orientation, enthusiasm, commitment and variety. I then coded my notes and grouped them into categories. I started to read literature on culture, cultural diversity (commonalities, contradictions and differences), educational technology, bridging the Digital Divide, the effect of globalisation on education and Higher Education Institutions in South Africa and in the United States. That is when the work of Professor Lovemore Mbigi & Maree (2005) of Zimbabwe mentioned under cultural dimensions (Chapter 1, 9.6.3) became interesting. Mbigi & Maree, in a popular work, put forward that, in African organisations several cultural “spirits” exist – such as a spirit of defiance, a spirit of revenge, a fighting spirit, etc. In his introduction, Mbigi pays tribute to the popular American writer Dr Charles Handy, and mentions the influence of his book *Gods of management* (1991), which identifies some elements of Greek mythology that still exists in current Euro-American organisations – such as the warrior, the lover, etc. Comparing the works of Mbigi and Handy it was clear that the cultural values symbolised by the African spirits and the Greek gods could match the values pertained in the emails, thus fitting into cultural dimensions Thus it was decided that a grounded theory approach, discussed under Methodology (Chapter 1, 11) would be taken to the research. I was advised to continue collecting data, while at the same time starting to read the literature on grounded theory research, culture and education. A clear step-by-step description of the grounded theory method is illustrated by Dick (2005). In essence it means that one starts in a real-life situation and you take notes, mentioned under Data (Chapter 1, 12). Then you group your notes into categories. Then you start adding theoretical literature *as data*. The aim is “to discover the theory implicit in the data” (ibid.)

4 Method

Within this context then, the method that I followed was to read through the data already collected by the administrative and general support assistant (emails that she received and saved, minutes of meetings and journal entries) and to engage in "note taking". Her data only pertained to the exploratory phase of the project both in Stanford and in South Africa. I continued with the note taking as "secretarial" research assistant to the South African coordinator and TUT team leader. My data started when the course commended on 3 February 2006. The ELISA project became a case study that I employed as a research strategy. The purpose was to gain a meaningful understanding of the situation and significance for the participants of the South African and US teams. The ELISA project was an example of a case study that provided a major account of the phenomenon of cooperation and cooperative learning at organisational level. The case study was anchored in the real-life situation of the participants and contributed to the rich and thick description of the phenomenon.

Then I thoroughly analysed the literature on culture and education as I came across it, still engaging in note taking. In the mean time I started broadening my data collection by engaging in open-ended interviews, discussed under Interviews with key participants (Chapter 1, 12.2.2). Some participants were suggested by the TUT team leader, others were selected because the emergent data suggested that they would have a contribution to make. I conducted four open-ended interviews in Stanford and two interviews in Pretoria as these contributed to the process of building towards a theory and generating a hypothesis.

I conducted the first interview with a Director of the Freeman Spogli Institute for International Studies (FSIIS); the second interview with another Director of the FSIIS and the Stanford team leader; the third interview with a Director of International Programs, Stanford Center for Innovations in Learning (SCIL); and the fourth interview with the first teaching assistant. I asked the interviewees about their role in the project, their expectations at the beginning of the International Distance Learning (IDL) program and important aspects of the program. During the interviews I continued with note taking. I recorded all the interviews and transcribed them**.** I conducted two interviews in South Africa. The first interview was with the administrative and support assistant to the ELISA project, and the second interview was with the South African ELISA project organiser and the UP team leader. I asked the administrative and support assistant about the origin of the project and the role that she played during the early phases, both in Stanford and South Africa. In the interview with the UP team leader I focused on the dialogue between First World universities and their counterparts in developing countries, the creation of shared meaning as well as positive and negative aspects of the study.

In Stanford I did observations and took notes during discussions with an Associate Professor of Education (Teaching); and with the second teaching assistant and asked them related questions. The

second teaching assistant was responsible for selecting the reading material for the assignments which formed part of the international program that the TUT students participated in. The first teaching assistant in her capacity of teaching assistant to the ELISA project provided valuable information on education and culture.

Observations of academic activities that I attended are discussed under Data collection (Chapter 1, 12.1). It is important to keep in mind that the virtual classroom connected experts from Stanford and educators and students from TUT to collaborate synchronously as well as asynchronously. Access to asynchronous wireless technology enabled the learners to communicate when necessary as South African time (GMT+2) differs from Stanford University (GMT-8) resulting in a ten hour difference. The Academic Technology Specialist of Wallenburg Hall, (SCIL) Stanford, accompanied me on a guided tour of this state-of-the-art technology centre. He demonstrated Stanford's use of technological devices in education. I attended a graduate Political Science lecture on Major Issues in International Conflict Management by a Professor of Political Science, Senior Fellow at the Freeman Spogli Institute (FSI), Stanford. The content of this lecture focused on international organisations and global security, mediation, conflict prevention and peacekeeping. The use of highly sophisticated technological equipment during this lecture was contrasted by a traditional board–and-chalk freshman's lecture by a Professor on explaining ethnic violence. The purpose of the attendance of these lectures was to compare different technological aspects of teaching and learning. I continued to take notes and attended a lecture on Urban Education; as well as a lecture on building a Wiki "On-Line learning Communities". All these interviews, discussions and observations took place at Stanford. The administrative and general support assistant did not do interviews but she generated data. The abovementioned data that I generated, were imported into the computer programme ATLAS.ti™ I used ATLAS.ti™ to search through the data for emergent themes and to code these.

5 Interpretation

It was hoped that the emergent themes, as they arise both from praxis, and from the literature, could be grouped into sense-making units, and thus contribute to our understanding of what happens when two vastly different cultures meet.

6 Cultural limitations

The American colleagues did not present any physical lectures in South Africa because the course was taught technologically. A limiting factor of this research is that, while the group of American presenters subscribe to a very clear "Stanford" culture, the South African participants represented Afrikaans, English, Indian, isiZulu and Sesotho cultures. Thus it was hard to find a clear "African" theory for the study. It was precisely because of this dichotomy between a homogeneous Stanford

culture, and a hard-to-define South African target population that the study became interesting, although we are fully aware that these results could not be generalized. It was my intention to provide a picture of what happened in this very interesting, very diverse case, and in so doing to contribute, from a unique angle, to the discourse of the meeting of cultures and a cooperative learning process. Stanford withdrew after one year of three. This study does not investigate why, as I believe that there is enough data for a whole new study into why relationships went down.

7 Rationale

The rationale for the study was to contribute to the growing body of stories on cooperation and cooperative learning at organisational level between HEIs in developing and developed countries. This study explored the influence of various inter-relating aspects such as cooperation and cooperative learning at organisational level, HEIs, distance-learning technologies, the effect of globalisation on education, an international learning programme, the impact of the Digital Divide, cultural diversity, and power relations in an international partnership.

Cooperation means that individuals and group members work together to accomplish shared goals (Johnson, Johnson, & Holubec, 1994). Cooperative learning in the classroom enables students to work together in small groups to master assigned material and take full advantage of individual and group learning. Five essential elements are instrumental to ensure successful cooperative learning. These elements are positive interdependence, face-to-face promotive interaction, individual accountability, social skills, and group processing (Johnson & Johnson, 1994). The abovementioned essential elements were used to explain the idea of cooperative learning at organisational level.

Distance-learning technologies could be regarded as critical links between institutions and students by linking experts and learners at numerous sites and making human and informational resources extensively available (Chute, Thompson, & Hancock, 1998). The use of technologies such as telephone conferences, video conferences, online lectures, synchronous and asynchronous communication, information and communication technologies (ICTs), WebCT6 as well as wireless personal digital assistants (PDAs) were used to explore how the distance learning experience for TUT students might be enhanced.

Globalisation with regard to education strove for the enforcement of an increasing intellectual colonised world. Developed countries worldwide strove to force their predominant cultural values and behavioural patterns on to those of the weaker developing countries (Drahos, 2002; Pogge, 2005). These so-called weaker developing countries took a stand against this tendency resulting in the question of what are the reactions of such developing countries?

An important effect of globalisation on education was the international collaboration and educational progress and development which took place. The expertise of world famous environmental specialists was available to learners in remote areas. A combination of online as well as wireless communication contributed to the dissemination of information and acquisition of knowledge as well as to the enhancement of teaching and learning. These available educational opportunities resulted in broadening the perspectives of learners, stimulating creativity, spontaneity and critical thinking. Watson, cited in Suarez-Orozco and Qin-Hilliard (2004, p. 158) summarises as follows: “Information wants to be free”. The effect of globalisation on an international learning module was studied.

The Digital Divide, an expression of [some] of the differences between the affluent North and the impoverished South, reflected in education on learners with access to technology and those without. The implications of the Digital Divide on the contextualisation of an international learning module were explored.

In exploring cross-cultural transfer of learning materials from the United States to South Africa, it was significant to take Western and non-Western cultural diversity and situational reality of the South African educational environment and learners into consideration. The “Rainbow African Spirits Theory” (Mbigi & Maree, 2005) characterised potential principal cultural dimensions and values which were drawn from original African spirits. The cultural values of the predominantly Western world as symbolised by the ancient Greek Gods (Handy, 1991) were plotted against the cultural dimensions of the African spirits, resulting in evident contradictions and commonalities. The influence of some of the cultural differences between the United States and South Africa as it reflected in a tertiary educational environment was evaluated.

International partnerships between HEIs in different positions are becoming a world-wide tendency. Powerful interaction in relationships of international partnerships may become challenging at times when specific goals and needs of the participating institutions have to be served despite agreed upon mutually-beneficial cooperation. Important aspects of international partnerships include different models of distance education such as joint programs, direct marketing or franchise arrangements (Bates, 1999). Motivation for international distance education include the following: Generation of revenues, demand for programs, provision of expertise, knowledge and skills, enhancement of the institution’s international profile, international participation, generation of research expansion, lodging externally funded projects, and curriculum expansion. Benefits for both partners should be clearly stated. Equality between providers and recipients depend on the international distance education model.

8 Research problem

The purpose of the study is to determine the aspects across national and cultural borders that influence the construction of common meaning across cultures.

8.1 Research question

The main research question was formulated from the issues mentioned in the background:
What happens when two differing tertiary cultures meet around a common subject in a computer-mediated situation, and why does it happen?

8.2 Central question

8.2.1 What happens when an international learning module, compiled by an American university is adapted for a South African HEI, and implemented in a computer-mediated context?

8.3 Critical questions

8.3.1 What dialogue emerges and why does it emerge?

8.3.2 How and why is shared meaning created and why is it created?

8.3.3 How do we deal with cultural differences?

8.3.4 Which aspects of the process work well and why and how can they be improved to compensate for those that do not work well?

8.3.5 Which aspects do not work well and why and how can they be improved?

9 Literature study

In order to answer the above questions I explored the following aspects namely cooperation and cooperative learning on organisational level, the effect of educational technology, the significance of an Higher Education Institution, the effectiveness of an international learning programme, the role globalisation, the Digital Divide, cultural diversity, and models of cultural dimensions, and power

relations in international partnerships. It was necessary to explore the role of educational technology as a critically important tool to participate in an international learning programme at a HEI. The investigation of the Digital Divide focused on international issues of global importance and emphasised and stimulated local content development. The study of cultural differences was essential to create cultural awareness resulting in "developing interculturally competent students" described by MacKinnon and Manathunga, as cited in Cronjé (2009, p. 69).

9.1 Educational technology

Technology became the motto of the 21st century. It afforded learners all over the world endless opportunities to communicate and enhanced their educational and technical environments. The effect of technology on education was that information was no longer restricted to a single geographical setting, instead it expanded and became a dynamic international driving force. Wireless technologies erased time and geographical constraints and enabled world-wide access between continents. Swiniarski and Breitborde (2003) accentuated the open-ended nature of access through technology. Due to wireless technologies the teaching and learning process needed not be interrupted. "School is always in session because school is always there" (Ko & Rossen, 2004, p. 3).

Technology enabled the use of learning objects, which were defined as follows: "Learning objects are elements of a new type of computer-based instruction grounded in the object-oriented paradigm of computer science" (Wiley, 2002, p. 4). Reusable learning objects such as small instructional components deliverable over the Internet can be engaged in multiple contexts in diverse learning environments.

9.2 Higher Education Institutions

Higher education in South Africa focused on future perspectives such as the preparation of universities "…to embrace the future in a global world" (Pityana, 2004, p. 2). As result of government-mandated mergers twenty-three HEIs were formed to reshape and meet the needs of tertiary education. Three former technikons merged to form TUT which consists of six campuses namely Ga-Rankuwa, Nelspruit, Polokwane, Soshanguve, Tshwane and Witbank. TUT was at that stage "the largest residential HEI in South Africa…It is well positioned to meet the higher education needs of different communities in South Africa" (Stanford team leader, 2006).

The TUT mission was to "…create, apply and transfer knowledge and technology of an international standard through cooperative professional career education programmes at undergraduate and postgraduate levels; …extend the parameters of technological innovation by making knowledge useful through focused applied research and development; and establish and maintain a strategic

partnership network locally and internationally for the mutual benefit of the institution and partners" (Tshwane University of Technology, 2005). TUT is technologically well-equipped, a feature which enables the transfer and portability of learning materials and international learning programmes. The study was conducted at the Department of Journalism, located at the Tshwane campus.

9.3 International learning programme

An International Environment Politics programme that focused on universal environment themes, identified problems and future problems and perverse outcomes, was presented. This programme consisted of sixteen lectures and was delivered by means of CD-ROMs supplemented by additional reading material selected by the Stanford academic and technical team. The lectures were also posted on WebCT6. I filled the role of participative researcher in collaboration with the technical assistant at Telematic Education at TUT. The Head of the Department of Journalism at TUT and instructional designers at Telematic Education were responsible for the finalisation and capturing of the content.

9.4 Globalisation

The effect of globalisation seemed to be that the world was getting smaller and more compressed (Tayeb, 2001). It resulted in the emergence of a "global village" (Suarez-Orozco & Qin-Hilliard, 2004, p. 16) with close contact between the countries. Increasing communication and personal exchange between countries was common knowledge. It created accumulative consciousness of other role players in the world.

It could be argued that globalisation had an indispensable and unforeseeable effect on education. This resulted in substantial significance but also in a cause for controversy. The paradox of globalisation lay in the contrasting views of this increasing intercontinental dynamic force: having noticeable positive as well as negative aspects. The proponents of globalisation accentuated the concept of multiple perspectives (Mason, 1998) to broaden cultural awareness and the potential of learners.

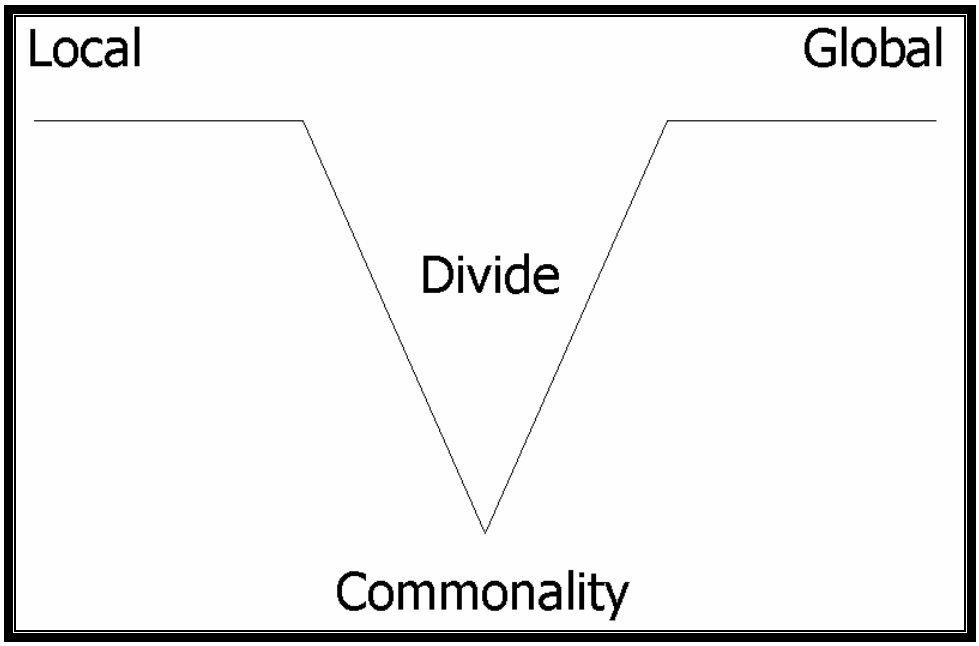
Globalisation required growth and evolution in order to bridge global and cultural gaps. The poor should be provided with opportunities to better their lives and bridge the aforementioned gaps. Globalisation enables learners to achieve "greater appreciation for cultural complexity and diversity" (Suarez-Orozco & Qin-Hilliard, 2004, p. xi). Seeing globalisation as an opportunity instead of a disadvantage, it could be described as "positive, promoting economic development and intercultural exchanges" (Suarez-Orozco & Qin-Hilliard, 2004, p. 7). Learners had to adapt to new technologies and blend information from multiple sources ensuring lifelong learning.

9.5 Digital Divide

ICTs are transforming the world. Digital technologies are accelerating with the revolutionary potential of causing dramatic educational, economic, social and cultural changes. Castells (2001, p. 247) accentuates the crucial role of the Internet as a tool to accomplish “freedom, productivity and communication”. He points out that on the one hand the Internet is the basis of emerging technical and social development, but the Internet is on the other hand the basis of the Digital Divide, causing uneven development all over the globe. A consequence of the Digital Divide in education is learners and educators with access to technology (the well-resourced) and those without (the under-resourced).

Castells refers to the meaning of the Digital Divide as “inequality of access to the internet” (2001, p. 247). He continues to say that due to the fact that the Internet is the basis of emerging technical and social development, uneven development all over the globe is possibly the most remarkable manifestation of the Digital Divide. The conceptual model illustrated below (Cronjé, 2009, p. 70) indicates the Digital Divide between global well-resourced learners and the local under-resourced learners. Cronjé accentuates the fact that “The more global something becomes, the less its local relevance, the more local things become, the less globally competitive or useful it will be”. He emphasises that increasing either of the two sides would result in the increase of the Digital Divide. To reach commonality, one has to distinguish fundamental aspects on both sides and start working from there. Professor Cronjé’s work in Sudan is mentioned under Theory and methodology (Chapter 1, 3).

Figure 2: Digital Divide



Source: Cronjé (2009)

9.6 Cultural differences

The phrase *cross-cultural transfer*, as suggested in the title of this study, necessitates an in-depth exploration of culture and its attributes. Researching the term in the social sciences retrieved a number of differing perceptions of culture. Tayeb (2001, p. 98) refers to culture as a "woolly concept" and emphasises that there is a "difficulty in achieving a parity of meaning of concepts such as culture and its components when conducting research across two or more countries".

Differing conceptions underlie the range of definitions of culture as mentioned under Theory and methodology (Chapter 1, 3). Culture can be regarded as cultivation, as tradition, as items of information, as a system of symbols, as social process, as motive and (even) as emotion (Erickson, 2001). These are all examples of the diverse possible views. Culture exists in a variety of subsets of human endeavor that together combine as the essence emanating from a variety of nations (Coertze, 1959). The following attributes are present in all cultures: a language, a social organisation, religion or a similar phenomenon, a system of technical creations, an economic organisation and activities, an educational system, a governmental or judicial system, a system of literary contributions, a philosophic and knowledge system, and a system of aesthetics, being creations in the context of art in one form or another such as sound, colour, rhythm or line that manifests itself through a variety of media (Coertze, 1959). Coffey, cited in Mahalingam and McCarthy (2000, p. 38) refers to culture as "…an aesthetic phenomenon, restricting it to the intellectual and creative activity of the so-called best and brightest of any given society". Williams defines culture as a "particular way of life, whether of a people, a period, or a group" (Mahalingham & McCarthy, 2000, p. 38).

Critical aspects common to all cultures pertain to common "cultural mindsets" (Gannon & Associates, 1994, p. 5). This concept entails that members of a particular society have the same basic ways of thinking, feeling and acting. Hofstede (1980b, p. 43) refers to culture as the "collective mental programming of people in an environment". Culture is characteristic of a number of people who share the same life experiences, and have created a number of institutions together.

Cultural experts discern between dominant or hegemonic cultures and subordinate or lower cultures (Carrim, 1998; Gandhi, 1998; Mahalingham & McCarthy, 2000; Rudman, 2003). Acculturation and enculturation theories are subdivisions of culture and entail different approaches. All human beings adopt or react to aspects of new cultures that they encounter. "Acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups" (Rudman, 2003, p. 49). Enculturation involves the extent of identification with ethnic culture,

participation in cultural activities and a pride in cultural heritage (Dyer, Ramirez-Valles, Walter, Washiensko, & Zimmerman, 1996). It also involves shared values (Dahl, 2004), an awareness of traditional ethnic cultures, extolling the virtues of tradition, and the process of transferring cultural values from the senior ranks to the junior members of a particular society.

There are different schools of thought about what culture is and how the variant views impinge on society. There are, for example, the Postcolonial theory, the Critical Race theory, the Anti-Racist theory and the theory of Multicultural Education. The Postcolonial theory (Gandhi, 1998, p. ix) concentrates predominantly on “the needs of the Western academy. It attempts to reform the intellectual and epistemological exclusions of this academy, and enables non-Western critics, located in the West, to present their cultural inheritance as knowledge”. The Postcolonial theory regards non-Western culture and knowledge as ‘differing’ from the normative ‘self’ of Western epistemology and rationality. The knowledge systems of areas such as Africa, India, Korea or China are not worth considering and historical and cultural conversations tend to keep a low profile. Bhabha (1994, p. 140) argues “I am attempting to write of the Western nation as an obscure and ubiquitous form of living the locality of culture”. Willinsky, cited in Hickling-Hudson (2003) emphasizes that the legacies of imperialism, similar to that of colonialism, still continue within institutions, for example in Australia.

The Critical Race theory accentuates the black-white binary (Delgado & Stefanic, 2000) and it highlights racism as a normal phenomenon in American society. Rosen (2000, p. 586) argues accordingly and adds that the accomplishment of “formal equality” did not succeed to eradicate the prevalent racism that Anglo-Americans experience on a daily basis. The belief that racism is normal rather than aberrant results in the view that blacks “perceive particular events in American law and culture differently than whites” (Delgado & Stefanic, 2000, p. xvi). Their second premise underlying the Critical Race theory is that a culture creates its own social reality in customs that advance its own self-interest. Scholars construct it in the form of storytelling using words, stories and even periods of silence. A third premise is “interest convergence” coined by Derrick Bell, cited in Delgado & Stefanic (2000, p. xvii). This concept involves that white elites will promote or tolerate racial progress for blacks on condition that such progress also advances white self-interest.

The Anti-Race theory (Carrim, 1998, p. 1) involves “…a redefinition of the culture prevalent in schools throughout the country and a shift in mentality, from being racist, undemocratic and authoritarian to being non-racial, democratic and enabling”. The focus moves from race to ethnicity and assimilation.

Multicultural education as defined by Delgado-Gaitan & Treuba, cited in Gay (2000, p. 194) refers to culture as “…a dynamic system of social values, cognitive codes, behavioral standards, worldviews, and beliefs used to give order and meaning to our own lives as well as the lives of others”. According to Gay (2000) culture is multidimensional and changes continuously.

9.6.1 The effect of cultural differences and dynamics for the social context in South Africa

Culture is an ever-changing social construct and many different cultures exist side by side in South Africa. New cultures are constantly changing and reforming and being created within the political, technical and social frameworks "…socialization in different cultural systems produces different modes of speaking and thinking" (Gay, 2000, p. 82). Pai, cited in Gay (2000, p. 9) emphasises the fact that "…education is a sociocultural process. Hence, a critical examination of the role of culture in human life is indispensable to the understanding and control of educative processes".

Social researchers distinguish between absolute and relative cultural values. Absolute values resemble the legacy of classic philosophers such as Aristotle or Plato. These form the pillars of every society resulting in the human race having consensus of it. The controversy regarding culture involves the relative cultural values. These values emerge in modern culture and their arguments last from between ten to fifteen years. They are characterized by passing trends such as the computer era of the 1990's, currently the Digital Divide and technological development, the all-enveloping consumer tidal-wave of the multiplicity of television and video possibilities, cell phone dynamics, personal digital devices and the abounding, never-saturated recreational and the splurge of techniques to still further adapt the environment to the needs of human beings.

9.6.2 The implication of cultural differences in terms of this study

The International Environment Politics Programme, started by Stanford, contains a specific political message. The implication of this is that it is set against the background of a developed country, trying to identify issues of global importance and then attempting to provide resources, expertise and answers to a developing country. This coincides with an educational goal of globalisation of developed countries that strives to force predominant cultural values and behavioral patterns on to those of the weaker developing countries (Drahos, 2002; Pogge, 2005). These so-called developing countries take a stand against this tendency resulting in the question: What are the reactions of such countries?

It is a given that adherents of different cultures communicate differently. From the literature it is apparent that the Critical Race theory uses storytelling as a way of communication (Delgado & Stefanic, 2000). Storytelling may be described as intellectual strategy (Rosen, 2000) to convey a message. Rosen argues that "African Americans not only have different experiences, they also have different ways of communicating and understanding them…no event or text has an objective meaning, that each community of readers must determine how the text will be understood" (Rosen, 2000, p. 587). The African-American perspective correlates with the notion of the African Spirits (Mbigi &

Maree, 2005) that uses traditional African concepts to convey modern Western theories. The question arises how Stanford expects to implement the ELISA project in South Africa without taking the social context into consideration?

9.6.3 Cultural dimensions

"Culture is more often a source of conflict than of synergy. Cultural differences are a nuisance at best and often a disaster" (Hofstede, 2003, p. 2).

As has already been stated in the section under Theory and methodology (Chapter 1, 3) it is hard to find a unified theoretical point of departure for studies on culture. Since I work in the field of computers and education I decided to start my research with the work of the Dutch author Geert Hofstede, who is the most well-known theorist on culture in the world of computing. He did his research in the branches of the IBM corporation in 72 countries, and it is generally accepted that his is the largest quantitative study about culture in organisations to date (Hofstede, 1980a).

Cultural differences between nations and organisations can be interpreted against the background of different models of cultural dimensions. According to Hofstede (1980a) these cultural differences between organisations and nations are based on the following four dimensions: Power Distance Index (PDI), Individualism (IDV), Masculinity (MAS) and Uncertainty Avoidance Index (UAI). Later on he introduced Long-Term Orientation (LTO) as a fifth dimension (Hofstede, 1991).

Critiques against Hofstede's models include the contribution of Søndergaard (Enger, 2004) who aims his conclusions on the following points: "Surveys are inappropriate instruments to measure culture; unit on analysis of nations is not the best unit suited for studying culture; one company can't provide information about entire national cultures; the IBM data is old and obsolete and four dimensions can't tell the whole story". McSweeney (2002, p. 22) identified two significant problems concerning Hofstede's dimensions. "First, the generalisations about national level culture from an analysis of sub-national populations necessarily relies on the unproven, and unprovable supposition that within each nation there is a uniform national culture and on the widely contested assertion that micro-local data from a section of IBM employees is representative of that supposed national uniformity. Second, the elusiveness of culture. It was argued that what Hofstede 'identified' is not national culture, but an averaging of situationally specific opinions from which dimensions or aspects, of national culture are unjustifiably inferred".

The stance of this study is in support of the Hofstedian argument, emphasising cultural differences between people at organisational level. The images of the ancient Greek Gods can be used to

symbolise different cultural values (Handy, 1991) that are discernible in management styles in the Western world. The different cultural values are illustrated in table 1.

Table 1: Symbolisation of Greek Gods

The cultural values	**The Greek Gods**
Club Culture	Zeus
Role Culture	Apollo
Task Culture	Athena
Existential Culture	Dionysus

Source: Handy (1991)

Zeus represents the Club Culture, represented by the spider's web. Organisations that use this cultural form have division-based work or results as the norm. The lines encircling the centre of the web (similar to the lines on an organisation chart) are the crucial lines as they symbolise power, influence, impulsiveness and charisma. Speed of decision is an important characteristic of the club culture. Situations where speed is essential will gain from this management style. Speed is, however, not a guarantee of quality, as quality does not depend on speed but on the competence of the role players.

Selection and succession of leaders are critical variables. Empathy plays a vital role and relies on affinity and trust which are easily established between members of the same club culture. Nepotism should not be summarily disregarded; on the contrary, it can be a significant source of empathy. "These cultures, then, are clubs of like-minded people…working on empathetic initiative with personal contact rather than formal liaison" (Handy, 1991, p.22). Trust founded on personal contact is one of the main principles of the club culture. However, empathy without trust can be dangerous as it can be used against a member. A club culture values its members, invests in them and the advancement of personal contact by means of telephonic communication and travelling. Speed is important; a delay is regarded as being more costly than a mistake which can be rectified later.

Apollo represents the Role Culture, illustrated as a Greek temple that draws its power and splendour from its pillars. The pillars symbolise function and role division in the organisation. This culture accentuates the definition of the role and the performance of its employees, not their personalities. It believes that man is rational and emphasises the logical analysis of things. The main characteristics are prescribed roles, job descriptions, work-flow charts, rules and procedures that embody the organisation. The pillars are joined at the top by the pediment, symbolising the board of directors, management committee or president. Stability and predictability will ensure that the past, present and future will be the same, while technological advances will create more stability. "Individuals in the role

culture are, therefore, part of the machine…The individual is he, or she, who is slotted into it" (Handy, 1991, p.24). Efficiency is a vital component of the role culture. Change embodies a threat to the role culture and members first ignore it, followed by doing more of the same activities. Role cultures react to change by organising cross-functional cooperation in an endeavour to keep the structure together.

Athena represents the Task Culture, illustrated by a net that draws resources from diverse parts of the organisational structure in order to accentuate a specific problem. Power is centred at the interstices of the net. The organisation consists of loosely-linked, independent units with a particular responsibility within a general strategy. Solution of problems, expertise, talent, creativity and innovation are the main characteristics of the task culture. Youth, energy, enthusiasm, joint commitment, mutual respect and helpfulness add to the success and generate variety instead of predictability. Task cultures are expensive due to experts who demand their market price. The latest technologies create a temporary monopoly during which higher charges can cover the cost of the task culture. Task cultures often don't last long and failure is one of the problems that are not solved easily. "Task cultures don't easily weather storms" (Handy, 1991, p. 31).

Dionysus represents the Existential Culture which assumes that the individual is responsible for his own destiny and that a higher purpose in life does not exist. The organisation is subordinate to the individual and exists to facilitate the individual in accomplishing his purpose. Individual talents and skills are the fundamental assets of the organisation resulting in professionalism and individualism being part of this culture. Members are often young, normally talented and benefit from job security, approved fee scales, allocated influence spheres and independence. Management in the existential culture is an unpleasant task and not highly regarded. Professionals do not readily accept instructions or compromises. "Every teacher likes to be the uninterrupted king in his own classroom, just as every doctor is god of his consulting room. You enter by invitation only, criticise on request, command by consent" (Handy, 1991, p. 33).

10 Research perspective

10.1 Theory Building

The purpose of research is to understand the world and this understanding "is informed by how we view our world(s), what we take understanding to be, and what we see as the purposes of understanding" (Cohen, Manion & Morrison, 2002, p. 3). The practice of educational research can be seen through different lenses, resulting in different ontological and epistemological assumptions and methodologies. "Different people, however, view the world from different perspectives (Henning, Van Rensburg, & Smit, 2004, p. 15). Various conceptions of social reality and of behaviour exist.

11 Methodology

11.1 Research approach

The study up to now has followed a grounded theory approach to inductively generate theory. Data were collected and analysed with ATLAS.ti™ on an ongoing basis. I analysed 578 emails between Stanford and TUT resulting in the assimilation of data that indicated patterns of data. Certain concepts and a variety of categories and properties emerged as a result of continuous comparisons of incidents. Categories and their properties resulted in substantive codes or conceptual meanings. Theoretical codes (Glaser, 1992, p. 27) “are the conceptual models of relationships that are discovered to relate the substantive codes to each theoretically”. Theoretical codes and substantive codes used together result in “a grounded theory that fits the data” (Glaser, 1992, p. 27). Transcripts of interviews, recordings and observation notes were also analysed and coded.

According to Bogdan and Biklen (1992, p. 201) “Evaluation research is the best-known form of applied research”. Mouton (2001, p. 158) defines evaluation research as follows: “Implementation evaluation research aims to answer the question of whether an intervention (programme, therapy, policy or strategy) has been properly implemented (process evaluation studies), whether the target group has been adequately covered and whether the intervention was implemented as designed”. Babbie (1998, p. 334) states that “the purpose of evaluation research is to evaluate the impact of social interventions such as new teaching methods”. The intervention in this study is the international environmental learning programme. The research was undertaken to determine what happens when two differing tertiary cultures meet around a common subject in a computer-mediated situation, and why does it happen.

11.2 Project description

Developed countries worldwide strive to force intellectual colonisation on to weaker developing countries (Drahos, 2002; Pogge 2005) resulting in the predicament of how developing countries relate to this. The uniqueness of the ELISA study lay in the fact that it explored corresponding values between two differing academic cultures as point of departure. Cooperation and collaboration are multifaceted concepts that are used as tools to achieve shared meaning and shared goals. I used the ADDIE model, (Dick, Carey, & Carey 2005) to describe the project.

11.2.1 Analysis

Stanford presents distance learning programmes focusing on International Environmental Politics. In 2004 the Stanford Institute for International Studies (SIIS) and the Stanford Centre for Innovations in

Learning (SCIL) commenced the Stanford University International Outreach Program (SUIOP). The function of the SUIOP is to cooperate with international partner institutions in creating, designing and evaluating wide-ranging and suitable e-Learning programmes for Higher Education Institutions (HEIs) in specific world regions. An applied research component forms part of the outreach programmes. Stanford's newly created International Initiative is responsible for the functioning of the SUIOP. Stanford initiated collaboration between the SUIOP, TUT and UP in accordance with the Initiative's mandate. Three broad themes were pursuing peace and security in an insecure world; reforming and improving governance at all levels of society; and advancing human health and well being (Stanford team leader, personal communication, 2005).

The purpose of the Freeman Spogli Institute for International Studies is to research international issues and challenges. Its goals are as follows: "To influence international public policy with its scholarship and analysis; to transcend traditional academic boundaries and create new partnerships; to make its research available to a wide audience; and to enrich the educational experience of all members of the Stanford community" (Stanford University, 2006a). The SCIL, established in 2002, "conducts scholarly research to advance the science, technology and practice of learning and teaching. The Center brings together teachers, scholars and students from around the world to study how to improve formal and informal learning across cultural boundaries" (Stanford University, 2006b). ELISA, an international project of the SIIS, complements Stanford's renewed commitment "to help raise its international profile by identifying issues of global importance and then providing resources, expertise and answers" (Delgado, 2004). International Environmental Politics is one of the important areas that was identified and which they explored. The role players of the ELISA project are the Stanford team leader, an Associate Professor of Education, a Consulting Associate Professor, a Stanford team member, and two teaching assistants. The Stanford team leader is a Director of the SIIS Initiative on Distance Learning (IDL) Program as well a Director of SUIOP. An Associate Professor from the Stanford School of Education led this collaborative assignment in South Africa. She is an educational anthropologist and the Director of an alternative middle school. Moreover, she specialises in active learning involving learners and teachers and the influence of real-world situations to drive learning (Stanford University School of Education, 2006d).

The virtual classroom connected experts from Stanford and educators and students from TUT to collaborate synchronously as well as asynchronously. Access to asynchronous wireless technology enabled the learners to communicate when necessary as South African time (GMT+2) differs from Stanford (GMT-8) resulting in a ten hour difference. The Department of Post Graduate Studies in Education, the Department of Journalism as well as Telematic Education at TUT were the centre of attention in the project. Third and fourth year part-time Journalism students at TUT participated in the study, communicating mostly asynchronously due to working conditions and deadlines. This took place under the leadership of the following partners in South Africa as indicated in table 2.

Table 2: ELISA Project Role Players

Research status	Department	Job Description
UP team leader	Department of Education, UP	ELISA project organiser and Supervisor
TUT team leader	Department of Post Graduate Studies in Education, TUT	Research Professor at the Faculty of Education as South African coordinator of the ELISA project
TUT team member	Telematic Education, TUT	Director of Telematic Education
TUT team member	Telematic Education, TUT	Instructional Designer and Technical Assistant
UP student	Department of Journalism, TUT	Teaching assistant and PhD Researcher
TUT team member	Department of Journalism, TUT	Head of the Department of Journalism, facilitator and lecturer for the ELISA project

From table 2 it is evident that I filled the role of participant observer who is responsible for data collection, moderation of assignments and students' enquiries. I was involved in the pilot phase of the project although not in a prescriptive way.

11.2.2 Design

The research made use of an intervention design consisting of a course on International Environment Politics for Journalism students at TUT. Students were able to access fifteen online lectures on environmental issues, presented by the Stanford team as well as a South African guest lecturer who was responsible for two lectures. Five written assignments and two mini-assignments were posted on the course bulletin board and were graded by a teaching assistant and moderated by the TUT academic team. Group discussions to assess the learners' grasp of issues presented in the lectures and reading materials, were held. This took place by means of face-to-face video conferences in order to ensure interaction.

11.2.3 Development and implementation

The existing Stanford module was adapted and contextualised for use in South African HEIs. This was done by means of inclusion of curriculum by local authors, namely two lectures on contemporary political aspects such as transnational protection of biodiversity, focusing on South African peace parks. Issues included in the Stanford module may not necessarily be contextual for South Africa. Feedback from learners contributed to emphasise important aspects which was done by focusing on the wireless component of the study.

As a qualitative research design requires the researcher to be the primary instrument for data collection and analysis, the researcher will “respond to the situation by maximizing opportunities for collecting and producing meaningful information” (Merriam, 1998, p. 20). As a PhD graduate student enrolled at UP, I filled the role of participative researcher. The research component of the study took place at TUT, in collaboration with the Departments of Telematic Education and Journalism. The participative researcher was responsible for the moderation of the assignments, collection of data and to be available for student’s enquiries.

The programme was conducted with a sample of fifteen third and fourth year learners of TUT, enrolled for a Journalism course. A sample of fifteen Journalism students was sufficient as there should be adhered to the principle of supply and demand with reference to the training of journalists, as South Africa does not need a large number of journalists. A computer laboratory in the Journalism Department, equipped with fifteen state-of-the-art personal computers and video-conference facilities was made available. Every student as well as the researcher received a PDA in order to respond to the assignments. WebCT6 was used to communicate and give feedback to students and video conferences were recorded. Progress was recorded and registered throughout the programme. Interviews were tape-recorded and transcribed. I took notes and reactions were documented immediately after the interviews.

11.2.4 Evaluation

The researchers used formative and summative evaluation techniques to assess the outcome of the intervention. The Stanford assistant gave her feedback promptly, discussed the assignments and presented her conclusions in a friendly way. She encouraged students constantly to report on problem areas and to discuss any implications of the programme. The assignments were graded as soon as they were submitted students were congratulated on excellent work or supported in a congenial manner if necessary. The purpose of formative evaluation is to “improve an ongoing program through continuous reporting of the evaluators’ findings” (Bogdan & Biklen, 1992, p. 211). McMillan and

Schumacher (2001) state that formative evaluation is used in order to collect data to reflect on the curriculum and the programme.

The teaching assistant did summative evaluation at the end of the intervention and it will be used to report on the effectiveness of the pilot phase of the study and to make suggestions on the subsequent studies scheduled for 2007. Fourteen students completed the project and received certificates. Summative evaluation is traditionally the most common form of evaluation and used when the intervention is completed (Bogdan & Biklen, 1992). This form of evaluation is more formal, feedback does not form part of it and a final report is given at the completion of the programme.

12 Data

Data consisted of emails, project documents, transcripts of interviews, recordings, observation notes, transcripts of telephone conferences and video conferences and minutes of meetings. I took notes during all the data-collection events as mentioned under Theory and methodology (Chapter 1, 3).

12.1 Data collection

The communication between all significant parties is facilitated by means of project documents. Background information on the overview of the study, collaborating institutions, suggestions towards academic design and implementation, timeframe and research focus were supplied by the Stanford team leader in the Request to the Whitehead Foundation in the United States. This was obtained through emails as mentioned under Theory and methodology (Chapter 1, 3). Emails were used in all forms of communication between Stanford and TUT. Documents included students' "researcher-generated documents" (Merriam, 1998, p. 119) such as assignments, documentation on online chat sessions, individual meanings posted under discussions, group discussions and official grade reports. I obtained 578 emails electronically. "On-line data collection offers an electronic extension of familiar research techniques, widening the scope of data available to the researcher" (Merriam, 1998, p.128).

As mentioned under Method (Chapter 1, 4) I conducted three interviews with directors of the FSIIS and one with a member of the Stanford academic team. These included interviews with a Director of the FSIIS, Director; the Stanford team leader, Director, Initiative on Distance Learning; Co-director; and the teaching assistant. Interviews were recorded, transcribed and signed. Notes were taken during discussions with an Associate professor of Education (Teaching) and the teaching assistant. The interviews and discussions were conducted at the Freeman Spogli Institute (FSI), Stanford. I organised a focus-group interview with the TUT students on completion of the programme. The facilitator was a technical support assistant from Telematic Education.

I did observations of specific academic activities at Stanford as described under Method (Chapter 1, 4) These included the attendance of various lectures in order to compare it to the South African situation. I attended a Political Science Lecture “Major Issues in International Conflict Management” by a Professor of Political Science, a freshman seminar “Explaining Ethnic Violence” by a Professor of Political Science, a graduate lecture on Urban Education by a Professor of Urban Education, a lecture on building a Wiki “On-Line learning Communities” by a Professor of Urban Communities and teaching assistant, a tour of Wallenberg Hall, facilitated by the Academic Technology Specialist. I continued to take notes during all these activities. Observations of academic activities at TUT include six contact sessions with students, three video conferences, one focus-group interview and a contact session with the Stanford team during their visit to TUT.

12.1.1 Documents

I made use of documents which included documentation on the online chat sessions, individual meanings posted under discussions, group discussions, written assignments and official grade reports. The reason for producing documents is to gain insight into the problem being scrutinised. Documents that the students produced themselves provided rich descriptions of how they saw and reflected their worlds and the environmental issues at hand.

Documents are collected as units of data which are used for analysis and interpretation (Henning, Van Rensburg, & Smit, 2004). The purpose of documents is to assist the researcher to “uncover meaning, develop understanding, and discover insights relevant to the research problem” (Merriam, 1998, p. 133). The term “document” refers to “a wide range of written, visual and physical material, relevant to the study at hand“ (Merriam, 1998, p. 112). Types of documents include personal documents (Bogdan & Biklen, 1992; Merriam, 1998) physical material and online material (Henning et al., 2004). According to Merriam (1998, p. 112) documents are “… a ready-made source of data easily accessible to the imaginative and resourceful investigator”.

Students were able to use their PDAs to take photographs and select pictures to “collect, organize and sort picture files…download images, copy the files … and view the images as a slide show” (Windows, 2006b, p. 108). Photographs are indispensable to journalism students as well as to researchers “since it allows researchers to understand and study aspects of life that cannot be researched through other approaches; they echo Hine’s suggestion that images are more telling than words” (Bogdan & Biklen, 1992, p. 138).

12.2 Data collection instruments

Data collection instruments consisted of the following:

12.2.1 Observation

I filled the role of participant observer and obtainer of documents as discussed under Method (Chapter 1, 4) and Data collection (Chapter 1, 12.1). Semi-structured and unstructured observation was used in order to conform to the requirements of generating a hypothesis. Semi-structured observation enabled me to explore an agenda of issues and clarify them in a less pre-determined way (Cohen et al., 2002). Unstructured observation disclosed occurrences during the contact time prior to deciding on its importance for the research.

According to Morrison, cited in Cohen et al (2002, p. 305) observations enable the researcher to collect data on:

- the physical environment
- the organisation of learners and the features of the group such as gender, age and the number of participants in the group
- the interactions taking place within the group and
- the programme setting for instance the assets and their organisation, curriculum and pedagogic styles.

Merriam (1998) adds the following:

- the nature of discussions
- subtle factors such as spontaneous activities, figurative and connotative meanings of expressions, inconspicuous physical clues and omitted actions and
- the behaviour of the observer taking down comments.

I filled the role of participant observer during contact sessions with students. Adler and Adler, cited in Merriam (1998) describe this role as a “peripheral membership role” whereby the participants will control the level of data that is revealed. I cooperated closely enough with the participants to identify with them as an insider “without participating in those activities constituting the core of group membership” (Merriam, 1998, p. 101). I used an emic analysis approach to capture the definitions of the situations as described by Silverman, cited in Cohen et al. (2002). The emic approach used the conceptual frameworks of the participants as they reported the situations as they experienced them.

12.2.2 Interviews

I conducted four open-ended interviews in Stanford, as discussed under Method (Chapter 1, 4). I was able to adjust the sequence in which questions were asked, altered the wording, clarified them or elaborated on them. The interviews were exploratory and conversation-like and contributed to the process of building towards a theory and generating a hypothesis.

Interviews are regarded as appropriate and significant instruments to collect data in qualitative research (Cohen et al., 2002; Henning, et al., 2004; McMillan, & Schumacher, 2001; Merriam, 1998; Mouton, 2001). In-depth individual interviews can be regarded as an appropriate method to develop a hypothesis and collect data as it enables the learner to share his ideas with the researcher. It involves "an interchange of views between two or more people on a topic of mutual interest, sets the centrality of human interaction for knowledge production, and emphasizes the social situatedness of research data" (Cohen et al., 2002, p.267).

As many learners hold the same view (Henning et al., 2004) the interview is regarded as not being exclusively objective or subjective but intersubjective (Cohen et al., 2002). Patton, as cited in Eloff, Engelbrecht, Kozleski, Oswald, Swart, & Yssel, (2002) states that the aim of interviewing is to "allow us to enter into another person's perspective … to find out what is in and on someone else's mind".

A focus-group interview focusing on a discussion topic was conducted by a facilitator and a technical support assistant from Telematic Education, TUT. Twelve journalism students participated and interacted with the facilitator and each other. According to Cohen et al. (2002, p. 288) "focus groups are contrived settings, bringing together a specifically chosen sector of the population to discuss a particular given theme or topic, where the interaction with the group leads to data and outcomes". The data that emerged from the interaction will be used to generate a hypothesis and gather feedback from the project. The outcome of the focus-group interview was validated by means of triangulation.

12.2.3 Discourse analysis

I used ATLAS.ti™ to interpret emails between Stanford and the South African academic and technical teams. I used coding at an early phase of the analysis to ascertain patterns and broad areas in the analysis.

Students used synchronous and asynchronous conversations in various educational environments. Due to working conditions and deadlines the journalism students who participated in the pilot study used mainly asynchronous conversations during the programme. They were encouraged to ask

questions, engage in discussions and comment on any aspects of the programme. Both the Stanford and TUT teams gave feedback promptly. Sherry, Cronjé, Rauscher and Obermeyer (2005) accentuate asynchronous conversations where “participants may express opinions, make connections between various discussions, relate the current topic to past experiences, synthesize responses of others, request clarification, or post substantive questions”. These conversations form a dialogue which is an important aspect of discourse analysis. The authors emphasise the importance of dialectic conversations, discussions and design conversations as means of discourse analysis.

Discourse analysis is one of the most important data-collection instruments. The construction of meaning emphasises the action standpoint of discourse analysis. Cohen et al. (2002, p. 293) draws attention to the “three kinds of speech act” which involve the “locutionary – saying something; illocutionary – doing something whilst saying something; and perlocutionary – achieving something by saying something” (Cohen et al., 2002, pp.298-299).

According to Habermas, as cited in Cohen et al. (2002, p. 298) utterances are embodied in the “intersubjective contexts in which they are set”. He emphasises the dual structure of a speech situation, namely the “propositional content (the locutionary aspect and the performatory content the illocutionary and perlocutionary aspect)” (Cohen et al., 2002, pp.298-299). Discourse analysis necessitates a sensitive researcher to interpret the nuances of language.

12.3 Data analysis

All documents pertaining to the project will be analysed. These include project documents, transcripts of interviews, recordings, observation notes, transcripts of telephone conversations and video conferences, minutes of meetings, documentation on the online chat sessions, group discussions, written assignments and official grade reports. 578 emails were analysed and coded with ATLAS.ti™ The course management system WebCT6 was used to facilitate the chat sessions, group discussions and written assignments. I used ATLAS.ti™ to analyse some of the data that I obtained from the literature study, observations and interviews and documented it. I will analyse, summarise and document remaining data that I mined from telephone conferences, video conferences and face-to-face contact.

Data analysis is an emergent process which involves all the phases of the research and was done simultaneously with the data collection process (McMillan, & Schumacher, 2001; Merriam, 1998). Data analysis will be completed in an inductive way resulting in groups and patterns becoming apparent. McMillan and Schumacher (2001, p. 462) describe qualitative data analysis as a “relatively systematic process of selecting, categorizing, comparing, synthesizing and interpreting to provide explanations of the single phenomenon of interest”.

Ongoing data analysis will ensure that the data will stay focused; repetition will not occur and will not be overwhelming in volume. Merriam (1998, p. 162) states that “Data that have been analysed while being collected are both parsimonious and illuminating”. According to Cohen et al. (2002, p. 77) the following aspects need consideration: “What needs to be done with data when they have been collected – how will they be processed and analyzed? How will the results of the analysis be verified, cross-checked and validated?”

I used crystallization as a technique to reflect on the research and ensure validity and reliability. “Crystallization seeks to open the analyst to data analysis, maximum experiences within the analytic style” (McMillan, & Schumacher, 2001) while Eloff et al. (2002) accentuate the deep and complex understanding of the topic provided by crystallization.

12.4 Validity and reliability

I incorporated a variety of strategies to ensure internal validity. I accomplished triangulation by using multiple methods and data sources to substantiate emerging results. I included member checks by taking tentative findings back to the informants whom I consulted. I integrated long-term observation of the phenomena under investigation by repeating my observations and requested colleagues to comment on the results, ensuring peer examination. I involved all the participants of the ELISA pilot phase in all the stages of the research and will continue with this in writing up the findings. All results will be documented and a hypothesis will be formulated.

The purpose of research is to produce “valid and reliable knowledge in an ethical manner” (Merriam, 1998, p. 198). Validity involves the concept of whether a researcher really observes what should be observed. McMillan and Schumacher (2001, p. 409) point out: “Validity of qualitative designs is the degree to which the interpretations and concepts have mutual meanings between the participants and the researcher”. Slavin (1984) defines validity as the degree to which a data-collection instrument measures the concept it is supposed to measure. According to Merriam (1998) it is important to be able to trust research results in education where intervention in learners’ lives take place. Trustworthiness of research results means that there will be an explanation for their validity and reliability. Maxwell, as cited in Cohen et al. (2002, p. 107) distinguishes between different kinds of validity. Interpretative validity points towards “the ability of the research to catch the meaning, interpretation, terms, intentions that situations and events, i.e. data, have for the participants”. Validity and reliability imply that the research is conducted in an ethical manner. According to Kemmis, as cited in Merriam (1998, p. 200) a research study is trustworthy due to the “careful design of contexts of production for phenomenon and the processes of measurement, hypothesis-testing, inference and interpretation”. This action leads to crystallization.

Chapter 2: Literature Study

1 Introduction

In Chapter one I outlined the main aspects that had been covered regarding the literature study. Chapter two will focus on various aspects regarding the CAI programme compiled by an American university and explore how the literature is used to illustrate and explain the critical questions. The research questions comprise the following: *What happens when an international learning module, compiled by an American university, is adapted for a South African HEI, and implemented in a computer-mediated context? What dialogue emerges and why does it emerge? How do we deal with cultural differences? How is shared meaning created and why is it created? Which aspects of the process work well and why and how can they be improved to compensate for those that do not work well? Which aspects do not work well and why and how can they be improved?*

2 What happens when an international learning module, compiled by an American university is adapted for a South African HEI, and implemented in a computer-mediated context?

Funded projects and grants are often an outreach from developed countries to provide expertise to developing countries (Wallsten, 2005). The ELISA project, an initiative of the Stanford University International Outreach Program (SUIOP) and funded by the Whitehead Foundation in the US, is an example of such an outreach initiative. This is due to the fact that Stanford seeks to explore the possibilities of distance education in developing countries. According to Stanford apartheid in South Africa had withheld the opportunity of tertiary education from the poor and underprivileged (Stanford University, 2006c). The purpose of the collaboration between Stanford, UP and TUT was to introduce an existing Stanford international learning module to a South African HEI.

Stanford first offered this course in Russia in the fall of 2000 to nine Russian HEIs. Various issues lie at the heart of the discussions concerning the abovementioned international learning module. These issues include a variety of interrelated aspects such as cooperative learning, cooperation at organisational level, the international Digital Divide, the Internet, Higher Education Institutions, learning technologies and the effect of globalisation on education. These play an important role in the collaboration between Stanford, UP and TUT. The effect of these aspects on the ELISA project will be explored.

2.1 The international Digital Divide

2.1.1 The north–south phenomenon

Much of the existing literature (Benton Foundation, 2000; Bernhardt, 2000; Berry, 2000; Castells, 2001; Cronjé, 2006; Hüsing & Selhofer, 2002; Van Dijk, 2006; Van Dijk & Hacker, 2003) describes the international Digital Divide as the phenomenon of citizens with access to technology (the well-resourced) and those without access to technology (the under-resourced). Hüsing and Selhofer (2002) portray the Digital Divide as "the gap between citizens from different socio-economic backgrounds with regard to their opportunities and abilities to access and use information and communication technologies". Chen and Wellman (2003) argue that there are multiple divides among and within countries.

Countries in the northern hemisphere such as North America, Europe and parts of Asia as well as Australia and New Zealand in the southern hemisphere, are regarded as highly industrialised, wealthy, have a stable governance structure and are scientifically and technologically advanced. Contrary to this, countries located in the southern hemisphere as well as some Asian countries, show a lack of development when considered on an international scale. War, famine and corruption that significantly affect the progress and prosperity of the public infrastructure are characteristic of these countries. However, the North-South dichotomy is gradually diminishing as more developing countries are striving to diminish the factors that contribute to the global Digital Divide (Ogunsola & Okugasa, 2006).

2.1.2 The Digital Divide in context and the Internet

An understanding of the Digital Divide is of vital importance in the debate on the difference between the well-resourced and the under-resourced areas. Castells (2001, p. 248) refers to the Digital Divide as "inequality of access to the Internet". Due to the fact that the Internet is the basis of emerging technical and social development, uneven development all over the globe is "perhaps the most dramatic expression of the digital divide" (Castells, 2001, p. 265). Leigh and Atkinson (2001) regard computers and Internet access as an indication of the Digital Divide. Steyart (2002) however, argues that the Digital Divide is far more complex than only the physical access to information technologies and highlights several contributing factors. Makhaya and Roberts (2003) refer to Internet usage within the affluent sections of society and concludes: "The 'digital divide' is therefore a term that could have been coined for South Africa". An awareness of the Digital Divide is imperative since the dichotomy of the well-resourced and the under-resourced is a well-established phenomenon in South Africa.

2.1.3 Factors contributing to the Digital Divide

South Africa forms part of Sub-Saharan Africa (SSA). Due to a variety of factors in SSA such as neglected infrastructures, current and recurring civil wars, political instability and turmoil, corruption, civil conflict, human rights' violations and revolutions, fluctuating economies, high unemployment rates, xenophobia and poverty, even now South Africa tends to be a safe retreat for surviving citizens of neighbouring countries. Freeman and Lindauer (1999, p. 6) argue that "If your country is riven with strife, better to pick up a gun than pick up a book". Acquired immune deficiency syndrome (AIDS) contributes to the health dilemma of the continent. This health pandemic requires exorbitant funding for healing and affects human capital negatively. Environmental factors such as droughts, floods and famine add to the distress of Southern Africa and pressurise already malnourished citizens from neighbouring countries to seek refuge elsewhere, often in South Africa.

Available sources (Castells, 2001; Eng, Maxfield, Patrick, Deering, Ratzan, & Gustafson, 1998) confirm that a multitude of factors contribute to the international Digital Divide. The most important factors comprise the following: Income differentials, lack of suitable telecommunication infrastructure, geographic barriers and sorely needed human capital. Some of these factors could influence the ELISA programme in South Africa.

2.1.3.1 Income differentials

One of the main contributors to the chasm between the well-resourced and the under-resourced is income differentials (Bernhardt, 2000; Berry, 2000; Castells, 2001; Leigh & Atkinson, 2001; Losh, 2003; Piazolo, 2001). According to Chinn and Fairlie (2006) income differentials account mainly for the global Digital Divide.

South Africa is one of the leading economies in Africa. South Africa has a highly developed economic system that is well-organised compared to first world standards. The majority of financial institutions are privatised while foreign banks are allowed to do business in the country with relative ease. South Africa's economy outperformed other upcoming market economies with regard to fiscal products and services (Lewis, 2001). It held the 13th position on the international stock market exchange. Since the international stock market lost significant value towards the end of 2008, an exact ranking for the Johannesburg Stock Exchange for the present could not be obtained.

Despite the abovementioned financial strengths, some authors classify the South African economy as a middle income economy (Lewis, 2001; Makhaya & Roberts, 2003). According to Lewis (2001, p. 10) South Africa still lacks foreign investments and only attracted a limited share "of the overall pool of

foreign direct investment (FDI) directed to emerging markets. During 1994 – 2000, FDI in South Africa averaged less than 1 percent of GDP". South Africa's FDI is compared to that of other emerging markets during 1994 – 2000 in table 3.

Table 3: Foreign direct investment during 1994 – 2000

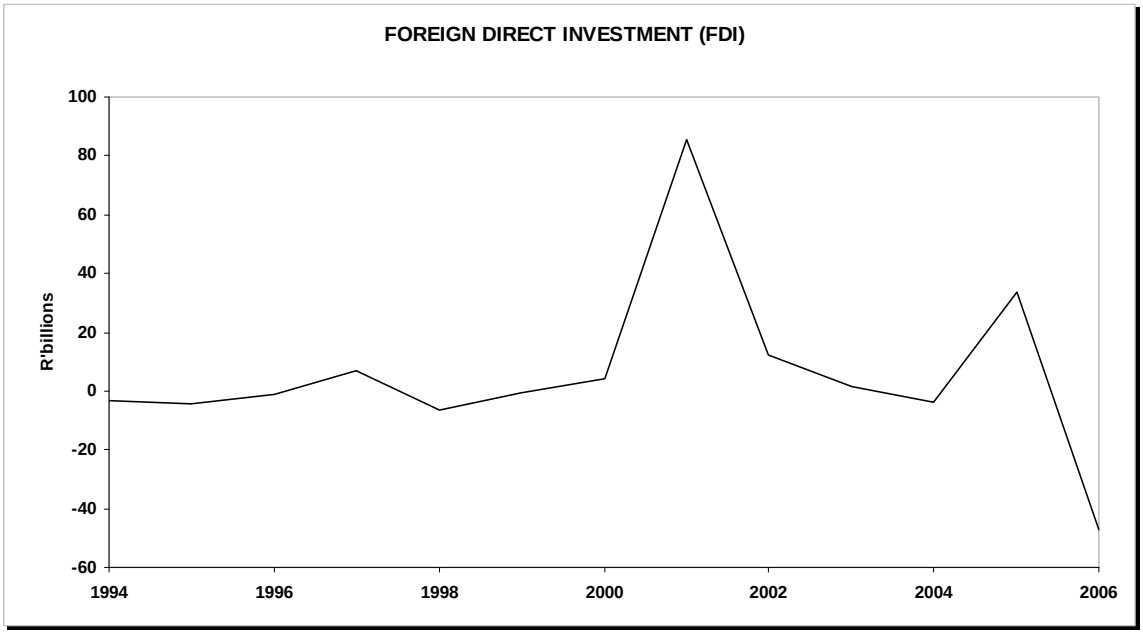
Country	FDI/GDP
Argentina	2.5% - 3%
Brazil	2.5% - 3%
Czechoslovakia	4% - 5%
Hungary	4% - 5%
Malaysia	3% - 5%
Mexico	2.5% - 3%
Philippines	3% - 5%
South Africa	-1%
Thailand	3% - 5%

Source: Lewis (2001)

Barriers to the development of the economic growth of Sub-Saharan Africa comprise economic decline, increasing interest rates, poverty, soaring food and oil prices as well as power shortages. Hitherto some of South Africa's development objectives have not been reached. Globalisation motivated a series of changes together with the recognition that the needs of a majority of the population have not been met (Lewis, 2001). In order to diminish poverty and improve the economic situation in South Africa it is essential to attract more foreign investments and capital. FDI in South Africa declined from 33.854 R'billions in 2005 to -47.350 R'billions in 2006 (latest available statistics in 2008). This is due to several South African companies that invested abroad. This trend is illustrated in figure 3.

Figure 3: Foreign Direct Investment

R'billions	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
FDI	-3.040	-4.557	-0.970	6.756	-6.737	-0.475	4.280	85.763	12.153	1.275	-3.566	33.854	47.350



Source: Republic of South Africa (2007)

South Africa is a typical example of a partly developed country as well as a rapid developing one. “Even more than other ‘dual’ economies, South Africa is really two societies in one. At one extreme, is a modern ‘first world’ society – there is electricity, running water and modern sanitation in almost every home; two thirds of these citizens have at least a high school education, childhood mortality rates are low and poverty is minimal. At the other extreme there is another society – where half have less than a primary school education, over a third of children suffer from chronic malnutrition, only a quarter of the households have electricity and running water, and less than a fifth have modern sanitation” (Lewis, 2001, p. 20). Six percent of households have no access to water infrastructure, 29.3% of households have no access to basic sanitation and infant mortality (under one year) is 4.65% (Republic of South Africa, 2007). Contrary to this the United States, where the ELISA project originated, is one of the best examples of a developed country.

According to Internet World Stats (2008a) South Africa has an estimated population of 49,660,502 while the gross national income per capita of South African citizens is US$ 3630 or R26791.97. The United States has a population of 298,988,098 with a gross national income per capita of US$ 44,970.00 or R331910.52 (The World Bank Group, 2007). Hernández-Catá (2004, p. iii) states that “More generally, the long awaited renaissance of the African economy has not taken place”.

The participants of the ELISA programme represent different backgrounds and income differentials could have an influence on the progress of the project. An economic survey of income differentials of the students was not undertaken because they indicated verbally that they would be able to participate.

2.1.3.2 Telecommunication infrastructure

Access to ICTs remains a vital element in the debate on the Digital Divide. Available sources regard the quality of a country's telecommunication infrastructure as an important contributing factor to this divide (Bernhardt, 2000; Chinn & Fairlie, 2006). Although the wireless component of the ELISA curriculum is not the focus of this study, it is essential to explore the background of fixed telephone lines and the situation of cellular communication in South Africa. This is essential since the ELISA participants could use mobile Internet access. The Stanford academic team expressed their interest in the fact that South Africa's cellular industry was more advanced than that of the US (Stanford team leader, personal communication, 2006).

Uneven distribution of fixed telephone lines is a feature of the South African telecommunication scenario. Prior to 1994 South Africa's underserviced areas (rural and urban) had limited telecommunication services. South Africa currently has two fixed-line providers namely Telkom South Africa Ltd. and Neotel. The main fixed-line provider is Telkom South Africa Ltd., a corporatised enterprise. It is state-owned, has the monopoly in the country while the South African Government appoints the Telkom Board. Telkom's services also include the provision of Internet, data transfer as well as wireless communication (Makhaya & Roberts, 2003; Telkom SA Ltd., 2007). According to Esselaar and Gillwald (2007) a second national operator (SNO) Neotel was licensed in 2005 and became partly operational with restricted wholesale services during September 2006. The company TATA is the strategic investor in Neotel which consists of the following groups: State-owned enterprises (30%) such as Eskom and Transnet/Transtel; Nexus Connexion (19%) and SEPCO (51%). The latter consists of the following groups: TATA group/VSNL (51%); Two Consortium (24.5%) and Communitel (24.5%). Neotel will focus on the provision of added value to the South African market rather than competing with Telkom on a price basis (Esselaar & Gillwald, 2007). The Telecommunications Amendment Bill of 2001 provides that a third national operator (TNO) will be introduced (Ali, 2003). Competition in the South African telecommunications industry was supposed to benefit the end-users; instead the prices of local calls increased while charges for international calls decreased (Ali, 2003).

Costs remain one of the main obstacles regarding telephone and Internet connections in Africa. McPhie (2004) found that these costs were excessively high across the African continent. Basic

access costs proved to be unaffordable for the majority of Africans. As already pointed out, the South African economy is classified as middle-income. Makhaya and Roberts (2003, p. 2) found that telecommunication tariffs, however, do not compare favourably with that of countries with a similar development level. They mention that in 2000, charges in South Africa were higher than in countries such as Brazil, Korea and Malaysia. This comparison was made "using purchasing power parity exchange rates to reflect the equivalent buying power and costs across different countries". South Africa's rate of leased lines "is still more than double the OECD average and dramatically higher than similar low to middle income countries such as Turkey and Poland" (Esselaar & Gillwald, 2007, p. 29). The installation charges for automatic and manual exchanges for billed residential services were R383.37 or US$ 15.16 (Telkom SA Ltd., 2007).

According to the South African Government (2007) the "monthly rental on a 512 kilobit/second fixed-line broadband Asymmetrical Digital Subscriber Line [ADSL]" was R362 or US$49.04 per month. The installation fee of a fast ADSL line was R490.00 or US$66.38 and the monthly rental was R152.00 or US$20.59 (Telkom SA Ltd., 2007). Statistics regarding some of Telkom's different services are illustrated in table 4 and table 5. Esselaar and Gillwald (2007) state that the Independent Communications Authority of South Africa (ICASA) reported in 2005 that South African mobile tariffs were significantly higher than in some neighbouring countries.

Table 4: Telkom ADSL connectivity

Item	**ADSL Connectivity**	**Installation Excl VAT (Rand)**	**Installation Incl VAT (Rand)**	**Monthly rental Excl VAT (Rand)**	**Monthly rental Incl VAT (Rand)**
A	Fast DSL	429.82	490.00	133.33	152.00
B	FAST DSL bundle	429.82	490.00	133.30	152.00
C	Faster DSL	429.82	490.00	285.96	326.00
D	Faster DSL bundle	429.82	490.00	285.96	326.00
E	Fastest DSL	429.82	490.00	362.28	413.00
F	Fastest DSL bundle	429.82	490.00	362.28	413.00

Source: Telkom SA Ltd (2007)

Table 5: Telkom ADSL modems

Item	ADSL modems	Purchase price Excl VAT (Rand)	Purchase price Incl VAT (Rand)
A	Telkom WiFi modem	700.88	799.00
B	Wireless card	262.28	299.00

Source: Telkom SA Ltd (2007)

The digital era also influenced the telecommunication industry, resulting in it becoming mobile. The mobile communications industry tapped the enormous potential of the developing world like few other transformations did. Castells (2001, p. 261) states that “Indeed, in 1999, over half the people on the planet had never made or received a telephone call”. In addition to this statement Joshi and Avasthi (2007) report that according to the Telecom Regulatory Authority of India, the mobile phone market grows with roughly five million new subscribers monthly. Telephone line density was regarded as vital “for any of the most common uses of computers, accessing the Internet” (Chinn & Fairlie, 2006). This is no longer true. Hodge (2005) states that in low-income households, access substitution is taking place. This is especially true for developing countries where inhabitants have greater access to mobile technology than fixed lines. Kahlil (2003, p. 21) confirms this argument by saying that “We’re approaching a point where for every fixed line in Africa, we have two cellular lines, at least. If you compare this with North America, it’s the opposite”. Esselaar and Gillwald (2007) predict that Africa’s mobile penetration will escalate from approximately 9% currently to 20% by 2010 while fixed lines are estimated at 3% around today. According to Makhaya and Roberts (2003) the fixed line teledensity in South Africa was 11.4 per 100 inhabitants, while that of mobile phones was estimated at 24.9 per 100 inhabitants in 2000. Currently [2009] the main mobile subscriber base in South Africa is 42.2 million as indicated in table 6. Particulars of Cell C and Virgin Mobile could not be obtained.

Four mobile phone service providers are currently operational in South Africa. These are Vodacom, MTN, Cell C and Virgin Mobile. Vodacom and MTN are the leading operators, as illustrated in table 6. Apart from the South African market MTN expanded its market into South and East Africa, West and Central Africa as well as “the Middle East and North Africa region” (MTN Group, 2008). Vodacom is currently the largest cell phone operator in SA. It is jointly owned by Vodafone (50%) and Telkom (50%) and concentrates on the South African market. Vodacom introduced forefront technology such as DSL, WiFi (802.11 standards) and HSDPA “which allows for download speeds of around 1.8 mbit/s – comparable to what Telkom is offering on an Asymmetrical Digital Subscriber line (ADSL)” (Esselaar & Gillwald, 2007, p. 22). 3 C Telecommunications (Pty) Limited owns Cell C (Pty) Limited which provides international roaming facilities to Namibia, Mozambique, Spain, the Ivory Coast, Mauritius

and Swaziland. Virgin Mobile was introduced to the SA mobile market in 2006 and is a joint enterprise between Cell C and Virgin Management (Republic of South Africa, 2008a).

Table 6: Statistics for South Africa's mobile phones: 30 June 2008 to 31 March 2009

Mobile company	**Total Subscriber base**	**Post-paid Subscriber Base**	**Prepaid Subscriber base**	**Market share**
MTN	15,5 mil	2,5 mil	13,0 mil	36%
Vodacom	26,7 mil	3,9 mil	23,5 mil	53%

Source: MTN Press Office (2009); Vodacom Annual Report (2009)

Since the introduction of mobile services such as Vodacom and MTN in 1994 in South Africa (Hodge, 2005) the scope of telecommunications changed rapidly. Bradwood (2003, p. 6) reports that as early as 2003, South Africa was then "among the most cellular-dominated markets outside Europe. The country's cellular market is currently valued at more than R23 billion (US$3.03 billion) and is expected to grow to around R45 billion (US$5.94 billion) by 2004".

Low-income households in developing countries tend to substitute mobile services for fixed lines, due to lower monthly fees and affordability (Hodge, 2005). Additional advantages include "a significantly lower waiting time for a phone; the additional utility from mobility; no financial penalties for reconnection; a second-hand market for phones, which reduces connection charges; per second billing for the first minute; and the additional utility from free added service and handset feature" (Hodge, 2004, p. 212). According to Ferraro (2008) Susan Schorr, the head of the International Telecommunication Union's (ITU) regulatory and Market Environment Division, noted that 61 percent of the world's 2.7 billion mobile phone users are in developing countries, compared to 10 percent of the world's 1 billion Internet users. "For the developing world, the Internet experience is going to be a wireless experience" (Ferraro, 2008).

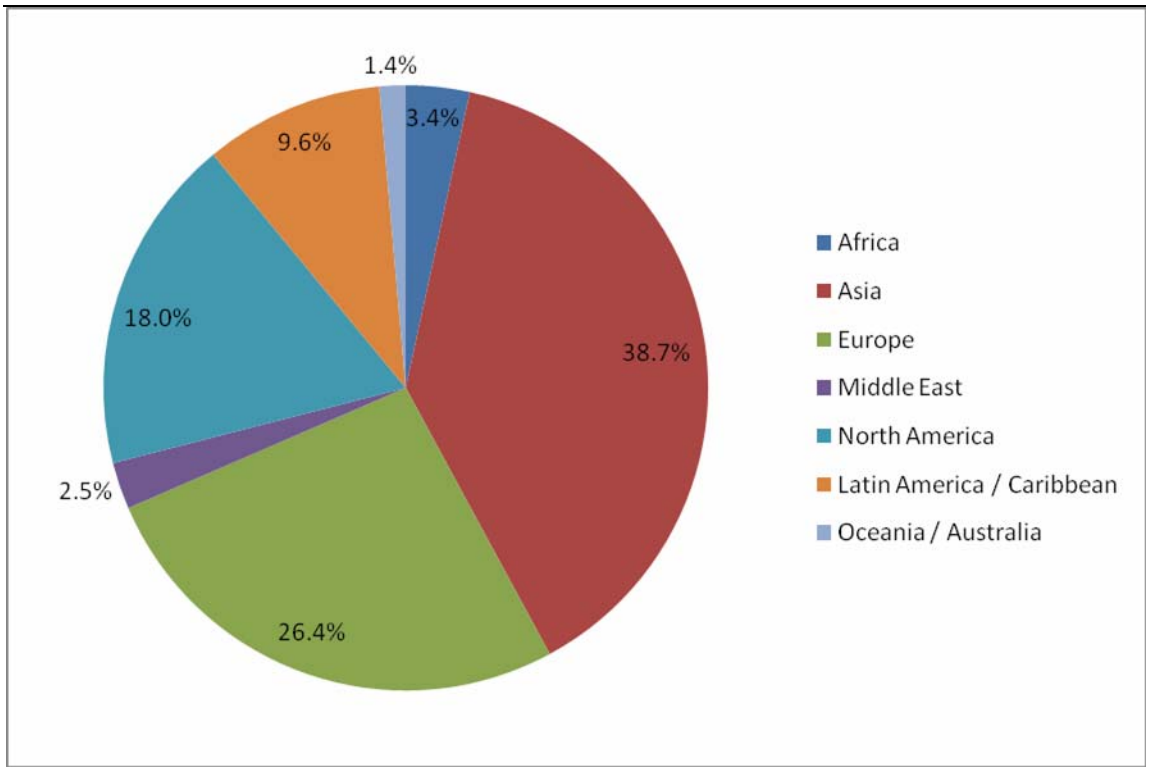
The i-mate PDAs that the participants of the ELISA programme received introduced them to high-tech wireless technology and presented the opportunity to use a multitude of different functions of the mobiles. As journalists they could put the devices to good use while they explored different environmental sites and reported informative incidents. Internet access via wireless devices freed them from constraints such as limited opportunities to access the Internet on the TUT campus during specified periods, the fact that they had to be on campus, and power shortages. Instead, they had the freedom to use the wireless devices anywhere within the coverage distance of MTN, the Internet Provider (IP).

Much of the existing literature emphasises the positive – negative dichotomy that exists around the Internet. Castells (2001, p. 247) states that the Internet contributes to "existing sources of inequality and social exclusion in a complex interaction that appears to increase the gap between the promise of the Information Age and its bleak reality for many people around the world". It can, however, be argued that the Internet should be regarded as a positive factor in the ELISA programme due to numerous factors which will be discussed below.

In order to interpret and analyse the role of the Internet in this study it is essential to refer to the definition of an Internet user. According to Internet World Stats (2008b) the International Telecommunication Union (ITU) defines an Internet user as any person "aged 2 years old and above, who went online in the past 30 days". The United States Department of Commerce (Internet World Stats, 2008b) states that an Internet user must be aged 3 years or older and must use the Internet on a current basis. The criteria for a Chinese citizen to be regarded as an Internet user, is from the age of six and utilization one hour a week. The Internet World Stats regard an Internet user as "anyone currently in capacity to use the Internet" (2008b) which boils down to available access to the Internet as well as the fundamental knowledge to utilise web technology. Criteria for a South African citizen to be regarded as an Internet user could not be obtained.

Internet usage has become a mainstream activity and part of everyday life. Figure 4 illustrates that African Internet usage amount to 3.4% of the World Internet Statistics compared with the 18% of North America (Internet World Stats, 2008c). While Africa has 14.2% of the global population, African Internet penetration by percentage of the population is only 4.7%. Correlating statistics for North America indicates that the population amounts to 5.1% and Internet penetration to 71.1% as shown in table 7 (Internet World Stats, 2008c). South African Internet users amount to 5,100,000 of the world Internet users (Internet World Stats, 2008a). Due to the abovementioned inequalities it is imperative that Internet usage among South African citizens should increase. Learners should get the opportunities to be exposed to technology and Internet usage from a young age. This would then enable HEI learners to benefit from the digital opportunities as was observed by the participants of the ELISA programme who were using the Internet very effectively.

Figure 4: World Internet Users – December 2007



Source: Department of Education: Republic of South Africa (2008b)

Table 7: World Internet Users and Population Statistics – December 2007

World Internet Users and Population Statistics						
World regions	Population (2007 est.)	Population % of world	Internet usage, latest data	% Population (penetration)	Usage percentage of world	Usage growth 2000-2007
Africa	941,249,130	14.2%	44,361,940	4.7%	3.4%	882.7%
Asia	3,733,783,474	56.5%	510,478,743	13.7%	38.7%	346.6%
Europe	801,821,187	12.1%	348,125,847	43.4%	26.4%	231.1%
Middle East	192,755,045	2.9%	35003,510,	17.4%	2.5%	920.2%
North America	334,659,631	5.1%	238,015,529	71.1%	18.0%	120.2%
Latin America/ Caribbean	569,133,474	8.6%	126,203,714	22.2%	9.6%	598.5%
Oceania/Australia	33,569,718	0.5%	19,175,836	57.1%	1.5%	151.6%
World total	6,606,971,659	100.0%	1,319,872,109	20.0%	100.0%	265.6%

Source: Internet World Stats (2008a)

2.1.3.3 Geographic barriers

Geographic obstacles may prevent students from becoming technically educated and reduce opportunities for excellence. The Department for Education and Skills in the United Kingdom (2005) emphasises transport inequalities and recommends that ICTs should be made available to learners who are unable to attend specific educational institutions. Most of the South African ELISA participants resided in the Gauteng province where the town of Tshwane is situated. One student resided in Nelspruit and reported that travelling between Tshwane and Nelspruit proved to be time-consuming and costly.

2.1.3.4 Human capital

Human capital comprises inter alia a country's inhabitants' level of education, literacy, language proficiency and skills. Piazolo (2001, p. 33) points out that most of the developing world requires more computer-related educated and trained people to participate in the "new economy". Ogunsola and Okusaga (2006) confirm that professionals and highly-skilled technicians are high in demand in developed countries all over the world due to career opportunities and contributing personal factors. Spenneman (2004) argues that the IT industry is susceptible to this developmental aspect. Germany's Green Card initiative to attract IT specialists from outside Europe (Apap, 2002; Kubichek, 2004; Meijering & Van der Hoven, 2003; Werner, 2001) illustrates this tendency. An estimated 75 000 job vacancies were reported in the IT industry in Germany around 2000. The Green Card initiative permitted 20 000 skilled IT professionals from outside Europe to live and work in Germany for five years.

The brain drain involves "the diffusion of skilled human capital, particularly scientific and technical human capital (STHC), from home to host country" (Davenport, 2004). South Africa is currently also in this dreadful position due to a "brain drain" during the past two decades. This consisted of a tendency of highly skilled technicians and professionals to leave South Africa for developed countries mainly because of personal reasons or to further their careers. The South African Network of Skills Abroad initiated the development of a databank of South Africans in order to address the brain drain (Akoojee & McGrath, 2003). The purpose was the repatriation of skills to contribute to the rebuilding of the continent.

2.1.3.4.1 Literacy

Uneven global development of human potential is a phenomenon that has been in existence for centuries. “The information gap” (Bernhardt, 2000; Berry, 2000) is an older version of the Digital Divide and reflects the division among human beings with regard to access to the means of communication. Strover (2003, p. 275) states that the Digital Divide is “an ill-advised version of the ‘Mercedes divide’ in the United States: Some people can afford expensive luxury cars, others cannot, but that is the American way”.

Chinn and Fairlie (2006, p. 38) refer to “human capital” which is measured by an individual’s illiteracy rate or years of schooling. Robinson, Dimaggio and Hartiggai (2003) regard education as the main predictor of access to the Internet. Citizens with a higher than average education level exhibited higher Internet penetration rates than those with lower education levels (Leigh & Atkinson, 2001; United States Department of Commerce, 2000). Better educated people put technology to better use than their less educated counterparts (Losh, 2003). This finding is based on various American national surveys that investigated the access and use of computers between 1983 and 2000, as well as the access and use of the Internet between 1995 and 2000. Education and gender were used as variables. According to Chinn and Fairlie (2006) “A one year increase in average schooling is associated with a one percentage point increase on PC penetration”. An indication of the education disparities of citizens of different continents is illustrated in table 8.

Table 8: Human capital disparities

Average years of schooling		
USA	Sub-Saharan Africa	Europe and central Asia
12.1 years	3.7 years	8.3 years

Source: Chinn and Fairlie (2006)

Superior education is a good indication of higher ICT-related opportunities that lead to higher wages (Oyelaran-Oyeyinka & Lal, 2005). Knowledge is an important building block of education that empowers the learner. Ogunsola and Okugasa (2006, p. 140) observe that knowledge can be associated with “improved quality of life, which is the ultimate goal of development activities”. According to Halimi (2005, p. 12) “...knowledge has become an economic issue...as well as one of the keys to a better quality of life”. Access to knowledge and information as opposed to deprivation of knowledge and information thus result in a significant difference in socio-economic levels. The ELISA participants were not prone to a literacy barrier as they were all HEI learners that enjoyed 12 years schooling and at least 2 years of tertiary education.

2.1.3.4.2 Language

Some of the available sources (Castells, 2001; Edejer, 2000) consider the diversity of languages to be a contributing factor to the Digital Divide. This was the situation during the beginning phase of dissemination of ITCs in the late 1990s. Castells (2001, p. 252) states that “87 percent of global websites are only in English”. He adds that language per se could not be regarded as a barrier since the Internet is regarded as global. Depending on the purpose of the Internet access such as business transactions, education, recreation, career opportunities, information searches, shopping or handling of everyday affairs, the lack of language proficiency could very well prove to be an obstacle.

Edejer (2000) emphasises that information that has been read and translated from the original posting on the Internet is not always accessible to the end-user. Sometimes it is essential that the accessed content be converted and contextualised into relevant local context. Microsoft embarked on a project to expand some of its applications to indigenous African languages. The purpose of this innovation was to make technology available in local languages (Iboma, 2008). Emerging language markets seem to offer possibilities to foster web sites in local languages in South Africa other than English. Marson (2004) reports that Translate.org.za explored the possibility of launching open-source software in South Africa’s 11 official languages. Linux desktop, OpenOffice and Mozilla were considered for translation into South African languages. Microsoft Corporation launched its Local Language Program to enhance the availability of software. The African languages Swahili and Afrikaans offered possibilities to access Microsoft Windows 2000 as well as Microsoft Windows XP. The South African National Language Service (SANLS) produced MS Word add-ons which will enable text origination (Gee, 2005).

The participants of the ELISA programme represented Afrikaans, English, Indian, isiZulu, and Sesotho mother-tongue speakers. Multilingualism and command of language played an important role in the programme. Although the ELISA programme was conducted in English, one of the official languages of TUT, language per se did not prove to be a major obstacle in the programme.

2.1.3.4.3 Culture

Language is an important tool in the communication process and is an attribute that is present in all cultures. Subdivisions of culture such as acculturation and enculturation entail different approaches. Acculturation involve changes in the original cultural patterns of groups of people. Enculturation entails identification with ethnic culture, shared values and participation in cultural activities. Enculturation plays an important role in the widening of the Digital Divide.

2.1.4 The paradox of the Digital Divide

Although not the focus of the study, it is noteworthy that uneven development does not only exist between countries from the northern and the southern hemispheres, but also between different communities in both developed and developing countries. This is also true for the United States (Department for Education and Skills, 2005; Stanford team leader, 2006). Rogers (2000) draws attention to the division between the Indian elite and the mass population in the Indian subcontinent. The gap between wealthy and underprivileged communities, metropolitan areas, and inhabitants of rural areas is typical of the division within a country. Losh (2003) emphasises the significance of inequalities among American social groups. Chen and Wellman (2003) refer to the social patterns within the divide and emphasise that these patterns differ within and between developing and developed countries. This phenomenon is also true for South Africa but this did not have noticeable effects for the ELISA programme.

The paradox of the Digital Divide, however, lies in the fact that people who could gain the most from info-inclusion, are unlikely to access ICTs. The contradiction exists that the well-resourced will gain disproportionally from the “increased information offer” (Hüsing & Selhofer, 2002) at the expense of the under-resourced. The danger exists that due to the ubiquity of ITCs the divide between wealthy and poor nations will increase (Wallsten, 2005). Much of the existing literature (Chen & Wellman, 2003; Kozma, McGhee, Quelimalz, & Zalles, 2004; Spenneman, 2004) argues that the Digital Divide will continue to widen unless corrective action is taken to close it. South Africa is no exception to the rule regarding this aspect of the Digital Divide and I argue that this is one of the main reasons why an outreach programme such as ELISA is essential for South Africa.

2.1.5 Commonalities and differences

The focus of the discussion on the Digital Divide paradigm is on the commonalities between the well-resourced and the under-resourced, as well as on the differences that exist between different role players. Various experts refer to the gap between the well-resourced and the under-resourced. Bernhardt (2000, p. 4) states that there was a gap long before the arrival of the Internet, and concludes: “efforts must also focus on filling the chasm that lies between both sides”. The conceptual model illustrated in Chapter 1, Figure 2 indicates the Digital Divide between global well-resourced learners and the local under-resourced learners. Cronjé accentuates the fact that “The more global something becomes, the harder it may be for locals to see its relevance. The more local things become, the less globally competitive or useful they might be” (Cronjé, 2009). He emphasises that increasing either of the two sides would result in the increase of the Digital Divide. To reach

commonality, one has to distinguish fundamental aspects on both sides and start working from there. Prof Cronjé's work in Sudan is mentioned under Theory and methodology in this study (Chapter 1, 3).

2.2. How to bridge the Digital divide

The question has been raised on whether it is possible to eliminate the Digital Divide. Hüsing and Selhofer (2002) state that European and international policies "have identified the Digital Divide as a threat to sustainable information society and are consequently seeking for a remedy against it". According to Ali (2003, p. 114) all the citizens of a country have a right to access basic communication services. This is so because communication "…is an enabler of social interaction across time and geographic space, and a creator of economic development and prosperity for even the most dispersed populations".

Advanced Micro Devices (2008) compiled data using reliable sources such as Internet World Stats, Nielsen Ratings and the ITU to project global Internet penetration over time. According to this projection at least 50% of the global population won't have Internet access until 2030. The question thus remains valid on how best to bridge the Digital Divide.

In October 2007 a summit of leaders launched Connect Africa in Kigali, Rwanda. This initiative is an international multi-stakeholder partnership. The organisers of this summit include partners such as the ITU, the African Union (AU), the World Bank Group and the United Nations Global Alliance for ICT and Development, in partnership with the African Telecommunication Union, the UN Economic Commission for Africa and the Global Solidarity Fund. The purpose of Connect Africa is to "mobilize the human, financial and technical resources required to bridge major gaps in information and communication technology (ICT) infrastructure across the region, with the aim of supporting affordable connectivity and applications and services to stimulate economic growth, employment and development throughout Africa" (International Telecommunication Union, 2007). Klaus Schwab (2004) executive chairman of the World Economic Forum (WEF) emphasises the organisation's intention to remain fully involved in the affairs of the African continent. They aim to see to the provision of sound policies, improved governance, more intelligent support by international role players and increased commitment of the private sector to help solve the African dilemmas. Locally the South African Government's aim is "a better life for all" (Republic of South Africa, 2008a).

The effect of the Digital Divide on developed countries as well as developing countries is multifaceted. Much of the existing literature (Kozma et al., 2004) emphasises that this divide may increase unless radical steps are taken to decrease it. Prospects to diminish this divide between and within countries and populations mainly comprise economic development and growth, human capital investment, technology diffusion and telecommunication infrastructure expansion.

2.2.1 Economic development and growth

Economic development and growth are one of the major aspects that need to be addressed in the endeavour to decrease the Digital Divide. This remains a critical challenge in developing countries such as South Africa. The South African Government committed itself to strategic involvement to develop economic growth (Republic of South Africa, 2008a).

Economic growth requires capital and labour. The assumption that the creation of capital automatically generates growth in Africa, could not be verified (Lewis, 2001). One of the options to develop economic growth and development is to attract foreign investments. Direct measures to ensure this entail the attempt to improve the value and number of substantial investments. Indirect measures entail economic competitiveness and the option to make investment attractive by improving labour markets, have improved trade competitiveness and the endorsement of Small, Medium and Macro-size Enterprises (SMMEs) (Lewis, 2001). Financial support by banks or financial institutions is indispensable for entrepreneurs to obtain loans to start new businesses (Ogunsola & Okugasa, 2006).

The aim of the New Partnership for Africa's Development (NEPAD) is to improve socio-economic growth and reduce high poverty levels across Africa (Akinboade & Lalthapersad-Pillay, 2005). They argue that in order to dismiss the idea of Africa as a ''high-risk'' continent (2005, p. 252) it will be essential to employ initiatives on political and financial governance as well as on peace and safety measures. Schemes such as credit guarantee, strong regulation and legislation of market operations, economic systems and property rights will ensure foreign investment.

FDI is a dominant tool to bridge the Digital Divide. The importance of FDI must not be underestimated. According to Lewis (2001) South Africa only attracted a minimum amount of FDI intended for developing markets in the past. FDI in South Africa was "less than 1 percent of [the gross domestic product] GDP" (Lewis, 2001, p. 39) between 1994 and 2000. FDI can result in advantages such as the inflow of foreign capital, increased investment levels and transfer of skills and technology. Spin-offs comprise export possibilities, the improvement of the trade balance, enhancing the economy's import capacity and stimulating job creation. Employment is an essential element to alleviate poverty and to stimulate growth and development.

The development of infrastructure such as the supply and utilisation of electricity and other fuel resources as well as fixed telephone lines can promote growth and should be expanded. Perkins, Fedderke and Luiz (2005) confirm that during 1976 – 2002 the investment in infrastructure for electricity and transport in South Africa declined. Bearing this growth goal in mind the South African Government initiated a five year plan from 2005 to 2009. The purpose is to re-invest in funding projects for Eskom and Transnet, the parastatal transport provider of South Africa.

Until 2008 this economic injection has not proven to have the desired effect. South Africa exports electricity to neighbouring countries such as Zimbabwe, Mozambique, Namibia, Botswana, Swaziland, and Lesotho whilst power shortages were introduced locally in order to reduce electricity consumption. These precautions are pressing, especially with the development projects of the 2010 Soccer World Cup in mind. South Africa will host the 2010 Soccer World Cup and the country is in the midst of several development projects that require infrastructure, especially electricity. The supply and use of infrastructure will hopefully result in growth, employment and revenue.

Continued economic development is important in a country's economic growth. Perkins et al. observe that "the need for investment in electronic infrastructure never goes away" (2005, p. 223). This premise is especially true for South Africa. Existing infrastructure should also be maintained in order to provide services and support to the end-user. In return enterprises such as Telkom SA Ltd. and South Africa's national energy supplier Eskom can create growth, development and revenue. Telkom SA Ltd. and Eskom are responsible for employment creation which can result in poverty alleviation and empowerment.

Funding projects and grants are examples of initiatives to provide financial support, technology and expertise to disadvantaged communities. This concept is ever present in developed as well as in developing countries. During the period 1995 to 2000 the US Department of Commerce expressed their interest in bridging programmes that aimed at increased computer ownership and Internet penetration (Leigh & Atkinson, 2001). *Plugged In* is an example of community economic development in East Palo Alto, California. This establishment is regarded as "perhaps the most innovate and cutting edge Community Technology Center (CTC) in the country. If one can learn anything about interventions under extreme conditions of wealth vs. poverty, it could be from this well-structured experiment within Silicon Valley" (Gordo, 2003, p. 167).

In South Africa the Government is committed to community development by means of financial support allocated for education. Bursaries and funding of Further Education and Training (FET) institutions were a priority during 2007. R100 million was allocated for these resulting in more than 12500 students benefitting from it. R2 billion was set aside to upgrade FET institutions (Republic of South Africa, 2008a). Despite these initiatives much more funding is required to enhance economic growth and development. The ELISA programme is an intervention that was designed to address dilemmas such as inadequate funding programmes in South Africa, accomplish empowerment and bridge the Digital Divide. More programmes such as these are crucial in the challenge for growth and development.

2.2.2 Human capital investment

Many scholars of the Digital Divide regard the enhancement of human capital as one of the main enablers to bridge the Digital Divide (Spenneman, 2004). Education is an important building block in initiatives to develop human capital, growth and expertise. Since the early 1990s first world economies regarded resources such as knowledge and information on a national level as well as within organisations as most valuable to sustain continued development (Ogunsola & Okugasa, 2006). They argue that knowledge is associated with an advanced standard of living, and which is an important goal in the process of growth and development. ICTs increasingly inform the way people learn, live, work, communicate, socialize, relax, retrieve information and do business. Although there is proof that the South African Government and other interested parties are motivated to enhance human capital and focus on empowerment programs in South Africa, it is not yet adequate. The enrichment of human capital should be a priority of all concerned parties.

Education is one of the prerequisites for developing countries to become part of the information age (Chen & Wellman, 2003; Leigh & Atkinson, 2001). According to Robinson, Dimaggio and Hargittai (2003) education is the main forecaster of Internet access. Kubichek (2004) regards both Internet literacy and access as prerequisites to obtain and to retain employment. Hüsing and Selhofer (2004, p. 22) regard access and skills as “a facilitator of one’s employability”.

2.2.3.1 Internet literacy

Digital literacy is regarded as a “life skill” similar to literacy and numeracy (Republic of South Africa, 2004b). This initiative should be directed at all education institutions, especially HEIs that could benefit from it. Examples of similar campaigns are special-entry campaigns that were launched in Germany to promote Internet literacy. After initial prejudice by Chancellor Helmut Kohl of Germany about the Internet in future economic growth and development (Kubichek, 2004) Chancellor Schroeder’s red-green government decided to promote Internet literacy. The “Government and IT industry agreed that 8.8 million housewives and men, 20.7 [million] senior citizens and 4 million unemployed people should not be left to commercial training and Internet cafés, but be offered an appropriate low-barrier entry in addition by the ‘Internet for All’ campaign” (Kubichek, 2004, p. 11).

Special entry courses for Internet illiterate people should be developed (Kubichek, 2004). Curricula that focus on basic Internet literacy such as how to get online, send and receive emails, use search engines and how to surf the web, should be developed. Although the ELISA programme did not focus

on entry-level literacy courses, it can be effective in the process to improve literacy amongst Internet illiterates.

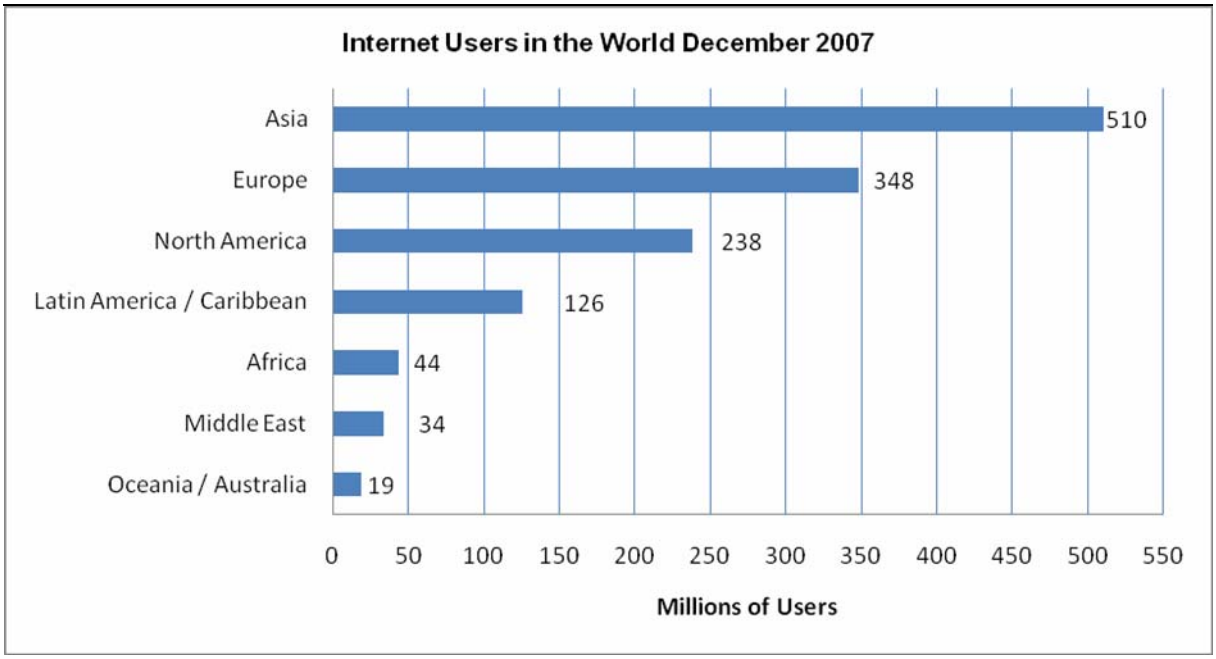
Programmes that focus on special content should be developed to arouse the interest of specific groups. Chen and Wellman (2003) report that a lack of programmes on specific content can be an obstacle in Internet usage. Special courses aimed at particular groups may be an effective measure to get people interested in Internet usage. Kubichek (2004) states that Germany launched special programmes aimed at women called “Women into the Net” as well as special courses for seniors. Programmes that contain special content on a variety of subjects may be an effective measure to interest different groups in South Africa. Due to the multicultural and multifaceted South African population a variety of programmes could be relevant in this regard. ICT applications that provide locally relevant content (Chetty, Tucker, & Blake, 2003, p. 1) could be an effective assistance in bridging the Digital Divide. The authors state that services relevant to inhabitants’ “culture, beliefs and language” should be made available to them. The ELISA programme which focuses on environmental security, is an example of a programme that contains specific content.

Apart from programs that contain special content, programs in all eleven South African languages could also decrease the Digital Divide. Language can be used as a motivating factor to promote literacy. The predominance of the English language is an important phenomenon in the process of exploring material at tertiary level and is a significant factor at tertiary level. Non-English mother-tongue participants in the ELISA programme did not encounter language as a barrier since the course was conducted in English, one of the official languages of TUT. The availability of appropriate environmental content in all the other ten South African languages may be relevant. The ELISA participants represented multicultural backgrounds such as Afrikaans, English, Indian, isiZulu and Sesotho. The majority of the participants were multilingual and worked as journalists who tried to further their careers. However, suitable material in their mother tongues would be indispensable in order to create an awareness of environmental security amongst their readers and also amongst secondary school learners. This is of particular importance in South Africa since limited environmental resources are getting scarcer day by day.

Programmes to train ICT professionals in South Africa should be expanded. Such programmes are powerful measures to decrease the Digital Divide (Ogunsola & Okugasa, 2006). The quality and quantity of properly trained instructors are not negotiable. In South Africa, several facilities exist at the 23 HEIs and other education institutions to study ICTs. Since the information age requires ICT literacy it is imperative to train enough professionals. Although this is not applicable to the ELISA programme, such an initiative, however, could contribute towards the increase in the human capacity pool. ICT professionals not residing in their native countries should be encouraged to take up positions at home (Ogunsola & Okugasa, 2006) and contribute to the development of human capital there. Well-trained

experienced professionals are in high demand all over the world. Special measures to attract adequately trained IT engineers were launched in Germany. This involved a “Green Card for IT specialists from outside Europe” (Kubichek, 2004, p. 2). Stable political and economic factors also play a role in the decision of professionals to return home. The ELISA programme was not prone to this aspect of endeavours to bridge the Digital Divide. In future, however, this could influence the quality and capacity of human capital in South Africa. “The Come Home Project” was launched to encourage South African professionals working abroad to come home.

Table 9: World Internet Users – December 2007

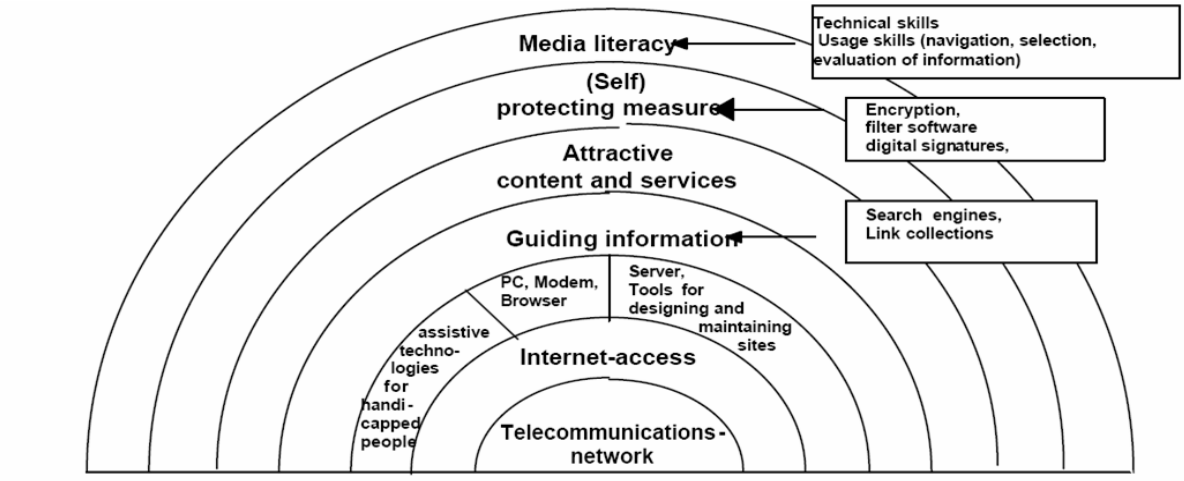


Source: Internet World Stats (2008)

2.2.3.2 Internet access

Internet access is a prerequisite to obtain internet literacy. Kozma et al. (2004, p. 361) found that ICT can contribute to human development in a remarkable way – “but only for those that have access”. According to De Haan (2004, p. 67) IT access is a multifaceted concept that comprises “motivation, possession, digital skills and use”. Ferlander and Timms regard “access, skills and motivation (2006, p. 137) as requirements for digital inclusion. Several aspects lie at the heart of the Internet access debate. Figure 5 portrays the main aspects that influence Internet access as interpreted by Kubichek (2004).

Figure 5: The Internet Access Rainbow



Source: Kubichek (2004)

Physical access to ICTs has a major role in bridging the Digital Divide. The possession or availability of hardware is a precondition for Internet access. Ferlander and Timms declare that “to be on the right side of the (dual) digital divide it is vital to have physical access to technologies” (Ferlander & Timms, 2006, p. 137). The cost of hardware and software therefore is one of the main barriers in the endeavours to bridge the Digital Divide. The ELISA participants had to use their own hardware but could use the well-equipped facilities of TUT in order to go online. Moreover, the state-of-the-art PDAs that they received enabled them to explore wireless technologies. Appropriate software was installed on all the PDAs. The participants, however, only had the PDAs at their disposal for the duration the course. Subsequent funding programmes could enable the participants to possess their own PDAs.

Internet access implicates telecommunication infrastructure. Expansion of telecommunication infrastructure can be an important tool to bridge the Digital Divide. Insufficient telecommunication infrastructure could posit a problem for the initiatives to minimise the Digital Divide. The quality and quantity of telecommunication networks in a country are fundamental in the debate on Internet access. In developing countries such as South Africa the improvement and expansion of telecommunication networks can play a determining role. Existing facilities should be maintained in order to provide uninterrupted services. Telecommunication infrastructure was not a problem for the ELISA participants as they all resided in areas where there was adequate coverage.

Access to electricity will assist learners to counteract the Digital Divide. Alternative forms of power supply such as solar power and generated power produced by generators can be used to boot personal computers, laptops, modems and use browsers. Wind farms in South Africa are a new source of electricity that could be explored and used. Wireless technology such as the PDAs works on

a battery system but need to be recharged every so often. This was not a problem during the ELISA programme. It could, however, be problematic when journalists have to visit rural areas in their work.

Lower fixed-line fees and lower mobile fees can reduce the Digital Divide. I argue that lower connection fees and lower monthly tariffs for fixed lines will contribute to surmounting the Digital Divide. As previously mentioned (see 2.1.3.2,) the rate of leased lines in South Africa is double the average rate of similar services in OECD countries (Esselaar & Gillwald, 2007). Table 10 gives an example of Telkom's monthly rental fees.

Table 10: Telkom's monthly fee

	Monthly telephone Subscription fee	**3 minute telephone call charge to a fixed line**	**Telephone charge per second**	**Monthly ADSL Subscription fee**
Home	R133.39	R1.14	59,4c (first 94 seconds) 0.63c (thereafter per second)	R362.00
Business with 2 extentions	R447.32	R1.14	59.4c (first 94 seconds) 0.63c (thereafter per second)	R362.00

Source: Telkom SA Ltd (2007)

Lower Internet access costs can be instrumental in the process to bridge the Digital Divide. Much of the existing literature regards high Internet access costs as problematic. Spenneman (2004) states that high Internet access costs exacerbate the Digital Divide. Leigh and Atkinson (2001) argue that cost is one of the reasons why some United States citizens don't have Internet access. The ELISA participants had to settle their own Internet access accounts when retrieving information and completing assignments off-campus. This was usually the case as they had to submit their assignments on Friday evenings. They received vouchers for the PDAs to the value of R150 per month for a period of three months. They could use these to get Internet access.

The establishment of Internet public access points where people who do not have computers nor Internet home access to go online, can be significant. Facilities such as community technology centres, schools, libraries, post offices, churches, laundromats, cyber cafes and free-standing centres could be used. In the United Kingdom, by 2005 there were more than 7000 UK online and learndirect

centres, including 3000 public libraries for such purposes (Department for Education and Skills, 2005). I argue that examples of “Internet for All” and the Action Program for Innovation and Jobs which supported public-access facilities in Germany (Kubichek, 2004) are applicable to the South African situation. This initiative will help to overcome the barrier of hardware costs and connection fees. The ELISA participants could benefit from Internet public-access facilities since these access points could be close to work or available at suitable times. Not all the students who participated had broadband access at home.

Technology centres where Internet access is available will lessen the need to invest in expensive hardware and connection fees. Centres that offer open access to its ITC facilities during off-peak periods may promote Internet access. Examples of such periods are during evenings, weekends and holidays. The Department for Education and Skills (2005) in the United Kingdom suggested this initiative to bridge the Digital Divide, but submit that it is debatable whether such an initiative will be successful in a developing country such as South Africa. However, it could be very valuable to part-time students at HEIs. The ELISA participants could certainly have benefitted from such a facility.

2.2.3 Technology diffusion

The dimensions of digital inclusion comprise several features. Much of the existing literature emphasises access and skills as dimensions of digital inclusion (Castells, 2001; Ferlander & Timms, 2006; Hüsing & Selhofer, 2004). The development of skills is therefore a prerequisite in the endeavour to bridge the Digital Divide. The initiative to provide modern technology to the inhabitants of an area can assist in this.

Information and knowledge play an important role in the 21st Century and cannot be underestimated. Ferlander and Timms (2006) report on the success of a Local Net and Internet Café in Sweden that attempted to bring modern technology to a suburb in Stockholm. The citizens were very grateful for this initiative as it supplied knowledge and information online. Customers of the IT-café also used the facility to improve their skills. Diffusion of technology may thus increase knowledge diffusion through improving communication. Initiatives such as these will promote development in South Africa, especially in rural areas. ELISA participants who do not have computers may then be able to access information, improve their skills and promote environmental security even in rural and underdeveloped areas.

Technology diffusion should be made available to everybody in order to bridge the Digital Divide. Advantaged groups have better technology diffusion than disadvantaged groups. The latter comprise poor people, racial minority groups, women and/or less educated groups. This initiative coincides with

the idea of “Internet for All” (Kubichek, 2004, p. 10). ELISA participants did not experience technology diffusion as a barrier whilst completing the programme. However, should they in future work in rural areas where technology diffusion is inadequate digital inclusion may be problematic. The challenge remains to enable all South African citizens to access ICTs.

Income is an important determinant in the use of technology. Initiatives to increase income may assist to bridge the Digital Divide. A positive relationship exists between technology use and income across countries and within countries. Higher income may lead to higher technology use. It will thus be in South Africa’s interest to promote economic growth and development. This may result in increased technology use. Castells (2001) observes that income plays an important role on the diffusion of broadband. Users manipulate the Internet more than any other technology. He points out that this is because of the flexibility of this technology and the speed of transmission of their feedback.

2.2.4 Telecommunication infrastructure

Communication technology (CT) refers to telecommunications equipment through which information can be sought, sent and accessed – for example phones, faxes, modems and computers (Department of Education, 2004b). Transmission technologies refer to the use of cable modems, asymmetrical digital subscriber lines (ADSL), integrated services digital networks (ISDN) and wireless-based Internet access (WAP). Initiatives to develop, improve and expand telecommunication infrastructure will contribute in the endeavour to bridge the Digital Divide.

Wallsten (2005) states that income is one of the most important determinants of telecommunication development. Lower costs for telecommunication services may make these commodities more affordable and thus contribute to overcome the Divide. The communication costs include lower connectivity fees, lower monthly subscription fees, lower transaction fees and the reduction of wireless device fees. Lower fees would not be relevant to the ELISA participants since they completed the programme and would not benefit from possible future lower costs. It could, however, be advantageous to future students who need Internet access at an affordable fee.

Development of the telecommunication infrastructure may bridge the Divide. Development involves the expansion of telecommunication services to rural areas that have to do without the help of fixed line teledensity. Broadband access will help students to connect at a high speed. The improvement of infrastructure will favour growth, investment and poverty alleviation (Hernández-Catá, 2004). ELISA participants could use the TUT broadband facility while on campus; when not, they have to use their own transmission technologies to retrieve information and complete their assignments.

Regulatory changes and competition can help in bridging the Divide. The Independent Communications Authority of South Africa (ICASA) regulates the telecommunications industry in South Africa (Ali, 2003). The South African Government has been hesitant in the past to deregulate the telecommunication industry, resulting in unfair competition in the ICT industry. The Telecommunications Act of 1996 introduced significant changes by initiating phased competition into this industry. This ended the government's monopoly of the South African telecommunications industry. Wallsten (2001, p. 2) states that "competition is the most effective agent of change, and privatizing a monopoly without concurrent regulatory reforms may not necessarily improve service". Competition in this regard will not only benefit the ELISA participants but all South African citizens.

3 Higher Education Institutions

Higher education changed radically during the latter part of the 20th century and will continue to do so in the 21st century. This trend is evident all over the world (Bruns, Cobcroft, Smith, & Towers, 2007). Developments such as globalisation, increasing student mobility, lifelong learning, participation of open universities, the introduction of the Internet, virtual classrooms and e-learning transformed higher education significantly (Daniel, 2005). Challenges such as financial constraints, return on investment (ROI), decreasing resources, escalating student numbers and increased competition between educational service suppliers compel HEIs to adapt and innovate.

Educational needs are increasing (Anderson & Middleton, 2002). HEIs are pressurised to provide in the increasing requirements and needs of students and in order to do this, HEIs have to adapt the traditional educational style to a more flexible learning style. In some of the developed countries the student profile changes from mainly undergraduate students to accommodate part-time and adult students as well. In Canada, the UK and New Zealand (Daniel, 2005) student profiles show that a significant number of older students are entering higher education. South Africa is no exception. The ELISA programme is an example of an intervention where 13 of the 14 participants were working students and could further their careers whilst studying. This phenomenon illustrates the efficiency of the ELISA programme as a means of support.

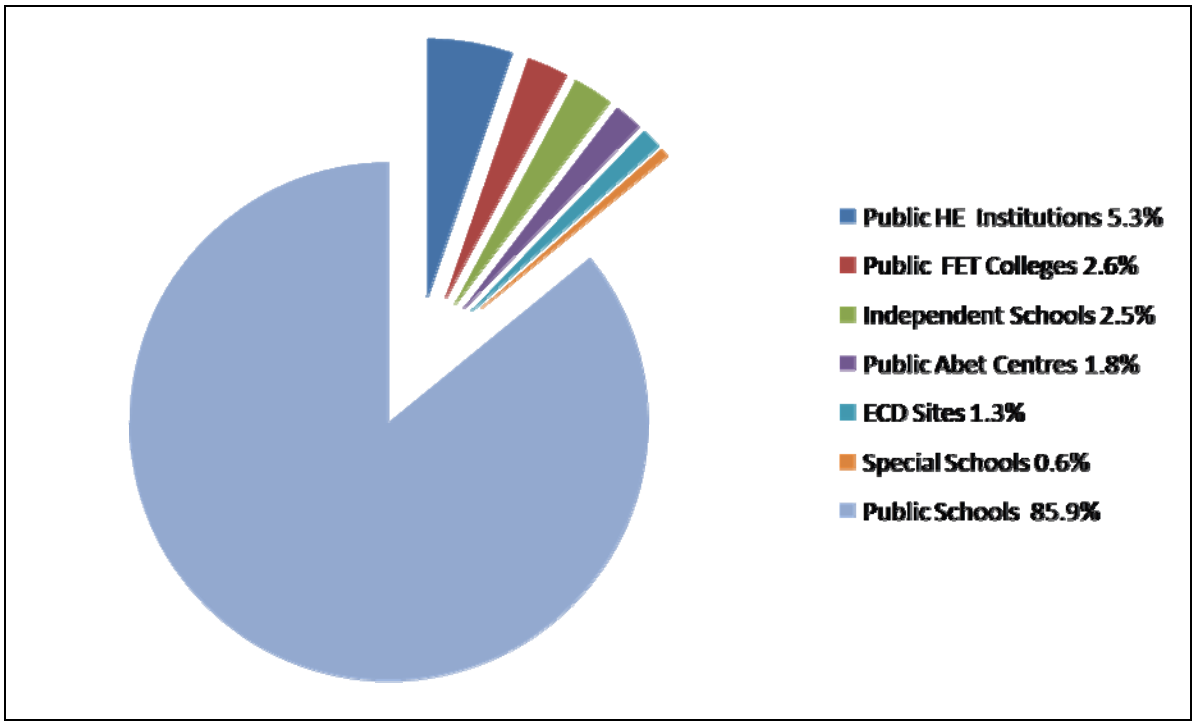
Several interrelating aspects contributed to a new form of higher education. Knowledge production can be regarded as flexible and transdisciplinary, involving a wide range of partners from different sectors, public and private (Daniel, 2005). TUT is an example of a HEI that is increasingly becoming a virtual meeting place where interactive learning takes place. Technological skills are imperative to claim inclusion in the digital society. The online delivery of the content of the ELISA curriculum via CD-ROM enabled the TUT participants to be part of a unique e-learning opportunity that could advance career opportunities. Internet access allowed the students to obtain vital information and to expand their perspectives on environmental security. Video conferences introduced the participants to the

comprehensive input of international environmental experts, much to the benefit of their awareness of environmentalism. An understanding and awareness of environmentalism is of the utmost importance in South Africa and, as a matter of fact, for the whole of Africa.

Higher education is often related to improved career opportunities aimed at increased financial growth. HEIs experience pressure of escalating student enrolment and their numbers are increasing worldwide (Abbott & Doucouliagos, 2003; Greenhalgh, 2001; Rickinson & Rutherford, 1995; Taylor, Bates, & Harding, 2004). According to McIntosh (2005, p. 2) higher education grew significantly since 1998 as indicated in the UNESCO 2004 report. It says that “the historic threshold of 100 million students worldwide has been crossed and the prospect of reaching the figure of 125 million students will be attained before 2020”. Such conspicuous expansion is especially true in Africa, the Arab countries, Latin America, the Caribbean and in Eastern and Central Europe.

The demand for higher education is a well-known phenomenon in South Africa, resulting in twenty three HEIs. Cronjé (2006) contends that “Too often e-learning strategies were based entirely on cost-driven models with ROI being cited as the chief motivator for its implementation”. In 2006, the total number of learners and students in all areas of the education system in South Africa was 13 910 696. 5.3 % of these students were enrolled at HEIs as illustrated in figure 6. TUT, where the ELISA programme was hosted, represented the largest residential HEI in South Africa with 51 446 enrolments (Republic of South Africa, 2008b). These statistics illustrate the importance of higher education in South Africa as a developing country. The ELISA programme thus contributed to the accomplishments of TUT students in supporting them to achieve their qualifications.

Figure 6: Percentage distribution of learners in the education system in 2006



Source: Republic of South Africa (2008b)

The financial implications of higher education cannot be underestimated. While economists currently [2009] predict financial constraints both nationally and internationally, e-learning as part of an integrated learning approach can be seen as a more economical option than traditional learning. The original outreach programmes that Stanford presented to former Soviet Union and Eastern European students by bringing them to Stanford, turned out to be very costly. Instead, a model to present outreach programmes to students in their home countries, proved to be a more viable option. The idea was to reach more students at a lower per student cost. This was also the inspiration for the ELISA programme.

Larsen, Martin and Morris (2002) point out that one of the advantages of e-learning is that more students can study foreign courses while remaining at home. Bates, A.W., & De Los Santos, J.G.E. (1997) refer to the advantages of global access to education while Altbach (2004) reports that about 8 million students will study outside their home countries by 2025.

4 The role of technology

New technologies are continually transforming the modus operandi of everyday lives, especially sectors such as communication, teaching and learning. Since the digital revolution is changing all

facets of our society it results in a “change in the way children gather, accept and retain information” (Tapscott, 1998, p. 2). The revolution in the ITC world is a phenomenon that cannot be compared to anything that happened before (Leiner, Cerf, Clark, Kahn, Kleinrock, & Lynch, 1999). Losh (2003, p. 74) has found that “of all the innovations of the twentieth century – space travel, heart transplants, effective birth control, genetic engineering, television – at the turn of the millennium, a National Public Radio study reported that Americans rated computers as the most important”.

Much of the current existing literature on communication refers to the information revolution. Castells (2002) states that the “revolution” in ITCs spreads out all over the globe. Bernhardt (2000) points out that ICTs are revolutionising communication, education and services. Edejer (2000) refers to the revolutionary power of technology while Daniel (2005) points to the ample revolutionised areas of life and that educationists need to expand that revolution for the benefit of learners. Clarke (2002, p. 1) summarises by saying that “history is littered with failed attempts to ‘revolutionize’ learning through innovative technology”. However, he adds that these attempts resulted in a valuable lesson: “In order for technology to improve learning, it must ‘fit’ into students’ lives...not the other way around”.

There exist different rationales for the use of educational technology in higher education. Rumble (2001, p. 5) says that educational technology is regarded as a method to improve “the efficiency of education through productivity increases”. Cronjé (1997) argues that, firstly, there exists a need “for learners to be technologically literate” and, secondly, it is hoped that “technology could expedite the learning process”. Cronjé quotes the 1996 summary of Reigeluth to distinguish the Industrial Age from the Information Age. The role of technology in the Industrial Age was to produce products. This role changed to facilitate the processes of the Information Age. Thirteen of the fourteen participants of the ELISA programme were technologically well literate since they had to fill a definite need in the journalism profession. Although not the focus of this study, McCombs (2000) emphasises that several studies show that appropriately applied educational technology can improve learning and accomplishment when compared with conventional teaching methods. The ELISA programme indicated that the educational technology employed in the module definitely enhanced student performance.

The role of technology in the ELISA programme can be seen as a tool to facilitate and achieve a variety of goals. Technology as an instructional agent refers to the “materials based on CD-ROMs, online sources, video- or audio-streaming, interactive video, textbooks, and so forth” (Paulson, 2002, p. 127). The ELISA programme used these technologies as well as mobile technology as part of an integrated learning process. The ELISA programme explored the possibility of a two-way learning process between Stanford and UP.

One of the most important functions of technology as a tool is to facilitate change. Bates (2005, p. 2) has determined that “technology indeed provides educators and governments with the capacity to transform radically our whole education system and nowhere is this truer than in the area of flexible and distance learning”. Technology-based teaching can lead to the elimination of the boundaries of time, geography and jurisdiction (Daniel, 2005). Technology also makes it possible to rethink the boundaries of the institution resulting in the expansion of technology-based teaching that is not limited to location. The ELISA programme is an example of such an expansion of information, advice and support from Stanford for TUT. The purpose of the expansion was to initiate an awareness of environmentalism among the participants and ultimately create a paradigm shift and change in behaviour among the participants.

Technology can be used as a tool to accomplish a variety of different tasks. According to Hannafin (1999) learners can use the same technological tool to achieve different functions. These functions include seeking information, integration of new and existing information and communication. Such tools as “keyword searches, to topical indexes, to the semantic search engines available on the World-Wide Web” (Hannafin, 1999) can assist the learner to find the appropriate information and for individual purposes. They help to collect significant information valuable to simplify subsequent access or to gather subsets of resources suitable for personal learning requirements. Integration tools synchronise new and existing knowledge. Diverse concepts from multiple perspectives are organised and integrated with personal knowledge. Communication tools enable interaction between educators and professionals. Synchronous communication tools involve simultaneous interaction between participants. Asynchronous communication tools entail exchanges among participants who are not necessarily simultaneously available. The ELISA programme employed all these tools to facilitate the functions mentioned.

Change and innovation facilitated by technology exploit new resources. Innovation creates new methods that aid flexibility. According to Clarke (2002, p. 1) e-learning extends the classroom beyond its physical limitation “it is anytime, anywhere access to school via the web”. The ELISA programme employed an integrated learning approach that combined traditional and e-learning strategies. While there are many definitions of e-learning the following definition is the most applicable for the ELISA programme: “almost any learning environment in which electronic media, such as computers, are used as a component of an instructional delivery system. These can range from the use of Email to supplement print-based materials distributed at a distance to courses that are delivered entirely by means of technology such as computers or the World Wide Web” (Keller & Suzuki, 2004, p. 230).

The debate on the outcomes of e-learning continues. Cronjé (1997) asks “Who killed e-learning?” while Greenagel (2002) accentuates marginal competencies as one of the reasons why the promise of e-learning has not yet been realised. Galusha (1997) explains several barriers to distance education

but concludes that distance education is extremely suitable for adult learners. Romizowski (2004) mentions that the e-learning baby is often thrown out with the bath-water, unless certain conditions are being met. The e-learning component that formed part of the ELISA programme was highly innovative and successful.

Educational technology requires support and training in order to ensure that the end-user benefits from access to technology. Bates (2005, p. 2) emphasises the importance of the implementation of technology as it "is neither good nor bad in itself but it is the way that it is used that matters". Excellence in teaching is a prerequisite to solve the challenges of higher education (Cronjé, 1997). Castells (2001) quotes the observation of Bolt and Crawford in that the effective use of educational technology depends on the efficiency of the teachers. The expertise of an excellent technological team at TUT was available for all the participants for the duration of the course.

5 What dialogue emerges and why does it emerge?

Both globally and locally, educational needs are increasing and Africa is no exception. In South Africa where the majority of the population have been denied tertiary education for many decades, this is even more so. The South African government had identified education as a tool to bring about economic growth and development (Republic of South Africa, 2008a).

Worldwide HEIs are under pressure to provide in the escalating needs and requirements of students as discussed in Chapter 2. The challenges that HEIs are experiencing entail financial constraints, decreasing resources, return on investment (ROI), growing student numbers and increased competition between service providers.

Higher education studies concerning developing countries have become very popular. Edejer (2000), and Costello and Zumla (2000) report on existing North-South research projects concerning medical outreach programmes in Africa. Bates (1997) identified the following important elements of partnerships "market research, strong institutional support, and adaptability to local needs". Nwafor, as cited in (Missen, McNulty, Ibrahim, & Liverpool, 2003) discuss the funding for university libraries in the developing world and accentuates the dire effects of the economic state of affairs for education and academic libraries in the Third World. Nwafor, the librarian of the University of Jos, Nigeria, summarises the predicament as follows: "To say that Third World university libraries are currently (1990) perched on a precipice would not be an exaggeration. In fact, one could go a step further to say that the necessary factors required for the declaration of a library state of emergency are in place". The ELISA project is an example of a mutual partnership with that aim in mind.

One of the principle aspects in outreach programmes is the creation of partnerships. In the ELISA programme the underlying principle was the creation of a partnership that would enable a two-way learning process. Stanford envisaged to provide international expertise to the TUT students and expose them to an exceptional learning opportunity in International Environmental Security. In return, it was hoped that they could learn from their South African colleagues about mobile technologies because this was more ubiquitous in South Africa than in the United States. The pilot phase of the ELISA programme resulted in a successful outreach initiative. The findings will be discussed in chapter 4.

Costello and Zumla (2000) point out that a bona fide cooperative research partnership rests on four basic principles: mutual trust and shared decision making; national ownership; emphasis on getting research findings into policy and practice; and development of national research capacity.
Edejer (2000) adds the following to this list: decide on objectives together, divide the profits equitably; and build on achievements. Several of these principles were relevant for the ELISA project.

The funding of outreach projects remains one of the fundamental principles that guide the research. Inequitable funding often poses a dilemma. Clear mechanisms are essential to ensure that funds are managed appropriately. According to Edejer (2000) the management of funding directed towards health research and development is often messed up.

Unequal power relations are often typical of partnerships between developing and developed countries. Outreach negotiations between these participants are often characterised by a dialogue of power. The University of Iowa-Nigeria collaboration is an example of a partnership with such a dialogue. Political and economic turmoil in Nigeria took its toll on the academic environment where information technology has been grossly neglected. According to Missen et al. (2003) the once well-respected Nigerian university system “has been reduced to a shadow of its former self…In the digital realm, many universities represent a blank slate”. The University of Iowa initiated a six year outreach project with the University of Jos and a thirty year outreach project with the University of Ibadan both in Nigeria. Since information technology and the Internet offer escalating academic resources Internet access has been identified as an instrument to create upliftment and progress. In South Africa it is particularly “the universities in need, such as TUT and the University of the Western Cape that benefit from such collaborations. However, UP is not regarded as a university of need and does not collaborate with Iowa” (UP team leader, personal communication, September 24, 2008). Unequal power relations between research collaborators create certain risks. (Volmink & Dare, 2005, p. 705) state that “Guidelines on international partnerships in research should, however, help to minimise the danger of scientific colonialism masquerading as research collaboration”. Costello and Zumla (2000) argue that the research model remains semicolonial in many instances and they distinguish between a semicolonial model and a partnership model, as illustrated in table 11.

Table 11: Semicolonial and partnership models of research in developing countries

Characteristic	**Semicolonial model**	**Partnership model**
Setting of research agenda	Dominated by outsiders	Negotiated with insiders
Links with national institutions and training programmes	Peripheral	Integral
Management	Line management by foreigner	Line management by national or insider
Staff costs	Predominantly foreign salaries, overinflated local salaries	More balanced investment and more sustainable in the long term
Dissemination	Heavily orientated to international journals and conferences	International dissemination balanced by outputs in national or regional journals, and media to reach a wider audience
Emphasis on sustainability and generalisability of research findings	Low	More likely
Influence with local policymakers	Low	High
Effect on national institutions	Negative, attracts best and brightest away from national research institutions	Positive, builds up local academic infrastructure

Source: Costello & Zumla (2000)

HEIs have various incentives to participate in outreach projects. This is according to the motives of the institution. Volmink and Dare (2005) see the publication of journal papers and articles as a significant incentive. Stanford had financial gain in mind, thus the decision to support the outreach project in South Africa. UP aspired to empower the participants and use the outreach initiative as a learning opportunity. TUT's incentive was to expose the students to international environmental perspectives.

6 How is shared meaning created and why is it created?

Cooperation and collaboration are multifaceted concepts and can be interpreted in several ways. Coppola (1996) accentuates the importance of participation in several groups as part of daily life. He quotes Bruffee who propagates John Dewey's phrase: "living an associated life". Shared meaning implies common purposes, common adversaries and common incentives. The process of shared

meaning starts with shared ideas, resulting in various objectives between different people working together in order to reach mutual goals. Shared meaning in the ELISA programme resulted in cooperation and collaborative learning, at least during the start of the pilot phase.

Cooperative learning can be used as a tool to achieve shared-learning goals and shared meaning. Johnson, Johnson and Smith (1998) state that the implementation of cooperative learning at tertiary level originated in the creation of "social interdependence, cognitive-developmental, and behavioural learning theories". The authors quote Koffka who says that groups are "dynamic wholes in which the interdependence among members could vary" (Johnson et al., 1998). Common goals create interdependence among the members of a group. The core of a group is situated in its interdependence. Johnson and Johnson (1994) distinguish between two kinds of social interdependence. Positive interdependence (cooperation) exists when individuals promote interaction and support each other's attempts to learn. Negative interdependence (competition) exists when individuals discourage and hamper each other's attempts to achieve their goal. No interdependence suggests that individuals work independently without any interaction or interchange.

Motivation is a necessity for successful learning, especially online learning (Jalongo, 2007; Kikuchi, 2006; Matsumoto & Obana, 2001). Malone and Lepper (1987) identified interpersonal motivations that were extant in the presence of other people and depended on other people. These interpersonal motivations are cooperation, competition and recognition: cooperation and competition are in numerous ways parallel. Malone and Lepper themselves quote an existing body of literature regarding the following: Cooperation and competition satisfy psychological needs, certain conditions apply under which one or the other takes place, develop in certain ways as children grow up and influence learning tasks in school. Cooperation is often assumed to be good while competition is assumed to be bad. However, both cooperation and competition can be used in ways that have beneficial or detrimental outcomes. The challenge is how best to exploit their motivational power.

Learning tasks can be segmented into dependent units and independent units. According to Malone and Lepper (1987) a spelling task is an example of dependent units as well as independent units. Students can take turns in spelling the following letter in a word (dependent unit) or they can take turns in spelling a complete word at a time (independent unit). With independent tasks, cooperative behaviour can be encouraged by the combination of the scores of the different students (number of words spelled correctly). A technique to encourage cooperative learning in the independent case will be "exogenous" while in the dependent case it will be "endogenous" (Malone & Lepper, 1987, p. 243). Exogenous cooperation will often present a fairly weak form of motivation.

In the ELISA programme for example, the facilitator divided the students into four groups. Every group had to divide a specific article into equal sections that the individual students had to read (dependent

units) and then piece the whole article together, interpret it and give their comments. During a follow-up assignment every student had to complete an individual section (independent units) of a larger assignment. Individually, the students had to use their PDAs to search for different URLs on the Internet in order to mine material that they could use in further assignments and articles. One student was commissioned to compile a master list of all the relevant URLs and distribute this among the students.

Endogenous and exogenous competition may also serve as motivational factors. With independent tasks such as the spelling of a complete word it is easy to encourage competition. The students compare their scores to determine who performed the best. Malone and Lepper (1987, p. 244) quote existing literature that indicate that these “exogenous competitive pressures may stimulate interest during the initial performance, but it appears to have detrimental effects on subsequent intrinsic motivation”. Endogenous competition is encouraged when students with conflicting goals work together on dependent tasks and unintentionally help each other.

Recognition is a form of interpersonal motivation that plays a significant role in the design of instructional environments. Recognition involves that we enjoy having our efforts and accomplishments recognised and appreciated by others (Malone & Lepper, 1987). The visibility of results is important and can be done in three ways. Firstly, the process of execution of the activity may be noticeable, for example, artists who paint in public; secondly the outcome of the activity may be noticeable resulting in paintings at an art exhibition; thirdly additional results of the activity may be noticeable, for example published names of artists in a competition or contained in an art catalogue. Similarly, in the ELISA programme it was possible to observe the students searching for the relevant URLs on their PDAs. This activity resulted in the master URL list that could be visibly followed. Additional results would arise in articles that they wrote, using the information obtained from the master URL list. Shared meaning was created through the students’ participation in the activities. The facilitator gave mild recognition to each of these activities, thus motivating the students to continue searching for information for further use in their careers.

According to Malone and Lepper (1987, p. 244) endogenous and exogenous recognition are important interpersonal motivations. They assume that endogenous recognition is “natural to the activity” and will have a stronger motivation for the “development of a global mass culture”. Anti-globalisation advocates argue that learning process. Examples of endogenous recognition involve class newspapers, art exhibitions, musical recitals and speeches (Malone & Lepper, 1987). An example of exogenous recognition is the publishing of a roll of honour.

Apart from the fundamental mutual goal on both sides, there were individual goals that played a role in the implementation of the programme. Stanford was committed because of the prospect of

cooperation with TUT and UP in creating, designing and evaluating a wide-ranging and suitable e-learning programme in a specific area of the globe. They hoped to implement international policy to alter national behaviour in South Africa with scholarships and to create new partnerships. They aimed to transcend conventional academic boundaries by making their research available to two South African HEIs. They attempted to advance Stanford's international profile through the provision of resources, expertise and answers. Stanford's commitment resulted in the grant of $485,000 for the entire three year period. Stanford was also interested in the transfer of South African knowledge, expertise, and know-how to the United States. They envisaged an exceptional two-way learning process to learn about the use of mobile technologies in South African HEIs. The South African counterparts wanted to participate in the programme because of the opportunities that could result from it. TUT and UP were interested because it was a unique learning opportunity for journalism students and it could help them to complete their studies. The enriching perspectives that they would obtain could be of use in their future careers. The academic and research teams realised that this two-way learning process provided the opportunity for research at post-graduate level. This could result in learners' articles contributing to shared meaning and the existing body of knowledge on the subject.

7 How do we deal with cultural differences?

Inglehart and Carballo (1997, p. 37) point out that different coherent cultural regions have citizens with specific values and worldviews and "that make them think differently and behave differently from citizens of other cultures". Schein adds to this point of view by saying that at the root of any complex issue "we are likely to find communication failures and cultural misunderstandings" (Schein, 2003, p. 27).

Since culture is a way to describe human behaviour (Barth, 1998), it follows that a learning culture is a way to describe the behaviour of people that are attached to a specific HEI. During the progress of the course it became clear that a definite homogenous Stanford culture versus a hard-to-define TUT-and-UP-culture exists.

According to Bates (1999) a number of social and cultural issues arise as soon as educational programs cross borders. Meijering and Van Der Hoven (2003) accentuate the phenomenon of *cultural baggage* that 22 IT professionals encountered on different sides of German society. Callahan (2006) explores cultural differences and similarities in the design of university web sites for such places as Malaysia, Austria, the United States of America, Ecuador, Japan, Sweden, Greece and Denmark. These web sites are compared to shed light on the question of whether the design of web sites in different cultures is distinct or do they follow similar trends? The role of these differences and their practical consequences are also explored.

Different cultural values between nations and organisations exist and are maintained world-wide. Much of the existing literature emphasises cultural diversity and influence (Barth, 1998; Costello & Zumla, 2000). In order to deal with cultural differences it is necessary to scrutinise cultural identity. Hall (1990) discusses cultural identity, cultural representation and states that there are two ways to define cultural identity: similarities and differences. Firstly, similarity involves a shared culture, a oneness that recognises the numerous points of similarity between people. It underlies the similarities that people with a shared ancestry and history have in common. Secondly, there are crucial points of difference which represent "what we really are...what we have become" (1990, p. 225). People are positioned by, and position themselves in different ways within the sequence of events of the past. Differences are inscribed in cultural identities. Hall concludes by saying that the otherness results in the marginalisation of the underdeveloped people, the 'other' – "always 'South' to someone else's El Norte" (1990, p. 228).

Cultural differences are also prevalent in higher education and present several challenges in higher education spheres. One of these challenges is how to operate in a global environment while remaining attentive to the needs, capacities, traditions and values of particular countries and cultures (Halimi, 2005). Given the debate on cultural differences as discussed in chapter 1, the position of this study is that of support to the Hofstedian argument, highlighting the situational reality of South Africa and the importance of an African perspective. The emphasis of this study is about the differences and the commonalities between the two cultures that are involved. The question thus remains valid: How do we deal with cultural differences?

There exists a divide amongst people from different cultures and traditions. However, the emerging interconnectedness of the world results in the phenomenon that the world is getting small, compressed and therefore more connected. In order to deal with cultural differences it is essential to have an awareness of other cultures and try to understand them. Furthermore, it is vital to engage with people from countries other than the United States in order to gain insight into their backgrounds (Stanford team leader, personal communication, 2006). The Stanford team leader emphasised that due to the regional isolation of the United States more emphasis could historically have been placed on looking beyond the borders of the United States. International related studies was characterised by a very Amero-centric perspective. The development of interdisciplinary country-studies programmes at Stanford facilitated the process to "get people to think outside of the American centre".

An awareness and understanding of cultural differences goes beyond the mere translation of study material. Tomasulo (1999, p. 1) states that "The advent of the world wide web and instant language translations have simultaneously shrunk our world and made the understanding of other cultures a necessity". According to the Stanford team leader (2006) translation may result in the loss of the meaning of the word, as well as the loss of the connotation and cultural setting. Language that is very

specific as to content is characteristic of a specific discipline and mostly difficult to translate. With regard to the programmes that Stanford launched in Russia they found that Russian students wanted to learn about America and the American perspective. However, they wanted to learn that in English because that is how they understood American culture. They first wanted to learn that, then translate the material and then compare it with their own perspectives. The advisory board at Stanford also identified the problem that some post-graduate students did not have an understanding of other cultures. This resulted for example in the inclusion of a two year mandatory foreign language course as part of an engineering degree.

Globalisation represents two sides of a coin: the other versus the own national identity and traditions. Globalisation can be seen as contradictory to nationalism. Globalisation (as discussed in the previous section) refers to “The increasing extent, velocity, and impact of world-wide interconnectedness” (Held & Hirst, 2005). Nationalism refers to “the promotion of the culture, economy and national interests of one nation as opposed to subordinate areas or other nations or supranational groups or organisations” (Stetar, 2000). Both the concepts globalisation and nationalism are central in the endeavours to deal with cultural differences.

The Internet plays a dichotomous role in the process of globalisation. On the one hand the Internet can be regarded as a tool to promote the homogenization of cultures (Callahan, 2006). This is done because the Internet is “an ideal medium for reaching beyond domestic markets in order to disseminate products to hitherto foreign markets” (Würtz, 2006, p. 275). A global commercial culture develops where international brand names and products such as Coca Cola, Kentucky Fried Chicken and KFC and Nike are globally known and accepted. In the higher education domain an increase of new contributors, cross-border supply and increased electronic delivery of education takes place (McIntosh, 2005). Larsen et al. (2002) report that the Internet facilitates traded educational services.

The Internet on the other hand, can serve as a tool of globalisation that generates challenges to national identity and local culture. The Internet can also develop in a powerful tool of global domination (Hongladarom, 2002). Global competition emerges “in the political, economic and cultural domains which are challenging old hierarchies” (Lemmer, 2001, p. 22). Global cultural communications can lead to the erosion of ethnic identity and result in a loss of local culture. National traditions and cultural values are threatened by increasing trade liberalisation in educational facilities (Larsen et al., 2002).

The dilemma of globalisation, however, occurs “when a local culture faces the need to merge with the globalizing tide but at the same time feels that it needs to protect its identity and tradition” (Hongladarom, 2002, p. 244). According to Lemmer (2001, p. 19) the aspiration for nationalism is powerful and not likely to be eroded by the “development of a global mass culture”. Anti-globalisation advocates argue that certain countries strive to maintain their own unique cultures where nationalism

is the determining factor. Globalisation is characterised by new flows of information that strengthen differences and "the awareness of the 'other'. Thus, local and national culture remains robust" (Lemmer, 2001, p. 19). Piazolo (2001) reports on the success of villages in the developing world that offered their products to clients in the developed world due to lower entry barriers, less obstacles combined with advanced contact facilities supplied by the Internet.

Local cultures can be preserved without citizens having to seek other destinations or emigrate to foreign countries. People can survive and thrive in their own environment while they are able to innovate, secures cultural diversity. This phenomenon is also viable in the educational sphere. The Stanford team leader (Personal communication, April 24, 2006) referred to the virtual online business courses that the Universities of Phoenix and Duke offer. The students that enrol at these institutions are able to stay in their native region while obtaining their qualifications.

Much of the current existing literature emphasises examples of intellectual colonisation. Hongladarom (2002, p. 241) reports that the Internet is an influential agent of globalisation both in cultural and ideological terms. Local cultures find it difficult to "resist integrating itself with the world through the Internet, but at the same time they feel a real need to protect and promote their identities". Maynard (2003, p. 57) points out that glocalization challenges ideas of cultural imperialism because the word suggests "a negotiation process that appears to start from the inside out, i.e., a process that begins with a high regard for the local. The term 'glocalization' connotes a successive development, as well as a challenge, to the top-down hegemony implicit in the term 'globalization'". Shakuntala (2008) states that Indian audiences accept, resist and show pleasurable responses to variations in Bollywood films. These reactions pertain to clothing, music, dance, settings and locales. Indian audiences accept Westernization to a certain extent but demand "Indianness" whereby Indian values are upheld and reinforced. Nyamnjoh (2004, p. 37) examines the paradoxes of globalisation "as a process of inclusion and exclusion, empowerment and enslavement, citizenship and subjection, hope and disappointment". Africans manage to manoeuvre and manipulate but refuse to surrender and internalise to marginalisation by developed countries. These developed countries are often weakened by financial motives of global capital.

The globalisation of the local results in glocalisation, a term that refers to the "fusion of global and local forces and interests" (Ramutsindela, 2004, p. 61). The author adds that glocalisation involves the extent to which global forces influence several processes at the local level, or vice versa. These include economic, social and political processes. An example of such glocalisation is the link between the University of Dar Es Salaam, Tanzania and various HEIs worldwide. The Tropical Biology Association in Tanzania collaborates with Natural Science Departments in Ireland, Italy, the Netherlands, Poland, Portugal, Sweden, Switzerland, the United Kingdom, and the United States (Tropical Biology Association, 2005).

Examples of glocalisation are found in many countries where globalisation initially influenced the local societies. Yet local cultures found a way to retain their identities. In Bollywood films producers ensure that although certain elements of a film are typically Western, Indian cultural values are still reinforced (Shakuntala, 2008). The storyline and theme of a film may originate in Hollywood, the clothing may be denims and shorts, but the drum that plays the background music represents Indian civilization. Bollywood films always emphasise familial emotions as opposed to some Hollywood films that lack familial emotions. In Malaysia and Singapore examples of glocalisation are evident in some architectural designs (Khondker, 2004). The public housing programme in Singapore uses the international style of straightforward and practical designs. A concept of public space was thus introduced to the occupants of these housing blocks. Public spaces called void-decks were built and served as venues where communal gatherings such as weddings or funerals took place. Western and local Singaporean motifs were thus combined to form a new design. Another excellent example of glocalisation is the accommodation of Gillette's Sensor Excel shaver for ladies in Japan (Maynard, 2003). In 1997 Gillette as a global brand used an introductory tone to emphasise the newness of a razor for ladies in the United States. In the Japanese advertisement the emphasis was on the end benefits such as prettiness and the pleasant feeling that the product created. Where the United States advertisement read as hard news, the Japanese advertisement concentrated on intimate rapport with ladies. The ELISA students suggested their own glocalisation endeavours. They accessed the learning material, developed a perspective on local environmental issues at hand and created their own South African perspectives in editorial pieces. Some of the students even raised the possibility of submitting these editorial pieces to the international Society of Environmental Journalists.

8 Critical analysis

8.1 Direction of funds

Funding is one of the key elements of partnerships. A critical analysis of the literature revealed that there is a critical misunderstanding regarding the way that financial resources intended for research and policy making should be directed. Volmink and Dare (2005) emphasise this premise by stating that "Furthermore, there must be clear mechanisms to ensure that some funds for research are directed to strengthening the capacity to conduct research, manage research (by establishing processes to handle grant funding)".

Much of the significant body of literature on partnerships reveals that providing countries often promise large amounts of money to receiving countries (Isaksson, 2002; Oyelaran-Oyeyinka & Lal, 2005; Samoff & Carrol, 2002). However, much of the literature also reveals that the earmarked financial aid [sometimes] never really reaches the receiving country. Ngambi and Katembo (2006, p. 44) state that the allotted money "merely is recirculated back to the origin point donor country via their national

corporations". Samoff and Caroll (2000) determined that the Tertiary Education Linkages Project (TELP) began in 1995 as an initiative to empower black South Africans by way of tertiary education. The aim was to make tertiary education opportunities and resources available in order to improve academic, administrative and research capacities in previous historically disadvantaged HEIs. The USAID commitment to TELP was estimated at US$ 50 million, of which about 50% had been disbursed by 2000. Seven previously disadvantaged South African HEIs were linked to partner institutions in the United States. It was found that "almost $6 million of federal funding was spent on the linkages project, with matching grants for about $3.6 million from the United States partner institutions". An in-depth evaluation of the expenditure patterns for five of these HEI partnerships revealed that about 60% of budgets were allocated to personnel expenses such as salaries, fees, fringe benefits and travelling costs. Mid-term financial statements indicated that one of the host partners in the United States "wanted to keep 98% of the partnership for its own use".

Another example that emphasises the way in which funding is directed is the review of North-South cooperation that was done by Chandiwana and Ornbjerg (2003). The authors extracted pertinent aspects of 21 years (1981-2001) of scientific collaboration among Zimbabwe's Blair Research Laboratory, the Biomedical Research and Training institute and the Danish Bilharzias Laboratory. They found that financial resource flow needed for research in Africa amount to $100 million per annum "but less than a fraction of this amount is currently [2003] available" (Chandiwana & Ornbjerg, 2003, p. 295).

It is thus obvious that adequate financial resources are made available to North-South partnerships. Such resources should [also] be used to develop and sustain research as well as technical expertise in the receiving country. However, the literature fails to explain what action can be taken to ensure that the aid is allocated correctly and that these resources remain available to the receiving partners.

8.2 Interpersonal differences

One of the basic elements of partnerships is power relations between the providing country and the receiving country. Much of the existing literature emphasises the fact that the equality of power relations depends on the type of partnership. Oyelaran-Oyeyinka (2005) identified the following 3 broad types of partnerships: First, the principal partner controls resources and makes the decisions regarding information needs, performance assessments, actions and sanctions. Subordinate partners have no independent access to resources, respond to information requirements and carry out decisions and instructions. Second, a consultative relationship between the partners allows the leader to control resources and make decisions regarding information needs and actions. The stakeholders carry out decisions, supply information and give opinions on priorities and resources. Third, a coalition relationship is established between the managing partner and partners. The managing partner is responsible for negotiation, consensus building, and an iterative process that is responsive to change. The focus of the partnership is on shared agenda, mutual interests, collective responsibility and joint ownership of the material. Aspects of each of these relationships are often found in different partnerships. Bates et al. (1997) refer to the developing international partnership between the prestigious Monterrey Institute of Technology in Mexico and the University of British Columbia. He emphasises that a real feeling of mutual respect is immensely helpful in order to establish successful personal relations in partnerships. Costello and Zumla (2000) accentuate mutual trust and shared decision making as part of a successful partnership.

Despite all the information on the influence of power relations in partnerships the literature fails to explain how differences of opinion and undercurrents among team members and project leaders throughout the project can be resolved.

8.3 Curriculum innovation and contextualization

Curriculum design in partnerships is of vital importance. While this process is specified by the type of partnership I found a gap in the literature regarding curriculum specifications where a coalition relationship is established. Samoff and Carrol (2002, p. 35) state that “Research on education has become one of the major forms of influence in education in Africa”. This statement verifies the idea that the curriculum bears the strong imprint of the providing partner. Much of the existing literature reports on examples of the implementation of off-the-shelf programs. Altbach (2004, p. 8) reports on transnational higher education initiatives where the northern partner almost without exception is the dominant partner. He summarises as follows: “There is often little effort to adapt offshore programs to the needs or traditions of the country in which the programs are offered-they are simply imported intact”. Similar to this notion Stanford offered an existing international security course to nine Russian

HEIs. Samoff and Carrol (2002, p. 70) refer to the inequality regarding curriculum development by saying that “curricular innovations originate in the United States and are often quite inappropriate to the African setting”.

While it is obvious that the curriculum should be modified, customized and contextualized to be valuable and appropriate to the receiving partner, the available body of literature has little to say about how curricular innovation and continuing efforts to update the content should take place.

9 Which aspects of the process worked well and why and how can they be improved to compensate for those that did not work well?

Several positive aspects characterised the programme. These included the following: national ownership; interpersonal relationships; combination of course material; content and workload; critical thinking skills and dispositions; Internet use; and feedback and motivation.

9.1 National ownership

National ownership of the curriculum was one of the most important aspects of the ELISA programme. The students had the opportunity to make the learning material their own and this had a significant effect on them. Stable technology is indispensable but difficult to obtain (UP team leader, personal communication, September 24, 2008). The students were extremely excited about the successful implementation of technology such as the use of i-mate PDAs; the use of WebCT6 as a learning management system; and the participation in video conferences.

The ELISA programme is an example of students learning via the media. Much of the existing body of literature refers to the effect of media on learning (Carter, 1996, Clark, 1983, Kozma, 1994). Clark’s well-known delivery truck metaphor (Kozma, 1994) illustrates the No Significance Difference Phenomenon. Clark states that “Consistent evidence is found for the generalization that there are no benefits to be gained from employing a specific medium to deliver instruction” (Clark, 1983, p. 445). However, the debate about whether media will affect learning continues and was not relevant to the ELISA programme. The attention was directed towards learning with and through media such as WebCT6, i-mate PDAs and the video conferences. The focus was thus not on employing different media in the learning process but on the media “as a complementary process within which representations are constructed and procedures performed, sometimes by the learner and sometimes by the medium” (Kozma, 1991).

9.2 Combination of course material

The combination of the delivery of course material proved to be very stimulating and motivating. E-resources such as CD-ROMs and the Internet, printed material obtained from prescribed books, face-to-face contact sessions and interaction through WebCT6 and the PDAs, contributed to valuable learning experiences. The video conferences between Stanford and TUT permitted cooperative learning and group interaction of the students with the academic, research and technical teams. This turned out to be a first for many of the students and resulted in an enriching and enlightening learning opportunity. The integration of the high-end i-mate PDAs was a new experience for the students and one of the highlights of the course.

It encouraged student-centred learning through the design of a “virtual fieldtrip” (Ray, 2002) where the students had to use their PDAs to access course web pages and download sites. The use of the PDAs as data-collection tools (Bent, Bolsin, Creati, Patrick, & Colson, 2002; Bertling et al., 2003) proved to be very significant. It resulted in a valuable class discussion and a synthesis of all the web addresses and correct URLs for further use in assignments and articles. During this face-to-face workshop that a Consulting Associate Professor of Stanford facilitated, she announced that she will sponsor each student with a one year subscription to the Society of Environmental Journalists. This initiative served as an additional external motivation and the students experienced this outreach gesture as exceptionally generous.

9.3 Critical thinking skills and dispositions

The development of critical thinking skills was one of the positive aspects and one of the main objectives of the ELISA programme. It is also a common goal of various disciplines (Colucciello, 1997; Gokhale, 1995; MacKnight, 2000). According to Paul (1990) knowledge and thinking cannot be separated. He adds that “knowledge, by its very nature, depends on thought. Knowledge is produced by thought, analysed by thought, comprehended by thought, organized, evaluated, maintained, and transformed by thought”.

There are many definitions of critical thinking and these emphasise the importance of its role in the learning process. The Foundation for Critical Thinking at the University of California, Berkeley, US, accentuates the significance of teaching critical skills and hosts workshops to advance intellectual engagement. Dr Richard Paul, Director of Research and Professional Development, conducts these workshops and defines critical thinking as follows: “Critical thinking is disciplined, self-directed thinking which exemplifies the perfection of thinking appropriate to a particular mode or domain of thought. It comes in two forms. If disciplined to serve the interest of a particular individual or group, to the exclusion of other relevant persons and groups, it is sophistic or weak sense critical thinking. If

disciplined to take into account the interests of diverse persons or groups, it is fair-minded or strong-sense critical thinking" (Paul, 1990). Since the focus of this study is on commonalities as well as cultural differences that exist between different people this connotation of the definition of critical thinking is relevant to the ELISA programme.

Critical thinking skills entail clear, precise, logic, reflective, consistent, and accurate thoughts. It was indispensable for the participants in the ELISA programme to develop critical thinking skills. According to Paul (1990) adequate command of the elements of thought enables a person to develop "an understanding of and an ability to formulate, analyse, and assess the problem or question at issue; the purpose or goal of the thinking; the frame of reference or points of view involved; assumptions made; central concepts and ideas involved; principles or theories used; evidence, data or reasons advanced; interpretations of claims made; inferences, reasoning, and lines of formulated thought; and implications and consequences which follow". The workshop that a Consulting Associate Professor conducted afforded the ELISA students the opportunity to analyse and assess various environmental issues and formulate possible solutions. This cooperative learning process involved small group discussions during which the students had to analyse information, construct their own understanding of the issues, share their ideas with the members of their group, and give feedback to the rest of the students. This active exchange of ideas increased interest among the students and encouraged critical thinking (Gokhale, 1995; MacKnight, 2000). Critical thinking skills can always be fostered to compensate for the less successful factors.

9.4 Internet use

The digital revolution is changing all facets of everyday life resulting in different ways that students "gather, accept and retain information" (Tapscott, 1998, p. 2). Digital literacy is regarded as a "life skill" similar to literacy and numeracy (Department of Education, 2004a). Much of the existing literature emphasises the importance of Internet access (Ferlander & Timms, 2006; Kozma et al., 2004; Kubichek, 2004).

Some of the students experienced the use of the Internet as positive and constructive for research purposes. They reported that they enjoyed the fast access and connectivity at home and/or at work. Students could however, also use their PDAs to get fast wireless access. The relevance of Internet literacy and access in the ELISA programme is fully described under efforts to bridge the Digital Divide (Chapter 2, 2.2). Internet access can certainly be improved to compensate for negative factors.

9.5 Feedback and motivation

Both feedback and motivation were positive aspects in the ELISA programme. The teaching assistant who graded the students' assignments was responsible for feedback to reflect on the students' work. This online, asynchronous communication supported critical thinking. The students also used WebCT6's Bulletin Board to communicate with fellow students and to provide and accept feedback. According to (MacKnight, 2000, p. 39) faculty has a responsibility to support disciplined discussions by "maintaining a focussed discussion; keeping the discussion intellectually responsible; stimulating the discussion by asking probing questions that hold students accountable for their thinking; infusing these questions in the minds of the students, encouraging full participation; and periodically summarizing what has or needs to be done". A Consulting Associate Professor's workshop on Environmental Sustainability was an excellent example of all these actions.

Motivation was one of the main aspects that inspired the students to complete the programme. Despite numerous barriers that they encountered as working students, all fourteen students received their certificates after completion of the programme. The teaching assistant motivated and encouraged the students on a permanent basis to collaborate and make the best use of the opportunity. On the South African side the TUT leader, the Head of the Journalism Department, the TUT technical assistant and I supported the students to make the most of this unique learning process. Motivation as a necessity for successful learning is fully described under the heading *How is shared meaning created and why is it created* (Chapter 2, 6).

10 Which aspects did not work well and why and how can they be improved?

Several aspects of the process did not work well. These included issues such as the initial agreement between UP and the University of Limpopo; unequal power relations; dismantling of prejudice; and the joint long-term project development.

10.1 Initial agreement with the University of Limpopo

The University of Limpopo and TUT were identified as possible partners in the intended outreach project. Representatives from UP, TUT and the University of Limpopo were invited to participate in an information sharing meeting**.** These representatives were invited because they represent diverse attitudes and mind-sets. The agreement between UP and the University of Limpopo went wrong from the start. According to the UP team leader the representatives of the University of Limpopo "were

under the impression that UP wanted to impose on them [and] saw themselves as guinea pigs with no say in the matter" (University of Pretoria team leader, personal communication, September 24, 2008). A professor of the University of Limpopo made it clear that they would not benefit from such an outreach initiative and declined the offer.

10.2 Unequal power relations

Unequal power relations are often typical of partnerships between developing and developed countries. The ELISA programme is an example of a partnership with a dialogue of power. The South African representatives did not agree to the exclusive influence of Stanford. They were of the opinion that "they could easily have turned down the offer of the outreach programme" (University of Pretoria team leader, personal communication, September 24, 2008).

10.3 Dismantling of prejudice

The background dialogue of power resulted in prejudice among the Stanford representatives (University of Pretoria team leader, personal communication, 2008). Initially they doubted whether the programme would be successful in South Africa. However, they were amazed by the knowledge, skills and expertise of their Southern counterparts. The South African representatives were frustrated with Stanford's widespread impatience and inadequate sources. They speculated on whether they shouldn't have implemented the programme themselves.

Chapter 3: Research methodology and design

1 Introduction

In chapter two I reviewed and discussed the literature that had been covered regarding the context of this study. In chapter three I will focus on the research methodology and design that I followed. I used evaluation research to evaluate whether the intervention was efficiently employed as a teaching method. Evaluation research in this study comprises the case study, sampling, data collection, data processing, data interpretation, validity and reliability as well as ethics.

2 Case study

According to Yin (2003, p. 15) “case studies have a distinctive place in evaluation research”. There exist different applications for case studies as research strategies. One of these applications is to “explore those situations in which the intervention being evaluated has no clear, single set of outcomes” (Yin, 2003, p. 15). The use of a case-study strategy to explore the outcomes of the ELISA project is an example of such an application.

This study was originally conceived as a design experiment but it turned out to be a case study because it completed only one iteration. Merriam (1998, p. 12) defines a case study as an “intensive, holistic description and analysis of a single unit or bounded system”. The ELISA intervention thus presented itself as a case study to me. I used the case study as a comprehensive research strategy to contribute to the growing body of scientific knowledge and theory.

Yin (2003) states that the utilization of case studies originated from the need to understand multifaceted social phenomena. The research strategy enables me to retain the significant characteristics of international relations and organisational processes between two HEIs in a North-South partnership. The main research question *What happens when two differing tertiary cultures meet around a common subject in a computer-mediated situation?* is an example of an exploratory question. According to Yin (2003, p. 6) “This type of question is a justifiable rationale for conducting an exploratory study, the goal being to develop pertinent hypotheses and propositions for further inquiry”. The ELISA programme is thus an example of an exploratory case study.

The study is based on qualitative evidence. Specific qualitative research characteristics are distinctive of the ELISA project. The study focuses on understanding the outreach process of the intervention and the meaning the role players have created. The “emic” voices (Merriam, 1998, p. 6) of the participants representing the insider’s perspective, is the main concern. The researcher fills the role of

the primary data-collection instrument. Data consist of documents, interviews and observation. She is also the primary instrument for data analysis. The collection of data involves fieldwork that requires the researcher to physically go to the participants and attend the activities to collect the data. The study follows an inductive research strategy that builds toward theory and hypothesis. The study is richly descriptive, emphasising the participants' own words and experiences to support the outcome of the study. Instead of employing an emerging, flexible design the design was specified ahead of time. The reason for this is that the design had to be specified before Stanford could acquire funding from the Whitehead Foundation. A non-probabalistic, purposeful sample is selected in order to obtain "rich and thick" information (Merriam, 1998, p. 211).

3 The intervention

This section will describe the intervention using the "ADDIE" model. The ADDIE model (Bichelmeyer, 2004; Hoogveld, Paas, Jochems, & Van Merrienboer, 2002; Kenny, Zhang, Schwier, & Campbell, 2005; Lohr, 1998; Molenda, 2003; Peterson, 2003; Shervey, 2007) comprises five stages namely Analysis, Design, Development, Implementation and Evaluation. I will employ this model to describe and evaluate the ELISA intervention.

3.1 Analysis

The analysis of the intervention is crucial and explores the goals of the learning experience, the learners, the media, the time frame and the cost of the exercise (Shervey, 2007). A needs assessment is an essential part of the analysis (Peterson, 2003) and determines the needs of the audience. Gagné, Briggs and Wager (1988); Peterson (2003); Dick and Carey (1996) define a needs analysis as the gap between the current state of affairs and the desired state of affairs. Gagné et al. state that "perceived or felt needs" (1988, p. 23) sometimes form the basis for curricular decisions. According to Reeves and Hedberg (2003, p. 129) the two most significant aspects of any needs assessment are "the list of objectives the product will address and a high-level description of the design".

3.1.1 Goal analysis

The goal of the project is to enhance the learning opportunities for previously socially and educationally disadvantaged learners; to develop critical thinking skills and dispositions; and to create a universal consciousness and understanding in tertiary learners from transitional societies. The purpose of this involvement is to foster an intellectually empowered generation of upcoming business leaders, community leaders, and leaders in the government.

3.1.2 Target population analysis

The participants were all higher education students. No special criteria in terms of race, sex, and age range were applied. No inducements were offered to the participants. The only motivation was to participate in an exceptional international distance-learning experience. The expertise of world-famous international and national environmental specialists was made available to them. This opportunity resulted in broadening the participant's perspectives on issues of global importance.

3.1.3 Media analysis

The programme consisted of the following components: WebCT6 Campus Edition, Compact discs (CD-ROMs), presentations, video conferences, telephone conferences, handbooks, face-to-face sessions and tutor classes. The intervention did not involve any physical lectures because the course was taught technologically.

3.1.3.1 WebCT6

The designers used WebCT6 as learning management system to provide the syllabus and support material. Options of WebCT6 included three main sections namely Build; Teach and Student View. The Teach option included the following: Course Tools, Course Content; Announcements, Assessments, Assignments, Calendar; Chat, Discussions, Learning Modules, Mail, Media, Search and Who's Online. The course tools gave directions to the appropriate web page where the course content could be accessed. Announcements indicated important messages regarding the ELISA project while assignments were given ahead of time. The lecturer or team member could view the students' assessments, use the calendar to plan activities, use the chat option and select discussions to communicate with students or colleagues. Learning modules showed the different curriculum units, while the mail option of WebCT6 enabled further communication. Who's Online enabled synchronous communication. The search option enabled the user to access the required information.

My Tools consisted of My Grades, My Files, My Progress and Notes. WebCT6 enabled synchronous and asynchronous communication. Students could use WebCT6 in order to keep track of their grades, progress of files and to make notes. Individual student performance is regarded as personal information and only available to the specific student. The following options of WebCT6 reflected on the Individual Student Performance Reports: Mail; Discussions; Calendar; Chat; Assessments; Assignments; Web Links; Folders; Files; Media Library. Assignments and Course Content were the most important elements of the learning management system.

3.1.3.2 Compact discs

WebCT6 was at the students' disposal on campus. However, inconsistent and slow internet connections resulted in inadequate access to WebCT6. This necessitated the reproduction of the lectures on CD-ROMs. Each student received seven CD-ROMs containing all fifteen lectures.

3.1.3.3 Handbook

The designers prescribed Global Environmental Politics (2006) by Chasek, Downie and Brown as supplementary reading material for the project. Due to copyright restrictions the content of the book could not be reproduced. The Stanford academic team therefore sent five copies to TUT. The students used these in rotation to access the reading material.

3.1.3.4 Face-to-face sessions

The TUT academic team organised six contact sessions with the students. Particulars of these sessions are illustrated in table 12:

Table 12: Contact sessions

Contact sessions	Dates	Presenters	Attendees
1	3 February 2006	Head of the Department of Journalism at TUT; Participant-observer	Head of the Department of Journalism at TUT; Participant-observer; Students
2	10 February 2006	TUT team leader; Head of the Department of Journalism at TUT; Stanford team leader; A consulting associate professor; 1st Stanford Teaching assistant; 2nd Stanford	TUT team leader; Head of the Department of Journalism at TUT; Participant-observer; Technical assistant from Telematic Education, TUT; TUT Technical team; Students

		Teaching assistant	
3	10 March 2006	TUT team leader; Head of the Department of Journalism at TUT; A consulting associate professor	TUT team leader; Head of the Department of Journalism at TUT; Participant-observer; Technical assistant from Telematic Education, TUT; TUT Technical team; Students
4	31 March 2006	Stanford and TUT academic teams; Students	TUT team leader; Head of the Department of Journalism at TUT; Stanford team leader; Associate Professor of Education (Teaching); Stanford team member; Participant-observer; Technical assistant from Telematic Education, TUT; Students
5	9 June 2006	Participant-observer; Facilitator from Telematic Education, TUT;	Participant-observer; Facilitator from Telematic Education, TUT; Technical support assistant from Telematic Education, TUT; Students
6	9 June 2006	TUT team leader; Head of the	TUT team leader; Head of the

		Department of Journalism at TUT; A consulting associate professor	Department of Journalism at TUT; Participant-observer; Technical assistant from Telematic Education, TUT; TUT Technical team; Students

3.1.3.5 Video conferences

Three video conferences of one hour each were held. The first video conference served as an introduction of the South African team and the Stanford team to virtually meet each other and to communicate synchronously. The second video conference had a specific theme while the third consisted of a “theory” lecture in the video conference. This contact session concluded the pilot phase of the project.

3.1.3.6 Presentations

The incorporation of a variety of ICT technologies necessitated the presentation and the hands-on training sessions with these technologies. During the initial contact session an ITC expert from TUT gave an introduction on WebCT6. This consisted of a theoretical explanation of the functions of the platform as well as a hands-on training session during which the students could get acquainted with different aspects of WebCT6. The environmental expert presented two lectures, the first being a Microsoft Power Point slide show at the video conference. The technical assistant gave a presentation on the i-mate PDA 2k during a face-to-face contact session with the students. Together with the i-mate PDA 2k each student received a complete Windows Mobile Quick Start Guide and a Windows Mobile User Manual. The PDAs were charged before the presentation in order to accomplish a hands-on session. The assistant explained the different parts of the tool as illustrated in the Quick Start Guide (Windows, 2006a). He explained the position of the SIM card and battery, how to switch on the phone on and make a call, how to synchronise with ActiveSync, how to Surf the Internet, how to use the camera and capture a photo or video, how to send a SMS and MMS and the meaning of the different programme icons. He referred to the contents of the User Manual (Windows, 2006b) and advised the students to use the manual in order to proceed with this multi-functional tool. A hands-on session followed during which the students made use of the phones.

3.1.3.7 Personal Digital Assistants (PDAs)

Stanford expressed their interest in wireless and handheld technologies due to the fact that "these technologies are more ubiquitous in South Africa than in the United States or Russia" (Stanford team leader, personal communication, April 24, 2006). The purpose of the PDAs was to enhance mobile communication and to explore the possibilities of an augmented hands-on approach to the project. The goal of the mobile aspect was to enable the students to use their PDAs to perform a multitude of functions. This study, however, forms part of the pilot phase of the ELISA project and the academic teams decided that comprehensive research on the PDAs will *not* be part of the pilot phase but would fit better in later studies.

3.1.4 Time analysis

The ELISA project was envisioned as a two-year project running from September 2005 to August 2008. Two years became three years with the first year as a pilot phase and the second and third years as full project years. The pilot phase began with the design and implementation procedures in the fall of 2005. The course offering coincided with the beginning of the South African academic year in January 2006. The first face-to-face meeting between the South African academic team and the students took place on 3 February 2006 and the course ended on 9 June 2006. The qualifying students received their certificates on 28 August 2006 at a certificate ceremony held at TUT.

3.1.5 Cost analysis

The Whitehead Foundation in the United States was interested in *supporting work in South Africa* while focusing on international security issues. This resulted in the funding of the ELISA project in South Africa. The amount of Stanford's request to the Foundation was originally scheduled at $500,000 for the entire three year period. The full budget amount, however, had to be less than $500,000 resulting in a request for $485,862. A copy of the budget (Annexe J) is attached.

3.2 Design

The design of the project was specified in order to acquire funding from the sponsor. Because of this the exact specified design is described here as an example of a typical curriculum compiled by Northern hemisphere experts for use in a Southern hemisphere HEI.

The course author identified “five basic perspectives from which to understand why environmental problems arise and how we can solve them: What conditions produce agreements between countries to resolve problems? What types of rules prove most successful at inducing compliance? What sorts of trade-offs must be made between broad membership and stringent standards? How do we evaluate whether a treaty has been effective or successful? How do nations improve treaty effectiveness over time?” (Stanford team leader, personal communication, 2005). The idea was that objectives should be met by providing the syllabus, support materials for the project and formulate assignments as consistent question formats.

The Stanford team and the TUT team formulated the following assignments (WebCT6: IDL 102 International Environmental Policies Assignment Dropbox) for the course:

Assignment 1: Due Friday, 24 February 2006

“Identify one environmental problem that you think is internationally important and formulate its causes and possible solutions. Why is this problem important? What are the possible consequences of ignoring it?”

Mini-assignment: Due Friday, 17 February 2006

“Please submit 2 reflections or questions about this week’s readings and lecture. I encourage you to provide thoughts on the reflections and questions of others, as well”.
Sustainable Development Assignment: Due Thursday, 9 March 2006

“Use the website we have recommended to read different perspectives on sustainable development. Using arguments from 3 different sources and your own personal experiences with development, decide which side of the sustainable development debate you stand on: One side argues, in general, that in order to achieve sustainable development you need to prioritize reducing poverty and promoting economic development before you can prioritize protecting the environment. The other side of the debate argues that protecting the environment is necessary to reduce poverty and promote economic development. When citing an article or using a quote, explain where you found the information and why it is a credible source”.
Recommended resources and websites”
http://nrm.massey.ac.nz/changelinks/Susdevenv.html
http://www.un.org/esa/Sustdev/

Assignment 2: Due Friday, 24 March 2006

"Please respond to ONE of the following: Using the Internet (for example, Mail & Guardian online) identify a South African environmental issue getting significant attention in the media. Based on the different approaches/perspectives presented in the lectures and readings, (scientific, eco-philosophical, political, economic and legal) which approach/perspective is the media adopting to this issue? Do you agree with the selection of this approach/perspective? If you were the reporter, how would you address this issue similarly and/or differently?"

OR

"There are different points of view about sustainable development (SD). Some believe that sustainable development is desirable and feasible; others think that SD is desirable but not possible; still others think that SD is neither desirable nor feasible. Develop your argument about one of these views. Give an example".

Assignment 3: Due Friday, 21 April 2006

"Identify one South African environmental NGO. By researching its website and/or interviewing someone at the NGO, describe its goal, resources and tactics".

Assignment 4: Due Friday, 12 May 2006

"There are positive and negative consequences to free trade. Name several positive and several negative effects of free trade to environment. Choose your position in the debate about free trade effects on environment. Defend your point by developing an argument about one or two positive or negative consequences of free trade".

OR

"Research the role of the World Bank in South Africa. You may find information from the World Bank website, in South African news resources or by contacting South Africans working for the Bank on its projects. The lecture describes both positive and negative perspectives on the role of the World Bank. Do you feel the effect of the World Bank in South Africa is positive, negative, or both? Why?"

Mini-Assignment: Due Monday 22 May 2006

"Look at the document Transnational Protection of Biodiversity – South African Peace Parks
1 Give short, but complete answers to the questions under *2. Motivation.*
2 Describe the concepts of biodiversity as asked under *3.1 International Law"*.

Assignment 5: Due Friday, 2 June 2006

"With reference to the most recent information that you can find as journalists, discuss the benefits that peace parks hold for Southern Africa. Concentrate on the improvement of sustainable development through increased environmental, development and economic opportunities, but also refer to the numerous obstacles that the peace parks currently encounter: For example unrealistic expectations, difficulty in attracting tourists, foreign land use and lack of involvement or ill-preparation of local communities, opposition from local communities for example the Nama, Makulele and San peoples (background on ONE of these cases), inequality between the different states, lack of resources, etc. Also keep in mind that a main supporter and financier of the concept, the industrialist and philanthropist, Dr Anton Rupert, died recently. Are these projects sustainable? In other words, will the governments of the different states concerned be able to meet their legal obligations of transnational biodiversity protection in the absence of assistance from the private sector and NGOs? Write as a feature (500 – 600 words)".

Final Mini-Assignment: Due Thursday, 8 June 2006

"Identify a future policy challenge for South Africa. Why is this a challenge? Discuss the range stakeholders involved in this issue (for example: government, citizens, NGOs, industry, international community) and the perspectives they are likely to adopt. Where do you stand on this issue? This should be an editorial piece, approximately 250 – 300 words. If you prefer, you can submit a video clip of comparable length – creativity is encouraged! There do not need to be academic references except identifying sources when necessary".

3.3 Development

The course was called IDL 102: International Environmental Politics and was originally developed by the Stanford Institute for International Studies Initiative on Distance Learning. The developers compiled a tailor-made syllabus to ensure that the syllabus was suitable, sensitive and relevant
The course incorporated the expertise of the following guest lecturers to each develop a lecture for inclusion in the course:

Table 13: Suggested lectures

Themes	Presenters	Disks	Lectures
Course introduction: Environmental Politics for Journalists	Stanford course author	1	1
Evaluating policy impacts	Stanford course author	1	2
A scientific perspective	Guest lecturer, Stanford	1	3
Ecophilosophical and political perspectives	Stanford course author	2	4
Economic and legal perspectives	Stanford course author	2	5
Non-state actors	Stanford course author	2	6
How to conduct a good causal argument	Stanford course author	3	7
Problem identification theory; Negotiation theory; Compliance theory	Stanford course author	3	8
Negotiations theory	Stanford course author	3	9
Compliance theory	Stanford course author	4	10
Relative regime effectiveness: Whaling and ozone protection	Guest lecturer	4	11
Environment and security	Stanford course author	4	1`2
Transnational protection of biodiversity – South African peace parks	UP guest lecturer	5	13
Free trade and the environment	Stanford course author	5	14
The World Bank and the financing of	Stanford course author	6	15

environmental protection			
Eco-tourism	UP guest lecturer	6	16
Transnational atmospheric pollution and climate change	UP guest lecturer	7	17

3.4 Implementation

The implementation of the programme started with the delivery of the product. Various components of the project such as CD-ROMs, WebCT6, handbooks, face-to-face contact sessions, video conferences, presentations and PDAs were used to implement the project. Evaluation and revision took place throughout the implementation phase to ensure effectiveness. The first teaching assistant evaluated assignments throughout the course and gave her feedback promptly. The guest lecturer evaluated the assignments that were his responsibility. The leader of the TUT team moderated the assignments and marks, filled the role of mediator between the students, and the academic and research teams. The participant observer performed liaison services between the students and the abovementioned teams. The technical assistant solved WebCT6 and other technical problems.

3.5 Evaluation

The necessity of continuous evaluation is one of the key concepts in the determination of the effectiveness of the project. Peterson (2003) states that “The ADDIE framework is a cyclical process that evolves over time and continues throughout the instructional planning and implementation process”. Stanford continuously evaluated and reconsidered the original model that they used in the former Soviet Union and Eastern Europe. They used the feedback from the local instructors and students to revise and adapt the pedagogy and content.

Evaluation in terms of curriculum is defined as “an ongoing process used to determine whether lesson objectives have been met, to identify the reasons for the observed performance, and to identify those portions of a lesson where modifications are required” (Hannafin & Peck, 1988, p. 299). Similar to curriculum evaluation, the pilot phase of the project was evaluated cautiously before effectiveness and a successful intervention could be accomplished. Formative evaluation of the ELISA project was a continuous process that aimed at improving the results of the evaluation. Because of Stanford’s premature decision to discontinue the project, modifications to identify deficiencies in order to

determinate and isolate the reasons for those deficiencies were not considered. Summative evaluation involved a final decision regarding the effectiveness of the project.

4 The research

4.1 Sampling

The developers used a specific sampling strategy (Cohen et al. 2002). In the non-probability sample the TUT team selected fifteen third and fourth year Journalism students. The participants represented English, Afrikaans, isiZulu, Sesotho and Indian cultures. Mother-tongue speakers, multilingualism and command of language played an important role in the programme. Commitment to the programme was the main criterion in order to ensure cooperation and completion of the course.

The TUT team applied no special criteria in terms of race, sex and age in the selection of participants. The participants were all over the age of 21 as they were third and fourth year students. Stanford originally designed the intervention for socially and economically disadvantaged participants. The sample size was limited due to the grant that TUT and UP received.

4.2 Data collection

Data collection comprise online documents, project documents, minutes of meetings, minutes of telephone conferences, transcripts of interviews, a transcript of the focus-group interview, observation notes, face-to-face contacts and recordings of video conferences. Table 14 illustrates the outcomes that the data-collection instruments yielded.

Table 14: Data Collection Instruments

Data collection instruments / Research questions	Online documents	Project documents	Minutes of meetings	Telephone conference	Interviews	Focus-group interview	Observation	Face-to-face	Video conference
What happens when two differing tertiary cultures meet around a common subject in a computer-mediated situation?	✓	✓		✓	✓	✓	✓	✓	✓
What happens when an international learning module, compiled by an American university is adapted for a South African HEI, and implemented in a computer-mediated context?	✓	✓	✓		✓	✓		✓	
What dialogue emerges and why does it emerge?	✓	✓	✓	✓	✓			✓	✓
How and why is shared meaning created?	✓	✓		✓	✓				✓
How do we deal with cultural differences?	✓	✓			✓	✓	✓	✓	✓
Which aspects of the process work well and why and how can it be improved to compensate for those that do not work well?	✓	✓			✓	✓	✓	✓	
Which aspects do not work well and why and how can they be improved?	✓	✓			✓	✓	✓	✓	

4.2.1 Documents

In this case study I used a variety of documents such as online documents, project documents, minutes of meetings, and minutes of telephone conferences as data-collection instruments. Online documents are the major source of information in this programme that was technologically taught. I used online documents compiled in the early stages of the programme to understand the concept of what happened when two differing tertiary cultures meet around a common subject in a computer-mediated situation (Table 14, question 1). I also used it to familiarise myself with what happens when an international learning module, compiled by an American university, is adapted for a South African HEI, and implemented in a computer-mediated context (Table 14, question 2). I did this because Guba and Lincoln, as cited in Cohen et al. (2002) emphasise the fact that if an event happened, there must be an official record of it. I used online documents to gather background information on the origin of the project and to reveal information thus far unknown to me. This background information pertains to the abovementioned two questions. Merriam (1998, p. 114) refers to the fact that documents can reveal information about the programme “that has taken place before the evaluation began”. The use of online documents in this regard is also motivated by the fact that Patton, as cited in Merriam (1998), states that documents disclose goals or decisions previously unknown to the researcher. Yin (2003) argues that documents have a broad coverage as they cover many events and many situations over a long time span. Another reason for using online documents to gather information regarding the abovementioned two research questions is that it is easily accessible and relatively inexpensive (Merriam, 1998). I used the minutes of meetings with role players to collect important information about the implementation and adaptation of an international learning module in a computer-mediated context (Table 14, question 2). The motivation for this is the statement by Patton, as cited in Merriam (1998) that official or unofficial documents provide important information about the project. The minutes of meetings, as well as the minutes of the telephone conferences contributed toward the understanding of what dialogue emerge and why it emerges (Table14, question 3). The telephone conferences provided background information about the project (Table 14, question 1) as well as on the creation of shared meaning (Table14, question 4).

Online documentation enabled me to understand what dialogue emerged and why it emerged (Table 14, question 3). I used email to obtain a clear understanding of the exchange of ideas between partners that emerged because Yin (2003) emphasises that the exact particulars regarding a project should be accessible. I employed online documentation to create shared meaning with the Stanford team (Table 14, question 4). Shared meaning is created through common incentives, common adversaries and common purposes. Common purposes resulted in cooperation and that was facilitated by email and the file-transfer protocol. I did this because Merriam (1998, p. 128) refers to “electronic paper” that are transferred online. Yin (2003) points out that due to the flexibility of the retrieval process the researcher can perform the research at her convenience. Yin (2003, p. 86) adds

that using documentation as a data-collection instrument is a stable way of conducting the research. Data can be reviewed repeatedly and unobtrusively. In other words, data are not created as a result of the case study". I also used email to determine how we deal with cultural differences (Table 14, question 5). According to Riley, as cited in Merriam (1998) documents may be the only source of information such as cultural differences.

I used researcher-generated documents to obtain information on questions that involve the positive and negative aspects of the programme. (Table 14, question 6 and question 7). This is because Merriam (1998) argues that these documents can provide data that would otherwise not be easily accessible. Another reason to use researcher–generated documents in this regard is to obtain knowledge about the dichotomous aspects of the programme. This is the result of Merriam's observation that the purpose of researcher-generated documentation is to enlighten the researcher about the circumstances, the people or the event being investigated. I also used researcher-generated documents that I obtained from the focus-group interview to understand how the students experienced the positive and negative aspects of the programme. I used project documents to obtain the best possible data to present information on the positive and negative aspects of the programme. According to Dexter, as cited in Merriam (1998, p. 125), documents "should be used when it appears they will yield better data or more data…than other tactics". I used documents in this regard to gather information about the positive and negative aspects of the programme.

4.2.2 Interviews

Interviews were used as a data-collection instrument in order to obtain information and get responses to all the research questions. The focus-group interview also contributed to this collecting of data when the facilitator asked the interviewees open-ended questions in order to get an idea of what happens when two differing cultures meet around a common subject in a computer-mediated situation. I also specifically wanted to know what happens when an international learning module compiled by an American university is adapted for a South African HEI, and implemented in a computer-mediated situation (Table, 14 question 1 and question 2). I did this is because Yin (2003) states that as a result of the open-ended nature of the questions the researcher can ask the interviewee about factual information regarding the events. Cohen et al. (2002) support this notion by saying that the interview may be used as "the principal means of gathering information having direct bearing on the research objectives".

I employed the open-ended questions to let dialogue emerge (Table 14, question 3). The line of questions that I asked yielded indispensable information in dialogue form because the interview "will appear to be guided conversations rather than structured queries" (Yin, 2003, p. 89). According to

Merriam (1998) an interview can be described as a purposeful conversation in order to obtain specific information. The information that I got from the interviews shed light on the creation of shared meaning (Table 14, question 4). Shared meaning is based on common denominators such as joint trust and joint purposes. In this regard Tuckman, as cited in Cohen et al. (2002, p. 268) points out "By providing access to what is inside a person's head", [it] makes it possible to measure what a person knows (knowledge or information), what a person likes or dislikes (values and preferences), and what a person thinks (attitudes and beliefs)". I used the interviews to gather data about how we deal with cultural differences (Table 14, question 5). According to Kerlinger, as cited in Cohen et al. (2002) it might be employed to explore unexpected results.

I used the interviews and the focus-group interview to obtain the interviewees' and the participants' viewpoints on the positive and negative aspects of the programme (Table 14, question 6 and question 7). This afforded them the opportunity to reflect on their expectations of the programme and whether these expectations had been met. This correlates with Yin (2003) when he states that key respondents can give factual information as well as their opinions about specific aspects of the situation. Kitwood agrees when he refers to an untainted, information transfer, as well as a transaction that has bias (Cohen, et al. 2002).

4.2.3 Observation

I used unstructured observation to find out what happens when two differing tertiary cultures meet around a common subject in a computer-mediated situation (Table 14, question 1). This data-collection instrument yielded information on the context of different situations. Patton, as cited in Cohen et al. (2002) refers to this situation as the opportunity for a researcher to get an idea of what happens *in situ* rather than a second-hand review of it.

Observation afforded me the opportunity to get the participants' perceptions of aspects that worked well and aspects that did not work well. This is propounded by Silverman, as cited in Cohen et al. (2002, p. 313) who distinguishes between the etic approach and the emic approach to data. The emic approach fits in with qualitative research "where the definitions of the situations are captured through the eyes of the observed". I filled the role of participant observer and that enabled me to yield valuable information regarding aspects that worked well and aspects that did not work well. This afforded me the opportunity to gain access to the activities and the participants that would otherwise have been impossible (Yin, 2003).

Observation done during the face-to-face contact sessions yielded information regarding the question on cultural differences (Table 14, question 5). As participant observer I gained by the opportunity to identify some of the situations as *insider*, rather than an *outsider* to it (Yin, 2003).

4.2.4 Video conferences

I employed the video conferences to yield verbal and non-verbal data in order to understand *what happens when two differing tertiary cultures meet around a common interest in a computer-mediated situation* (Table 14, question 1). Cohen et al. (2002) emphasise the fact that non–verbal communication often provide more information than verbal communication. I used this to shed light on the contact between the role players as non-verbal communication revealed significant data about the participants' attitude and stance to the phenomenon under discussion.

The use of video data allowed for the interaction to be recorded in context. According to Mishler, as cited in Cohen et al. (2002), contextual facts are important. Because video data are potentially exciting material, I used it to gather information on *How do we deal with cultural differences* (Table 14, question 5).

5 Data processing

I used ATLAS.ti™ to capture the data that I obtained through data collection. I chose ATLAS.ti™ because I had an enormous amount of data and any amount of text could be coded as one unit. I entered all the appropriate primary data material into the hermeneutic unit through direct keyboard entry.

6 Data interpretation

I used ATLAS.ti™ to facilitate the analysis and interpretation of the data. Data analysis is a developing process which involves all the stages of the programme. I analysed the data that I obtained simultaneously during the data-collection process. While reading through the collected data I identified various different connotations. I selected and divided data systematically into manageable ideas, patterns, trends and correlations (Mouton, 2001). I then coded my notes and grouped them into categories. I then synthesised and interpreted it. Ongoing data analysis ensured that the data stay focused and repetition did not occur. I used crystallization as a technique to reflect on the research and ensure validity and reliability. McMillan and Schumacher (2001, p. 463) state that "Crystallization seeks to open the analyst to data analysis, maximum experiences within the analytic style" while Eloff et al. (2002) accentuate the deep and complex understanding of the topic provided by crystallization.

7 Validity and reliability

Validity involves the concept of whether a researcher really observes what should be observed. I incorporated a variety of strategies to ensure internal validity. I accomplished triangulation by using multiple methods and data sources to substantiate emerging results. I included member checks by taking tentative findings back to the informants whom I had consulted. I integrated long-term observation of the phenomena under investigation by repeating my observations and requested colleagues to comment on the results, ensuring peer examination.

Reliability can be seen as the degree between the natural situation of the intervention and data that the researcher records. Reliability in the ELISA intervention included “context- and situation-specificity, authenticity, comprehensiveness, detail, honesty, depth of response and meaningfulness to the respondents” (Cohen et al., 2002, p. 120). I tried to do justice to the abovementioned features during the intervention in order to ensure reliability of the research process.

8 Ethics

Validity and reliability imply that the research was conducted in an ethical manner. It is of vital importance to trust research results as an intervention (Merriam, 1998, p. 198) took place in the TUT students’ lives.The purpose of research is to produce “valid and reliable knowledge in an ethical manner” (Merriam, 1998, p. 198). Trustworthiness of research results means that there is an explanation for their validity and reliability.

8.1 Voluntary participation

The purpose of the research is to determine the aspects that influence common meaning across cultures and to identify the aspects that cause differences among cultures. One of the team leaders explained the participants’ role in the project and emphasised that they might withdraw from the project at any time. The motivation was to participate in an exceptional international distance-learning experience.

8.2 Informed consent

The participants’ verbal consent to participate was obtained as well as their written informed consent in which it was stated that participation was confidential and that their identities would not be established. The research did not involve the participation of minors (under 18).The participants were

all over the age of 21 being third and fourth students and they could all legally consent to participation in the project. No special criteria in terms of race, sex and age were applied as the research was conducted at a multicultural Higher Educational Institution. A copy of a letter of Informed consent is attached (Annexe I).

8.3 Safety in participation

The participants did not risk any harm. The research did not require any dangerous physical activities, psychological exploitations or interactions or legal undertakings. Social endeavours comprised six contact sessions, three video conferences and one focus-group interview. During all these social interactions it was expected of the participants to communicate verbally with the presenters and fellow students. Participation was, however, voluntarily and varied according to the eloquency of the participants. The certificate ceremony comprised a prestige social interaction and was attended by the participants and the South African role players. A video recording of this event was made and presented to Stanford. The participants did not risk any harm during these social interactions.

Chapter 4: Findings and results

1 Introduction

In chapter three I outlined the research methodology and design of the study. This focused on the case study as research approach. In chapter four I will discuss the results and findings of the central and critical questions. The central question comprise the following: *What happens when an international learning module, compiled by Stanford, is adapted for a South African HEI and implemented in a computer-mediated context?* The critical questions comprise the following: *What dialogue emerges and why does it emerge? How do we deal with cultural differences? How is shared meaning created and why is it created? Which aspects of the process work well and why and how can they be improved to compensate for those that do not work well? Which aspects do not work well and why and how can they be improved?*

2 What happens when an international learning module, compiled by an American University is adapted for a South African HEI, and implemented in a computer-mediated context?

This central question includes aspects pertaining to the international outreach programme that I explored. These aspects involved issues such as cooperative learning, cooperation at organisational level, the international Digital Divide, how to bridge the Digital Divide, HEIs, the role of technology, cultural diversity and cultural differences. The potential research collaboration originated from a discussion between a research expert from UP and a Co-director from the SUIOP, Stanford, at a conference in Cuba in 2004.

The project started when academic delegates from UP explored the possibilities of cooperation between Stanford, UP and TUT. The purpose of the collaboration was to introduce an existing Stanford international security course to a South African HEI. It was decided that UP would play an investigative role and that other South African universities would be invited to participate in the project as South African partners whose students should benefit from the course. TUT was identified as a possible research collaborator and meetings were conducted with various representatives from UP and TUT. The purpose of the meetings was to encourage participation and to establish a potential strategic partnership network, resulting in UP and TUT as research collaborators. The original outreach programme resulted in a decision to run a programme that lasted 19 weeks while the research focus was International Environmental Politics. This initiative involved the Department of Post-Graduate Studies in Education, the Department of Journalism as well as Telematic Education at TUT. Fourteen third and fourth year part-time journalism students participated in the study.

Stanford had already initiated existing outreach programmes to HEIs in the former Soviet Union and some Eastern European countries. These programmes were running for approximately six years. The model entailed that Stanford brought a number of PhD students from these countries to Stanford for training in Social Sciences such as Political Science, Sociology and Anthropology. This model however, resulted in every student costing Stanford about $50 000 per year. This proved to be too expensive and therefore a more cost-effective model was considered. This model involved taking Stanford courses to students in their own countries, focusing on undergraduate students instead of graduate students. The Stanford team leader emphasised the fact that the rationale of the outreach initiatives to foreign institutions was not only to initiate collaborative research with foreign institutions but also to bring foreign courses to Stanford. The first teaching assistant mentioned that outreach programmes from HEIs such as Stanford to Sub-Saharan Africa entailed certain challenges to education. She was talking from personal experience as she had lived in Africa and had also visited numerous places in South Africa around 2000. According to her the ELISA programme certainly was a unique initiative, even at Stanford. The second teaching assistant also supported the idea of outreach programmes. For academic purposes she travelled to Tanzania in 2003 and showed a personal interest in rural areas. She compared the idea that education is taken for granted in the US to that of the rural East African region where that is not the case. In the latter instance she experienced that learners had less opportunities to be educated and to be exposed to new experiences than their counterparts in urban areas. This resulted in the East African students' desire to learn, being exposed to many things and thus to a greater appreciation for opportunities. While reading through the assignments that the ELISA participants submitted for grading and looking at the video conferences, she noticed a similar excitement among the students. According to her they revealed a bona fide interest in the programme and had a real desire to learn about the environmental issues at hand.

2.1 The international Digital Divide

2.1.1 The North–South phenomenon

The North-South phenomenon regarding the Digital Divide is clearly visible when the Stanford set-up is compared to the TUT set-up. The main difference is that while the majority of Stanford students are well-resourced the majority of TUT students are under-resourced. While visiting the Stanford campus I noticed that the possession and the use of computers and laptops amongst students is an indication of the affluence level at Stanford. I attended four contact sessions as a visiting guest at different Stanford schools. During these sessions it became clear that the use of laptops and supplementary technology was normal procedure for Stanford undergraduates and postgraduates.

The topic of the first lectures that I attended was *Ending civil wars: The implementation of peace agreements.* The auditorium was furnished with inter-active audio-equipment which enabled the

students to easily follow the lecture and even put questions and join in the discussion. More or less 200 students attended this lecture.

The second lecture that I attended was given by a Professor from the Stanford Center for Innovations in Learning (SCIL). The focus of the lecture was on the influence of innovations in communications technology on the learning process, thinking, and educational systems. The topic of the lecture was *Online learning communities* while the pedagogy was about *How to build a wiki*. The presentation outline covered aspects such as administration and questions about the students' online communities, overview of the prescribed readings, Web 2.0 collaboration-design challenge which lead to a discussion, application of Web 2.0 techniques to support learning activities, design solution, presentation and discussion, community participation and wrap-up. A full-time teaching assistant for the session was available while the lecture took place in the state-of-the-art Wallenberg Hall.

The third session that I attended was conducted by a Professor of Political Science. The topic of his lecture was the *Origin of the genocide in Rwanda.* Contrary to the previous two sessions the Professor did not use high-end technology but used board and chalk to explain to his undergraduate class what this conflict in Africa was about. He focused on power equality, the negative impact of colonialism and explained that conflict was almost always about control of the government. He expanded the discussion to European issues such as the autonomous provinces of Kosovo, Serbia and Montenegro, conditions before World War I, the basic background of World War II, up to the situation in Germany during the 1990s. Although this was a lecture conducted without state-of-the-art technology, most of the eleven students that attended had their own laptops with them.

The fourth session was conducted by a Professor of Education and (by courtesy) of Anthropology. The topic of the lecture that he conducted was *Housing patterns in West Oakland,* a suburb near Stanford. Students were divided into six groups and the assignment was to identify aspects that influenced housing patterns in a specific suburb. Students had the opportunity to map out the suburb, taking the following aspects into consideration: Negative environmental sites, property values, multi-family housing, police stations, public hospitals, free clinics, public transport, automatic teller machines (ATMs), minimum household income, commercial areas, shopping districts, bookstores, educational resources like community services, child care centres, libraries, high school districts and specialised schools. The emphasis of the lecture was on the purpose of education and each group had three minutes to collaborate and to present their feedback.

After attending these different lectures and contact sessions I realised that the use of educational technology played a significant role in teaching at Stanford. Applications of specialised techniques to support teaching and learning was standard procedure. State-of-the-art technical equipment was available to all lecturers. The Stanford team leader confirmed my finding by saying that "most of the

Stanford personnel and students are so tied to their computers and laptops" (Stanford team leader, personal communication, April 24, 2006).

Computers and Internet access can be regarded as an indication of the international Digital Divide. The Stanford team leader mentioned that it was standard procedure that Stanford students had twenty-four hours per day Internet access. The residences on campus were all equipped for this service. Large numbers of Stanford students were spending many hours in Cubberley Educational Library diligently applying themselves to their laptops and making use of the available research collections.

Contrary to these facilities at Stanford, there was no Internet access in the residences on the TUT campus. Students could book a one hour Internet session at the learning centre on campus. None of the ELISA participants, however, lived on campus since they were all working students. Internet access in the library was reserved for library staff. The ELISA participants had to do most of their research for the assignments on the Internet. During the focus-group contact session one of the students said that "most of the research is done on the Internet. You don't even go to the libraries anymore to look for the books" (Focus-group interview, 2006).

2.1.2 Digital Divides within

Apart from the international Digital Divide I noticed that there exists a Digital Divide within nations and populations. Adding to this I observed a cognitive divide amongst certain levels of the ELISA students. Different socio-economic backgrounds, opportunities and technological skills contributed to this situation. During the focus-group interview on 9 June 2006, however, it became clear that the opposite point of view regarding Internet access and connectivity was also valid. The results indicated that one of the positive aspects was that three of the students at TUT reported that they had fast, wireless connectivity, even at home:
"Mine was fast".
"Mine was quite fast".
"Mine was fast as well".
I once again realised that the *Digital Divide* could have been coined for South Africa.

When the students were asked about their perceptions of the programme the majority felt that the workload was too heavy. They replied as follows:
"The problem I had with the workload is that the assignments were posted about two days before it was due. That gave us too little research time".
"I did not do all the assignments".

One student, however, was unemployed and did not share the perceptions of the rest of the participants. He mentioned that:
"I don't think the workload was that heavy" and
"I think doing a 600 words assignment is really not that tough – it's very easy to do and it is very quick. The thing that takes the time is the research".

Contributing to this phenomenon of a cognitive divide within and between the students is the issue of the use of technology. All the students could use their PDAs to get Internet access although the air-time vouchers were only to the value of R150.00 per month for the length of the programme. Additional advantages were that the PDAs enabled fast connectivity and that they were wireless. Some students were better prepared to employ technology than others and made better use of it. The Stanford team leader pointed out that although the United States was a northern hemisphere country some of the Scandinavian countries had the edge over the US. This was technologically speaking due to some of these countries who had first developed mobile technology. In this Digital Divide within and between citizens the North–South dichotomy is not relevant but rather attributable to uneven development globally.

2.1.3 Factors contributing to the Digital Divide

Several contributing factors are responsible for the Digital Divide. These factors comprise income differentials, insufficient telecommunication infrastructure, geographical barriers as well as differences in human capital. The second video conference on 10 March, 2006, took place between Stanford and TUT and provided an in-depth indication of some income differentials. A Consulting Associate Professor from the School of Education was responsible for this session. Her research interests include the following: "international environmental policy making and the promotion of sustainable development" (Consulting Associate Professor, personal communication, 2006). Her initiatives involved development programs to reduce poverty, empowerment through local participation and decent management of natural resources. She did much of her research in East Africa and Central America. The topic of the video conference was *Sustainable development and the environment.* She emphasised the role of citizens in the environmental conservation process. She also emphasised concepts such as development, economic and social goals versus environmental goals and sustainability. The drastically increasing population in Honduras was compared to the population in Kenya. This African country faced severe agricultural challenges as only 10% of the land is suitable for farming. The average size of a farm in Kenya is less than 2 hectares while 3.5 million people faced starvation. She highlighted the fact that 2.8 billion of the world's population of 6.3 billion people in 2006 lived on less than 2US$ per day. It was obvious that the observed East African families that the Consulting Associate Professor reported on did not fall in the income bracket of the prestigious, affluent Stanford culture. I noticed that the ELISA participants as a group were more affluent than the

East African citizens that the Professor spoke about. Before the programme started the students verbally indicated that they would be financially able to participate in the ELISA programme. I found that income differentials played a decisive role in the Digital Divide within nations as well as between the North-South divide.

2.1.3.1 Insufficient telecommunication infrastructure

Uneven distribution of fixed telephone lines was a feature of the South African telecommunication scenario, especially in underserviced rural and urban areas. Maintenance of the telecommunication infrastructure also proved to be complicated. Telecommunication costs regarding telephone and Internet connections were excessively high and proved to be unaffordable for the majority of South Africans. Despite the fact that South African mobile tariffs were significantly higher than in some neighbouring countries, mobile technology has become very popular in South Africa. Currently [2009] the main mobile subscriber base in South Africa is 42.2 million out of a population of 49,320,500 (Government of South Africa, 2009). Stanford showed an interest to explore the effect of mobile technology on teaching and learning in South Africa. The Stanford team leader said that this initiative was because South Africa's cellular technology was more advanced than that of the United States. According to her 98% of TUT students owned a cellular phone at the time that the ELISA programme was launched.

2.1.3.2 Geographic barriers

On a global scale geographic barriers may influence the phenomenon of the under-resourced and the well-resourced. The Stanford team leader said that according to her the US was also geographically isolated and this resulted in other countries getting the edge over the United States. On a local scale geographic barriers in South Africa did not prove to be insurmountable. It was made clear from the beginning of the course that attendance of the contact sessions were mandatory. One student however, lived in Nelspruit and reported that travelling between Pretoria and Nelspruit (a distance of 334 km) proved to be time-consuming and costly. Most of the other participants of the ELISA project resided in Tshwane in the Gauteng province and did not encounter geographic barriers per se.

2.1.3.3 Literacy

It was clear that the ELISA participants were all handpicked students who were committed to the programme. They were either third or fourth year journalism students who regarded the intervention as a meaningful learning opportunity. They were all literate students who enjoyed at least 12 years of schooling and at least two years of tertiary education. Another instrument that supported the

abovementioned findings are project documents. It includes the summaries and recommendation that the students wrote after the focus-group interview. The students were all adequately literate and expressed their ideas in no uncertain fashion.

2.1.3.4 Language

The ELISA participants were Afrikaans, English, Indian, isiZulu and Sesotho mother-tongue speakers. The results indicated that with the exception of one student, all had a good command of English. This level of language proficiency was indispensable since it is one of the official languages of TUT. English was also the official language in which the programme was conducted. The curriculum involved prescribed readings, video-taped lectures on CD-ROMs, research on the Internet, assignments, interaction with fellow students and members of the academic, research and technical teams, face-to-face contact sessions, video conferences as well as feedback. The Stanford team leader supported my findings regarding the importance of language proficiency. She referred to English as the lingua franca of the world. The participants in the Russian outreach programmes expressed their wish to learn about the United States and the American perspective. They concluded that they wanted to learn it in English because “that’s how we understand American culture” (Stanford team leader, 2006a).

2.1.3.5 Culture

I found that language is an important tool in the communication processes between students from different countries. It is even more so in Social Sciences than in Natural Sciences. Contextualisation and adaptation of the content was of vital importance in order to ensure success. The original design of the IEP programme that was previously presented to the Russian HEIs was adapted to include issues of importance for South African students. This resulted in the omission of two of the original seventeen lectures and the selection of fifteen lectures, representing some South African content in two of the lectures. The Head of the Department of Journalism at TUT commissioned a guest lecturer from UP to compile two lectures on local issues. This resulted in assignments on the *Transnational Protection of Biodiversity – South African Peace Parks* and *Benefits that Peace Parks holds for South Africa.* The second teaching assistant supported my findings on the importance of contextualization. She informed me that she included the South African Government’s Green Policy Papers in the readings to expose the students to challenging environmental issues.

The Stanford team leader reiterated the findings related to the role of culture as a contributing factor to the Digital Divide. She contemplated the option of merely translating prescribed material to that of cultural adaptation of the curriculum. A Director of the FSIIS supported the findings on the adaptation

of the curriculum. He said that Stanford was striving to present a curricular unit “that is as fully integrated into South African life and culture as it can be” (Director of the FSIIS, personal communication, 2006).

2.1.3.6 Commonalities and differences

The focus of the study was on the commonalities as well as the differences between the well-resourced and the under-resourced that existed between the two sides. The UP team leader explained the international Digital Divide by saying that if something becomes more global, its local relevance decreases, and when something becomes more local, its global competitiveness will decrease. A Director of the FSIIS also supported this finding when he mentioned that the local/global balance is of utmost importance. Local input was indispensable (Director of the FSIIS, personal communication, 2006). Some of the students expressed similar ideas during the focus-group interview.

2.2 Initiatives to bridge the Digital Divide

Differences between the two sides were inherent part of the team members. This necessitated an investigation into attempts to surmount the differences and reach middle ground in this very diverse cultural initiative. There exist several initiatives to bridge the Digital Divide. These initiatives included economic growth and development, human capital investment, Internet literacy, Internet access, technology diffusion and telecommunication infrastructure.

2.2.1 Economic development and growth

The ELISA programme, in particular, is an example of economic support in order to try and bridge the Digital Divide. The Whitehead Foundation in the US funded the ELISA programme in South Africa. Stanford originally requested $500 000 for the entire three year period. This resulted in an amount of $485 862 that was consented to due to the fact that the full budget amount had to be less than $500 000. A Co-director of the FSIIS supported my finding when he informed me that “my colleague and I talked with a US-based Foundation that expressed a very strong interest in providing us with a seed/planning grant to work with universities in South Africa” (Co-director of the FSIIS, personal communication, 2006).

2.2.2 Human capital investment

One of the main rationales for the outreach programme was the development of human capital. The purpose of the SUIOP was to cooperate with international partners such as UP and TUT in creating, designing and evaluating a wide-ranging and suitable e-learning programme. The ELISA programme, an international project of the SIIS, complemented Stanford's renewed commitment "to raise its international profile by identifying issues of global importance and then providing resources, expertise and answers" (Delgado, 2004). This initiative resulted in the motivation of the TUT students by developing new interests and enthusiasm for environmental issues, thus developing human capital.

Several of the role players acceded to this initiative to foster human capital. A Director of the FSIIS stated that one way to develop human capital was to teach the students to think critically. He accentuated that the development of an adequate skills set of how to filter through excessive information obtained from the Internet, needed attention. The students had to be empowered to distinguish between important and less important information (Director of the FSIIS, personal communication, 2006). The Stanford team leader expressed similar ideas, emphasising that critical thinking skills had to develop into dispositions. This entails the ability and willingness to use critical thinking skills. She expressed her overall motivation of empowering the students with a worthwhile exercise. She would be more than satisfied to hear them say: "I am really glad I did that" (Stanford team leader, personal communication, 2006). The second teaching assistant supported the above findings. She stressed the development of critical thinking skills as well as dispositions. She mentioned that during the video conferences one or two students took the lead while the rest of the students observed the situation and took note of what was happening. She said that she would have preferred to engage every student in the discussions, thus improving educational prospects by using technology at its best (Second Stanford Teaching Assistant, personal communication, 2006).

The Co-director of the FSIIS agreed with the above findings on the development of human capital. He explained that Stanford divided a large lecture class of 300 students into smaller seminar groups. These groups met with teaching assistants that revised the previous week's lectures. During these seminars students could clarify misconceptions and provide feedback to the teaching assistants who reported key challenges to the Professor. The purpose of these procedures was to improve communication and motivation between students and lecturing staff. Another initiative to produce human capital was to develop a web site on problems based on the previous week's lectures. They used multiple choice and open-rationale questions. The latter offered academic staff the opportunity to "look into the thinking of the student" (Co-director of the FSIIS, personal communication, 2006). Feedback was given on the students' progress, and the teaching assistants reported back via email. This provided the academic staff the opportunity to firstly give feedback, secondly, receive feedback and, thirdly, support communication. It resulted in motivation and inspiration amongst the students,

thus enhancing human capital. During the lectures that I attended I found that two of the lecturers focused on cooperative learning. The students worked collaboratively in small groups and could learn from fellow students. The main focus of these activities was to encourage participation and foster human capital.

The first teaching assistant also supported the findings on human capital investment. She expressed the hope that the programme would be a great learning experience for the students. She highlighted feedback and mentioned that she strove to be a resource for the students by being available to meet their needs (First Stanford Teaching Assistant, personal communication, 2006). Apart from her asynchronous online availability she initiated virtual office hours during which she would be synchronously available. This endeavour, however, did not materialise due to the fact that the students were working and did not enjoy the luxury of free time when it was appropriate.

I determined that the students found the programme to be very informative. All the students reported that they had benefitted from the learning exercise and that the value of the programme was crucial for journalism students. Regarding human capital development I found that the goal of the ELISA programme was fulfilled since the students were empowered in numerous ways and introduced to several new avenues of study possibilities.

2.2.3 Internet literacy

Internet literacy was a prerequisite to successful Internet use. A Director of the FSIIS referred to the fact that the students often needed guidance in order to do significant research. He attributed this tendency to the fact that information on the Internet was mostly unfiltered. The students needed to learn the skills to do searches efficiently by critically distinguishing between important and unimportant information. According to him students in Russia, Stanford and South Africa needed to learn this.

2.2.4 Internet access

Some of the students reported that the availability of broadband Internet access would really add to the success of the programme. This would enable them to access the readings, do research on the prescribed topics, successfully logon to the management learning system WebCT6 and submit their assignments in time. The inability to logon to the Internet meant that the assignments of some students were submitted late. Contrary to these findings a few students reported that they had fast, reliable Internet connectivity (Focus-group interview, 2006).
“Mine was fast”.
“Mine was quite fast”.

“Mine was fast as well”.

Some of the students found the PDAs useful to obtain Internet access. The integration of the PDAs with WebCT6 could maximise the potential of the learning experience. One of the students remarked that the PDAs “could help us a lot more, sort of logistical issues about then getting the video clip action to be uploaded on WebCT6” (Focus-group interview, 2006). The permanent use of the PDAs could also contribute to Internet access as students would be more at ease with the new technology.

2.2.5 Telecommunication infrastructure

The development of the telecommunication infrastructure contributes towards the efforts to bridge the Digital Divide. However, this resulted in two students reporting that they could not access the Internet while they were in rural areas such as Hartebeespoort Dam in the Gauteng province. Nelspruit in the Mpumalanga province also proved to be problematic due to hampered telecommunication infrastructure. She said that “When I am here [Tshwane] it works perfectly, but if I am in Nelspruit, then I have problems” (Focus-group interview, 2006).

3 Higher Education Institutions

The escalating demand for higher education is a well-known global phenomenon. Stanford started outreach initiatives to transcend traditional academic boundaries. The purpose was to launch e-learning programmes for HEIs in specific regions on the globe. The ELISA programme was an example of such an intervention where working students could further their careers without leaving the work place. The Stanford team leader referred to the fact that round about 2001 significant debate on distance education commenced. Virtual education was supposed to be panacea. This resulted in the phenomenon that higher education was open to all kinds of people. The University of Phoenix in the United States is an example of a for-profit online school. This virtual online setting had a good business model and targeted specific audiences. The success that they had bred more success, resulting in training people for a specific labour market. This flexible learning style was effective for working adults who needed to obtain certificates or wished to continue their studies without leaving the work place. Contrary to this business model of a virtual university, the Stanford team leader referred to the traditional “bricks and mortar” on-campus university. She remarked that “many institutions such as Stanford and Harvard are not convinced that you are going to see ‘brick and mortar’ universities disappear” (Stanford team leader, personal communication, 2006). A successful initiative was Stanford’s School of Engineering that launched the Stanford Center for Professional Development (SCPD) round about 1991. For the first time they offered courses for Stanford students who only enrolled for courses through this system.

This method involved classes that were taught on campus, then filmed and produced and eventually streamed out on the web. This model proved to be highly successful for business companies, military personnel and United Nations employees. The School of Business at Duke University was another HEI that offered business degrees through distance education programmes. According to the Stanford team leader higher education was mainly about the needs of the end consumer.

A Director of the FSIIS commented on the outreach initiatives in order to empower students both at undergraduate and graduate levels. These initiatives were launched in specific world regions. He emphasised the fact that learning environments whether they were virtual or physical were becoming very diverse. The challenge remained to create a learning environment that would enable students from different perspectives to participate in higher education. The Co-director stated that it is important that a HEI should create a learning environment that allowed students to experiment and grow. He said that "I am a firm believer that if you are able to connect learners to learners from other countries, bringing to the discussion and the learning process different perspectives, you have a tremendous opportunity to add richness to the learning process. Because all of a sudden your perspective is challenged and when your perspective is challenged, that's where a lot of potential learning kicks in" (Co-director of the FSIIS, personal communication, 2006). These findings resulted in the launch and completion of the ELISA programme at UP and TUT – a unique accomplishment that contributed to the students' achievements.

The financial implications related to higher education remained one of the aspects of the feasibility of any outreach programme. A Director of the FSIIS informed me on the cost of an outreach programme such as the Stanford initiative in Russia. He stated that Stanford was an expensive HEI and that every student cost them about $50 000 per year. The financial specifications of the ELISA programme are discussed under *Economic development and growth* (Chapter 4, 2.2.1). The financial aid that Stanford offered via the ELISA programme resulted in the sponsorship of several students, especially journalists who could promote the necessity of global environmentalism. In my capacity of PhD student I had the privilege to visit Stanford and acquaint myself with multifaceted experiences on campus.

4 The role of technology

Technology was used as a tool to accomplish a variety of tasks. I found that technology redefined the boundaries of education. Stanford expressed an interest to explore the potential effect of mobile technology on teaching and learning. The Stanford team leader motivated this mobile initiative because South Africa's cellular industry was more advanced that of the United States. The first teaching assistant confirmed this premise: "I knew that they (the South African students) would know more than I did" (First Stanford Teaching Assistant, personal communication, 2006). According to the

Co-director of the FSIIS, a former employee of Apple Classrooms of Tomorrow (ACOT), it appeared that since cellular technology was extremely popular in South Africa it could be used to support the interaction aspect of the outreach programme. He referred to a longitudinal study that ACOT did on the topic of how technology modifies teaching and learning. This included research on HEIs in Europe, Australia and the Unites States. He concluded that technology on its own was no guarantee for added value in teaching and learning instead he seriously suggested the combination of technology with other tools in order to act as a catalyst for change. The first teaching assistant supported this by adding that technology should be used to enhance learning and to create lifelong skills.

I found that technology can be described as the driving force to accomplish change and innovation. At the Wallenberg Hall where the Stanford Center for Innovations in Learning (SCIL) was housed the Academic Technology Specialist (Personal communication, April 27, 2006) introduced me to SCIL research and events. The purpose of this state-of-the-art centre was to provide “advisory and technical support to faculty teaching in the building”. SCIL research projects cover the study of high performance learning spaces and wireless interactive learning devices, the use of e-Portfolios in learning, and the CAT2 Lab and LIFE Center (Learning in Informal and Formal Environments).

The ELISA participants had a variety of technological tools at their disposal. These tools included laptops, computers and wireless handheld mobile devices such as PDAs and WebCT6 as a management learning system. The hardware enabled the students to logon to the Internet – an inexhaustible source of knowledge and information. Project documents revealed that the students used technology as a tool to search, collect and integrate information. The students did that in order to research their assignments, collect appropriate information and integrate it with existing knowledge. Their next option was to use technology as a communication tool resulting in interaction with colleagues, fellow students and/or lecturers and finally to use it to submit their assignments. I found that technological tools can be regarded as enabling tools in the ELISA programme.

The use of educational technology required training and support. This resulted in a contact session organised by the members of the academic, research and technical teams at TUT. The purpose of this lecture and workshop on WebCT6 was to introduce the students to this learning management system. Staff from Telematic Education at TUT presented a two-hour workshop on campus at the beginning of the course. The majority of students attended the hands-on session and got technical assistance whenever necessary. The expertise of the TUT instructional designer and technical assistant was available to the students for the duration of the programme. He also introduced the students to the PDAs at a follow-up session. He explained the following aspects to acquaint the students with the technology: Getting started, Knowing your phone, Using your phone, Synchronizing information, Personalising your phone, Getting connected, Using Microsoft Outlook, Messaging features, Applications, Using camera and album. The program entailed the following functions, see table 15:

Table 15: i-mate program functions

	ActiveSync	Synchronizes information between your device and PC
	Calendar	Keeps track of your appointments and creates meeting requests
	Contacts	Keeps track of your friends and colleagues
	Messaging	Sends and receives Email/SMS messages
	Pocket IE	Browses Web sites and downloads new programs and files
	Notes	Creates handwritten or typed notes, drawings, and recordings
	Phone	Makes and receives calls, and switches between calls
	Tasks	Keeps track of your tasks and remind you of important events
	Windows Media	Plays sound or video files
	Pocket Excel	Creates, views, and edits Excel workbooks
	Pocket Word	Creates, views, and edits MS-Word documents
	MSN Messenger	Sends and receives instant messages
	Camera	Snaps photos or shoots video clips
	Album	Collects, organizes and sorts .JPG/.BMP/.GIF files
	Photo Contacts	Inputs the image files according to your Contacts list and sets up the Caller ID
	Pictures	Collects, organizes, and sorts .jpg picture files
	Wireless Manager	Manages access to wireless connections
	WLAN Manager	Allows you to manage the WiFi connection
	Wireless Modem	Uses your pocket PC Phone as an external modem for a PC or Notebook by using a serial/USB port, Bluetooth or infrared connection
	SIM Manager	Collects, organizes and sorts the Contacts list stored on

		your SIM card
	xBackup	Backs up your Pocket PC Phone files to the ROM or SD card
	Calculator	Performs basic arithmetic
	Games	Jawbreaker and Solitaire are included

Source: (Windows, 2006a)

I found that Internet access was one of the main obstacles that students had to overcome. Internet access was available on the TUT campus, enabling the students to book one-hour sessions at a time. The students could not use this option since some of them did not reside in Tshwane and were full time working journalists. Some of the students reported that they had no Internet access at home, only at work. The exorbitant cost of telecommunication in South Africa could be one of the reasons for this state of affairs. The use of mobile technology to gain Internet access also proved to be expensive and dependent on a hampered telecommunication infrastructure. Since the students were working they could not research their assignments during working hours, resulting in the fact that they had to stay after work to get Internet access. One student pointed out that “my only Internet access is at work. I don’t have Internet at home. That was also a problem” (Focus-group interview, 2006). It became clear that Internet access was indispensable for research purposes. For students who did not have Internet access let alone fast Internet access, the research part of the programme thus proved to be a problem.

Some students experienced that the use of standard dial-up fixed lines was unreliable and slow. The majority of the students complained about slow Internet access. Two students expressed this concern by saying that: “It wasn’t up to standard” and “It is that the internet feed is a bit really too slow” (Focus-group interview, 2006). These obstacles with the Internet resulted in frustration and the inability to submit assignments in time. One student remarked that “you come here with dial-up and you just sit there for ages” (Focus-group interview, 2006). However, evidence to the contrary was delivered as three of the students reported that they had fast and reliable Internet access even at home.

The PDAs caused mixed reactions, ranging from clearly positive to downright negative, among the students. The use of the PDAs introduced the students to the mobile component of the programme. I realised that the novelty of these high-tech wireless devices turned out to be a privilege and unique learning experience. The concept of these handheld devices was one of the building blocks on which the ELISA project was built. A high-tech phone such as the i-mate filled the role as an enabler to achieve several tasks. The Stanford team leader, the Director of the FSIIS and the first teaching assistant all agreed and supported these findings. Some of the students, however, did not efficiently

integrate the technology with their assignments. The main problem was that the PDAs could not be integrated with WebCT6. One student remarked that “There are lots of stuff that you can do with the i-mate…but I think it would have been much more easier if we can logon to WebCT6” (Focus-group interview, 2006).

One of the students reported that he struggled to take video footage of air pollution near a ferro-chrome mine due to the fact that the texture of the pixles did not capture the air pollution. The majority of the students confirmed that they would have appreciated the opportunity to explore the wireless technology over a longer period. The focus-group interview as well as the project documents indicated that the opposite was also the case as some of the students successfully integrated the new technology with their assignments. One student managed to attach a video clip to his assignment.

One of the main technological problems was that WebCT6 was [at that stage] not user-friendly. The students reported that they encountered numerous problems. One student described her problems to access the learning management system as follows: “I went to Cape Town – I couldn’t access WebCT6 at all – not in the Internet Cafés also” (Focus-group interview, 2006). Some of the students did not have the necessary skills to use WebCT6 correctly. The particular student complained that “I had my whole assignment typed and something happened, we logged off and everything was just gone” (Focus-group interview, 2006). They experienced problems posting their assignments “I never knew where to go...So to use a thing like WebCT6 is not easy...people just posted all over the show on different forums” (Focus-group interview, 2006).

This resulted in a complication namely that the assignments, which were individually posted appeared as being posted by the group. This was later rectified. The email function of WebCT6 caused a dilemma. Instead of using the correct protocol to access the email function of WebCT6, some students used their own personal email facilities to communicate with the teaching assistants. The students were informed not to use their personal email addresses to submit their assignments. The reason for this was that it would impede the record keeping of the assignments. Another problem was that some students could not access all the files that they were supposed to access. Some of the students, on the other hand, managed to use WebCT6 efficiently.

To conclude, it is clear that the majority of the students experienced some major difficulties in accessing and using technology. However, the abovementioned instruments such as the interviews and my observation notes proved that to a certain extent, the opposite was also true. Some of the students had fast, reliable Internet connectivity, some of them were more successful in integrating the PDAs with the other devices while some of the students had better skills to fit the technology to the learning process.

4.1 Cognitive divide

The Digital revolution changed all facets of our society resulting in clearly modified ways to gather, accept and retain significant information. The implementation of technology, as well as the way that it is employed, plays a decisive role in modern society. The Stanford team leader referred to the age of the students and said that, when designing the course, Stanford knew that they were not undergraduates who were only eighteen years old. What they didn't know was whether the mean age of the group was around thirty or closer to the fifty year bracket. The first teaching assistant said that United States citizens who were around thirty years old like herself were generally much more competent to use technology than their parents were. This finding was supported during the of face-to-face contact session at TUT when the PDAs were introduced. Because these devices are technologically challenging, some of the older lecturing staff had more resistance to the use of it than the students had. These findings resulted in my conclusion that currently [2009] there exists a cognitive divide between people from all walks of life and all age groups. This can be regarded as a global phenomenon that occurs with change and innovation and when exploiting new resources.

It is common knowledge that the younger generation is more at ease with the use of technology than the older generation. This can be ascribed to the fact that the latter did not grow up with technology while the youth are exposed to from an early age. According to the International Telecommunication Union (ITU) the age of a regular Internet user was from two years or older. In China children from the age of six are regarded as regular Internet users. This coincides with regulations in Switzerland where it is mandatory for children aged three years or older to attend pre-school.

Internet use has become a mainstream activity and part of everyday life. I am convinced that the older generation tends to regard technology as possessions rather than enablers. The ELISA programme indicated that the students who represented the Net-generation regard technology mainly as enablers. In order to counteract the cognitive divide it is essential for seniors to make a paradigm shift from *I cannot* to *I can*. Prerequisites for this endeavour would be to keep an open mind, the willingness and commitment to achieve the necessary skills as well as the employment thereof.

5 What dialogue emerges and why does it emerge?

Educational needs are increasing worldwide. Higher Education studies concerning Africa have become very popular. Developed countries are eager to form partnerships with developing countries because of various motives and incentives. The ELISA programme was an example of a cooperative research partnership that was supposed to adhere to basic principles regarding partnerships. These included mutual trust; shared decision making; national ownership; emphasis on applying research findings to policy and practice; development of national research capacity; shared responsibility;

monitoring and evaluation of the collaboration; dissemination of the results; equitable sharing of the profits; and building on the achievements. The dialogue that emerged focused only on certain of these basic principles. This is because the project was discontinued before research findings could be applied to policy and practice and the other research objectives could be achieved.

Initially mutual trust proved problematic since UP was sceptical about Stanford's motives and what they could offer. UP wondered if they could not achieve the same goals themselves. UP's doubt arose from the fact that Northern hemisphere universities were eagerly seeking partnerships with universities in the Southern hemisphere. Northern hemisphere partners had financial incentives to a certain extent and exploited their southern hemisphere partners for financial gain. The South African team was under the impression that Stanford had financial incentives because they kept the funds in the United States and only settled expenses already incurred.

Shared decision making was adhered to since both partners collaborated to get the programme going. This process of reaching shared meaning resulted in lengthy deliberations and communication. The emails alone amounted to 578, some of them involved lengthy discussions, suggestions and proposals on the curriculum. TUT put their proposal forward which dealt with the adaptation and contextualisation of the curriculum. This involved the suggestions of the two lectures by the UP guest lecturer to add some relevant South African content. The communication between the role players included two telephone conferences between UP and Stanford, numerous conversations and several meetings and discussions between the different departments.

The mutual will to participate gave rise to shared responsibilities. Yet shared responsibilities proved to be problematic. Stanford was responsible for financing the programme at TUT and UP from the direct grant that they received from the Whitehead Foundation. They were also responsible for their travelling costs and some hosting and entertainment costs during their visit to South Africa in March 2006. The TUT team leader was responsible for handling all the financial duties on the South African side. This entailed managing all the funds directed to the conduct and management of the research programme. More specifically it included the costs to reproduce the learning material in the form of CD-ROMs; the costs attached to the set-up of telephone and video conferences, travel costs to Stanford for one researcher; funds to purchase 20 state-of-the-art i-mate PDA 20k PDAs; contracts for 15 students with the service provider MTN; hosting and entertainment costs for the Stanford team during their visit to South Africa; and hosting costs for the students during the full-day contact session with the Stanford and TUT teams.

Shared responsibilities towards the curriculum were challenging. During the initial meeting in Stanford in November 2004 the South African team did not realise that Stanford had already delivered learning material that they wanted to impose on TUT and UP. This became clear from an email that the

Stanford team leader wrote to the Head of the Department of Journalism on June 1, 2005: “I am glad that you received the DVDs of our courses. I hope that you and your colleagues have had a chance to view the lectures, and visit our IDL website to review the syllabi. One of the outstanding questions we had after our round table at UP was whether only one of our courses, or a selection of lectures from all 4 courses, or all 4 courses in their entirety, would be of most use to you and your students. I look forward to learning your thoughts”. However, after careful deliberation the South African team insisted on the inclusion of two lectures on South African content. This was done in order to contextualise and adapt the curriculum so that it would be relevant in the demanding South African environmental situation. Stanford also suggested that they would formulate the research proposal resulting in yet another problematic situation. TUT and UP however, demanded that this was their prerogative.

Stanford’s academic and research teams had the responsibility to select and provide a suitable curriculum. Apart from the video-taped lectures that the students received on CD-ROMs a significant amount of reading material was placed on WebCT6. The students had to access these because the lectures were based on the readings and the Stanford course author often referred to the readings. The Stanford team leader and her team appointed two teaching assistants to assist with the selection of the reading material and to grade the assignments. The second teaching assistant had previous outreach experience and she was commissioned to select the reading material. She tried to incorporate some African-related writings but admitted that it was complicated to find suitable journal articles by African authors. The first teaching assistant was commissioned to grade the assignments and give feedback.

Responsibility towards the curriculum on the South African side entailed that the Head of the Journalism Department at TUT had to select the group of students to participate in the programme. The nature of the programme had to be suitable and fit into the curriculum of Advanced Reporting III and Specialist Reporting IV. The module IDL102 International Environmental Politics was the one that best fitted into the local context. Both the Head of the Journalism Department at TUT and I were responsible for moderation and assistance to the students. The UP guest lecturer was responsible for the grading of the two assignments that he included. TUT had more responsibilities since the implementation of the programme depended on them. The TUT team leader initiated the reproduction of the course material on CD-ROMs. The technical assistant at TUT was always available to support students who encountered technological problems. One of the students of the original group decided to leave the programme because of inadequate technological skills. The wireless component of the programme added more responsibility to TUT’s effort to expose the students to a unique learning experience. This involved the TUT teams’ decision to purchase 20 i-mate PDA2k models. From the beginning of the negotiations with the service provider MTN it seemed that TUT would have to bear the brunt concerning MTN’s undertaking with service provision. Each student received a R150 air-time voucher from MTN that they could use for short message service (sms) facilities. This did not work out

as it was intended as some students received more and some less than R150. After the completion of the course the role players organised a certificate ceremony during which the students were entertained and received their certificates, issued jointly by Stanford and TUT.

Stanford and TUT mutually monitored and evaluated the collaboration and progress of the programme. According to a Director of the FSIIS they were continually adapting the way that they teach courses at Stanford. They then evaluated how these techniques or methodologies transferred to the students. In the ELISA programme the teaching assistant's feedback enabled them to monitor the collaboration with the students. The TUT teams constantly monitored the collaboration to ensure a successful outcome.

6 How is shared meaning created and why is it created?

Shared meaning in the ELISA programme was created through common purposes, common adversaries and common incentives. The process of creating shared meaning started with shared ideas, resulting in various objectives set by different people in order to reach mutual and individual goals.

6.1 Goals, adversaries and incentives

Both Stanford and TUT, where the research was conducted, agreed to the comprehensive mutual goal that a course on International Environmental Politics was suitable for the programme. Stanford regarded South Africa as a leader in political and economic growth and development matters on the African continent. They quoted the mission of UP as an internationally recognised "teaching and research university and a member of the international community of scholarly institutions" (Stanford team leader, personal communication, 2006). Their purpose with the ELISA programme was as follows: To identify environmental challenges of global significance, to focus the attention on agreements that could help solve international environmental issues, to expose HEI students to international security courses developed by world leading authorities on Environmental Politics, to enrich students' perspectives on sustainable environmental development by means of making the expertise of world-famous national and international environmental experts available to them.
The South African counterparts realised that the programme had the potential to provide an exceptional learning opportunity for graduate students as well as research on post-graduate level. Stanford realised that the curriculum that they presented in Russia was not entirely suitable for the South African situation. After the contextualisation and adaptation of the programme it became clear, inter alia, that Stanford's view coincided with the objectives set by the South African Department of Environmental Affairs and Tourism in the Green Paper for Public Discussion (October 1996). It states

that “there are many areas which the government needs to address in its environmental policy. These include, among others: Improved pollution and water control, focusing on people and their participation in environmental decision making, developing an improved system of governance, and ensuing that environmental decision making employs an integrated and macroeconomic perspective” (Republic of South Africa, 1996).

Stanford regarded the development of critical thinking skills and dispositions as one of the primary objectives of the programme. It was hoped that critical thinking skills would develop into dispositions: the ability and willingness to use critical thinking skills. Unless dispositions developed critical thinking skills were not to prevail. The development of these skills was one of the major outcomes that defined the success of the programme. It is also the mission of UP to stimulate critical and independent thinking. The Department of Journalism at TUT agreed that the development of critical thinking skills, as part of a journalism course, was a prerequisite for journalists. These skills were crucial in order to formulate an unambiguous argument and explain one’s position with supporting data, gain insight into lectures and readings, demonstrate one’s command of the material by choosing main points and organising learnt material into a reasoned written contribution, form an opinion on an issue after exploring information from the prescribed material, convince one’s readers of one’s views and present one’s ideas sensibly. An argument should be comprehensive, logical and based on solid evidence. Apart from the fundamental mutual goal on both sides there were individual goals that played a role in the implementation of the intervention. Stanford was committed to the programme because of the prospect of cooperation with TUT and UP in creating, designing and evaluating a wide-ranging and suitable e-learning programme in a specific world region. They hoped to implement international policy to alter national behaviour in South Africa with scholarships and to create new partnerships. They aimed to transcend conventional academic boundaries by making their research available to two South African HEIs. They attempted to advance Stanford’s international profile through the provision of resources, expertise and answers. Stanford’s commitment resulted in the grant of $485 000 for the entire three year period. The Stanford team regarded the programme as an exceptional two-way learning process: the TUT students would be exposed to US perspectives in International Environmental Politics issues. Stanford would learn from their South African counterparts about mobile technologies in a distance setting.

An applied research component formed part of the outreach programme. Stanford envisaged a three year research project to study how an existing international environmental security programme could be contextualised and adapted for use in a new partnership in an international set-up. The purpose of both the research and academic teams at Stanford, UP and TUT was to advance research in interactive learning processes and wireless technology. TUT used the financial grant to sponsor the journalism students as well as myself. This study formed the pilot phase of the ELISA programme. Subsequent studies on mobile technology would be conducted during the second and third years

respectively. The pilot phase of the research made use of an intervention design consisting of a course on International Environmental Politics for journalism students at TUT. As a PhD graduate student enrolled at UP, I filled the role of participant researcher. The research component of the study took place at TUT, in collaboration with the Departments of Telematic Education and Journalism. My goal was to complete the study and to contribute towards the research proposal and existing body of knowledge on the transfer of learning in a computer-mediated situation. The mutual goal ceased to exist when Stanford decided to withdraw from the programme.

Initially common incentives contributed to the shared meaning. These common incentives entailed the cooperation between Stanford, UP and TUT. Cooperation would expectedly result in shared meaning. However, as time went by, it became clear that instead of common incentives, different institutional goals were being pursued. The idea was created that Stanford had a financial incentive because they received a grant from the Whitehead Foundation. The academic and research teams had professional incentives such as participating in an exceptional outreach programme, furthering their careers, supervising both under-graduate as well as post-graduate students and publishing academic articles. My incentive was to complete my studies and explore career opportunities. The students' incentives involved that they could complete their degrees whilst still working. They were exposed to international environmental perspectives that could lead to post-graduate studies. Hand-held wireless technologies offered the opportunities for hands-on experience with the PDAs. The Consulting Associate Professor sponsored each student to a one year subscription of the Society for Environmental Journalists (SEJ). All the students received certificates jointly issued by Stanford and TUT.

6.2 Motivation

Motivation is indispensable for successful learning, especially online learning. Interpersonal motivations are present in the presence of other people and depended on other people. These interpersonal motivations can be identified as cooperation, competition and recognition. Cooperation is often assumed as good, while competition is often assumed as bad. Both cooperation and competition can be used in beneficial or detrimental ways. The important question is how to exploit their motivational power. Cooperation and competition are in many ways parallel. Both fulfil psychological needs of the students.

Psychological needs can often be a driving force in order to excel. The students had various psychological reasons to ensure achievement. All the students experienced the need to complete the programme. This was because the International Environmental Politics module would count as accreditation towards the completion of their degrees. Some of the students expressed the awareness of the value of post-graduate qualifications. A few students had already applied at international HEIs by the time the programme reached completion. One student remarked that "It has opened the

possibility of great opportunities. I mean, I know a lot of us enquired as to do post-graduate studies with them – doing a fellowship and those kind of things. I don't think under normal circumstances any of us would have thought of Stanford and to study there. That really helps" (Focus-group interview, 2006).

Some of the students realised that they had the opportunity to participate in an exceptional outreach project. The ELISA programme was not offered as an open course for all students to register in. These third and fourth year students realised that they were selected because of their academic progress and commitment to the programme. They also realised that they were individually selected as a small group that would experience a unique learning opportunity.

Most of the students were interested in the completion of their degrees in order to work as professional journalists. Some of them were already employed as journalists by major South African newspapers, local newspapers or magazines. Their interest in environmental journalism increased after the introduction of the selected reading material for the programme. They reported that before the programme some of them really didn't care about the environmental conservation. This attitude changed drastically after they realised that environmental factors, could be hazardous and cause havoc. The social status and esteem of a well known journalist could, wrongly approached and applied, also be a motive to perform well.

Financial incentives were one of the important psychological reasons to excel. As mentioned earlier in chapter 2 some people believe that good qualifications can lead to employment and financial strength. This could result in financial independence and better living conditions. The majority of the students were interested in the financial incentives that could be obtained.

6.3 Cooperation and cooperative learning

Cooperation is regarded as a significant interpersonal motivation and it is mostly assumed to have positive outcomes. An important aspect of the learning process is how cooperation can be used to exploit its motivational power. I found that The ELISA programme was designed to involve students in cooperation, collaboration and cooperative learning activities. Cooperation took place throughout the programme. WebCT6 was used as learning management system that offered the opportunity to post messages on the Bulletin board. The students raised aspects concerning the assignments, the interpretation of reading material and communicated with fellow students. They also communicated with the assistant and members of the TUT academic, research and technical teams. The teaching assistant used WebCT6 to give feedback and thus cooperated with the students. The students often communicated with the TUT technical assistant, technical, in order to resolve technological problems. The first teaching assistant gave feedback instantly to ensure cooperation on the highest level.

Cooperative learning formed an important part of interpersonal motivation. The students were motivated to cooperate in order to let the ELISA programme succeed. The programme had six contact sessions for the students during which cooperative learning took place. During the first session the Head of the Journalism Department at TUT introduced the course to the students and distributed the CD-ROMs containing the lectures. Each student received five CD-ROMs with the seventeen lectures. Thereafter an ICT expert from the Department of Telematic Education presented a lecture on WebCT6 in order to introduce the learning management system to the students. A follow-up contact session took place on 10 February, 2006, during which the first video conference took place. It served as an introduction of the Stanford and South African teams to virtually meet each other and to communicate synchronously.

During the third contact session on 10 March, 2006, the academic, research and technical teams at TUT presented the students with the PDAs. The theme of the second video conference was sustainable development. Members of the TUT academic, research and technical teams and students attended while the Head of the Journalism Department at TUT acted as host. The Consulting Associate Professor from Stanford acted as presenter and focused on concepts such as development, economic goals versus social goals versus environmental goals and sustainability. Sustainability is concerned with economic prosperity and human welfare based on responsible resource management. She used a Power Point slide show to discuss the following aspects of sustainable development in depth: traditional development; intragenerational equity; global response; intergenerational sustainability and the sustainability dilemma.

The fourth contact session involved the full-day activity between Stanford, UP and TUT and took place on 31 March, 2006. The activities of this session are fully discussed in the section on Interdependence.

The focus-group interview was the fifth contact session and took place on 9 June, 2006. The theme was the students' perception of the programme. This interview was an example of cooperative learning because of the visibility of the process of learning (facilitator and students' discussions), the results (observation notes) and also the additional result of the learning process (video tape). The process of learning was made visible through the assistance of a facilitator from the Department of Telematic Education who facilitated the session. A technical support assistant from the Department of Telematic Education video-taped the proceedings. The facilitator asked the students their opinions on the following issues: Perceptions of the programme; the relevance of the course to their work; the distance-learning aspect of the course; PDA technology and its applications; the contribution of the Stanford team to the course; cross-cultural interchange; the role of WebCT6 as communication tool; technological access problems; closing comments. All the students participated and an informative discussion lasting for an hour followed. The students discussed their experiences during the

programme, gave their opinions on positive and negative aspects and reflected on the effectiveness of the programme. This resulted in shared meaning on the ELISA programme. An additional outcome of the learning process was the DVD that was produced.

On 9 June, 2006, the sixth contact session took place. This was the third video conference and Stanford and the TUT teams participated. This contact session concluded the programme and consisted of a “theory” lecture via a video conference. The theme of the lecture was environmental journalism. The presenter was a Consulting Associate Professor from Stanford. The students had to prepare a 200 word piece reflecting a journalism perspective on any pressing issue relevant to environmental journalism. The Professor facilitated a healthy discussion about the students’ contributions. The second teaching assistant researched academic, professional and conference opportunities for environmental journalists in this regard. The idea was that students could use these assignments to compile and revise a written example to use later to apply for development opportunities.

6.4 Competition

Competition and cooperation are parallel in many ways. Competition is a significant interpersonal motivation. It is, however, often assumed to be bad. Competition can be used in certain ways to accomplish beneficial outcomes if its motivational power is exploited well.

The cooperative learning exercises demonstrated that the motivational power of competition was exploited resourcefully. When the students had to read a particular section of the articles that the presenter distributed, they were allowed a limited time to do so. They thus had to compete against the members of their own group to complete their reading task in time. Then the members of each group had to identify the main elements of the issues, recognise connections between the environment and safety, contribute towards the group discussion, synthesise the article, present a summary and state whether the assertions made were true or false. The Professor allowed a limited time to complete the assignment. By doing so the groups competed against each other all to the benefit of all the groups. A next example of the motivational power of competition is the assignment that required students to search particular web sites on their PDAs. Then they had to put the web addresses and correct URLs on paper and present it. They had to complete this task in a limited time, thus competing against all the students in the group. This competitive activity lead to the benefit of all the students as it resulted in a one-page master list of all the relevant web sites. The students could use this for future assignments and articles.

A next example of the positive outcomes of competition can be found in the assignments that the students completed. The students had the opportunities to compare the scores of their assignments.

They could do so by using different technologies such as the PDAs or WebCT6. With independent tasks such as assignments it is quite straightforward to encourage competition. Competition concerning independent tasks is identified as exogenous competition. Psychological needs can be relevant in competition. Competition can fulfil various psychological needs.

6.5 Recognition

Recognition is a form of interpersonal motivation that plays an important part in the learning process. In the ELISA programme the visibility of results manifested in three ways. These entailed the process of execution of the activity, the result of the activity and the additional results of the activity. Several examples of learning activities that employed recognition originated in the ELISA programme. The most important example of recognition was the feedback from the first teaching assistant after the students submitted their assignments. The feedback was visible because the students could access their progress on WebCT6 and print it out. The results of the activities were the marks that the teaching assistant awarded for the assignments. The additional results were the certificates issued by both Stanford and TUT after the students completed the programme.

The learning activity where the students had to search for particular web sites was another example where recognition was used as an interpersonal motivation. The Professor's mild recognition of the correct URLs was visible. The outcome of this activity was also visible because it resulted in a master-list containing all the significant URLs. The additional results were the students' subscription to the Society for Environmental Journalists and the Society's activities such as daily emails.

Another example was the third video conference that the Professor facilitated. The visible process of the activity was the vigorous discussion that followed the students' preparation of a 200 word piece reflecting a journalism perspective on any severe issue relevant to environmental journalism. This resulted in the Professor's visible recognition of the students' efforts and consisted of a "theory" lecture on environmental journalism. The additional results were the educational, professional and conference opportunities for environmental journalists that the second teaching assistant researched. Another example of additional results was the possibility that the students could use these revised assignments to apply for development opportunities.

6.6 Interdependence

Mutual goals created interdependence among the members of the ELISA group. Two kinds of social interdependence were visible during the implementation of the programme. These two kinds were positive interdependence (cooperation) and negative interdependence (competition). No

interdependence resulted in the phenomenon that no interaction or interchange took place. Learning tasks were segmented into dependent and independent units.

An example of interdependence was visible in the cooperative learning activity, web-search activity and Bluetooth-video activity that the Consulting Associate Professor facilitated on 31 March, 2006, when a group of Stanford representatives visited TUT. She divided the students randomly into four groups. She formed these groups distinctively to organise the students in diverse groups, to get them out of their comfort zones where they only interacted with a few of their fellow students, and to promote communication and collaboration among all the students in the groups. Each student received a copy of TIME magazine dated April 3, 2006. This European edition of TIME featured a special report on global warming. The following articles were used in the assignment: Starving in a land of plenty; The tipping point; Vicious cycles; The impact of Asia's giants. Each group had to divide the articles in equal sections (dependent units) among the students, read through their specific section, identify the key elements of the issues, identify links between the environment and safety, participate in their group discussion, piece the article together, present a synopsis and state whether the allegations made were true or false. Each member of the group was thus interdependent on the other members of the group to complete the activity. The Professor summarised the issues and concluded the activity by facilitating a group discussion that resulted in shared meaning on the topics.

The next assignment involved a web-search activity. The students received cards containing the following cues: EPA.gov/; National Audubon Society; African Wildlife Foundation; United Nations Environment Programme (UNEP); World Resources Institute (WRI); World Watch Institute. Their assignment involved that they had to search those web sites on their PDAs and then put the web addresses and correct URLs on paper (independent units). The Professor commissioned one of the students to synthesise all the cards and to compile a one-page master document that would be distributed among the students for further use in assignments and articles. Another example of cooperative learning where independent units emerged was the Bluetooth activity. Each student had to use his or her PDA to make a video clip and forward it to one of the Associate Professors of Education at Stanford.

7 How do we deal with cultural differences?

Culture is an ever-changing social construct and many different cultures exist side by side, globally as well as locally. Students in the ELISA programme represented English, Afrikaans, Indian, isiZulu, and Sesotho mother-tongue speakers. An awareness and understanding of cultural differences facilitated the process of dealing with different cultures.

The legacy of colonialism resided in an awareness of the *other* verus *the own identity and traditions*. Globalisation in all aspects shrunk the world. This makes an understanding of other cultures a necessity. An example of this premise is the outreach initiative of Stanford to Russia. The students were interested to learn about America and the American perspectives. They wanted to learn that in English because they understood American culture by means of English. First they wanted to learn that, then to translate the material and then to compare it to their own perspectives.

Contact with fellow students contributes to an awareness and understanding of other cultures. According to the Stanford team leader it is vital that students come into contact with their peers. She regarded the private learning process where the students come together on campus and get the opportunity to socialise outside their family units, as extremely important. This results in personal development. In order to socialize people effectively it is necessary to bring them together in HEIs. Attending lectures at a HEI has numerous benefits such as mingling with peers from different backgrounds and being exposed to other cultural perceptions. The advisory board at Stanford became aware of the phenomenon that some of the post-graduate students did not have an understanding of other cultures. This could prove a problem for engineering students who might take up positions in other countries. This resulted in the inclusion of a two year mandatory foreign language course as part of an engineering degree. In the ELISA programme the students had the opportunity to socialise with other students during the face-to-face contact sessions. This enabled them to mingle with peers and become aware of some of their cultural habits and viewpoints.

Local cultures can be preserved without citizens having to leave their native region or environment. In higher education increased electronic delivery enables students to participate in distant learning. In doing so they have the opportunity to benefit from distance learning and further their careers. The Stanford team leader mentioned the for-profit online business school of the University of Phoenix. This school offers bachelors' and masters' degrees in certain fields of study. This takes place in a virtual setting and is exceptionally valuable for adults who don't have the luxury to quit their jobs to continue their studies. The ELISA programme is also an example of the globalising functions of the Internet. Students could access learning material on various topics – an asset to the enrichment of their knowledge and exposure to new perspectives. They could then incorporate the new information with their own knowledge, decide where they stand in the issue and adopt a certain perspective. In this process they could thus apply their critical thinking skills and come to a decision. An example of glocalization originated from the ELISA students as a result of their subscription to the Society of Environmental Journalism (SEJ). They mentioned the possibility of submitting some of their assignments to the SEJ for publication because "we [South Africans] have got quite a bit of writing that we are doing ourselves...they could learn from us" (Focus-group interview, 2006).

The cultural differences that were embedded in the ELISA programme were dealt with by mutual understanding, awareness and contextualisation of a part of the curriculum. A question such *as How can the environmental perspectives of Stanford be valuable to individuals and to South Africa as a whole?* involves several initiatives. The answer lies in contextualising and individualising the content to such an extent that it is useful and applicable to the local [South African] situation. Local needs and global objectives are combined to create a useful model.

8 Which aspects of the programme worked well and why and how can they be improved to compensate for those that did not work well?

Several positive aspects characterised the pilot phase. National ownership of the curriculum was one of the positive aspects. The students had the opportunity to make the learning material their own and this had a wide-ranging effect on them. Positive aspects included the following:

8.1 Blended learning method

Several aspects that were included in the design of the programme worked well to deliver a unique learning experience. One of the most important aspects involved the blended learning method that the ELISA programme employed, resulting in a significant and successful learning experience. This approach enabled independent study – an excellent method for part-time journalism students. Thirteen of the fourteen students were working students, mostly in the journalism sector. This learning method enabled them to further their careers without interruption at work while they could still be financially independent.

8.2 Content and workload

The students experienced the content of the programme as universal and of great importance. The selection of topics included in the curriculum focused the students' attention on the necessity and the urgency of environmentalism. This is vital in South Africa as the country is currently [2009] experiencing the pressures of political turmoil in neighbouring countries specifically Zimbabwe. This results in an influx of immigrants that puts pressure on resources such as water, food, jobs and shelter. However, some of the ELISA students were extremely motivated and expressed the aspiration to continue their studies abroad, possibly at Stanford. Should this happen it could give expression to the Stanford team leader's objective to mingle with other students from other countries and different backgrounds, resulting in a "wonderful learning experience" (Stanford team leader, personal communication, April 24, 2006). Some of the students experienced the workload as satisfactory, easy and very quick to complete while other students experienced it as heavy. Aspects such as language

skills, resource availability, background and knowledge of the topic and time available to complete their assignments were determining factors in this regard. Language proficiency refers to the students' different linguistic abilities and skills. The availability of resources in order to complete their assignments remains a vital aspect. Background information and knowledge is important to get an understanding of the topic in order to complete the assignments in time.

8.3 Critical thinking skills and dispositions

The International Environmental Politics course developed critical thinking skills, which was one of the main objectives of the course. The students admitted that since the beginning of the course, they did not take any readings at face value. "This course really got us thinking more" (Focus-group interview, 2006). The outcome was changed perspectives – the students saw things in a different light once they started writing.

Critical thinking skills resulted in dispositions, the concept that involves the use and application of critical thinking skills. This led to a sensitive awareness and apprehension of the environment. This is a newly acquainted attitude that developed since the beginning of the course. One student admitted that, previously, "most of us didn't care" (Focus-group interview, 2006). The outcome of critical thinking skills and dispositions were that students felt empowered by their ability to ask questions and give their opinions. Aspects such as the impact of the industry on the environment, regulatory policies and the protection of the environment, became key issues. The students became aware of the responsibility of the industry to consider and protect the environment. They started questioning the regulatory policies of big companies in promoting the protection of the environment.

8.4 Internet use

Some of the students experienced the use of the Internet as positive and indispensable for research purposes. They reported that they enjoyed fast access and connectivity at home and/or at work. Students could however, also use their PDAs to get fast wireless access. The positive impact of the Internet is discussed under 2.2.4.

8.5 Feedback and motivation

Students experienced positive feedback from the teaching assistants. They appreciated the punctual feedback and encouraging remarks during the entire course. The first teaching assistant also offered synchronous online office hours to assist students who needed support. Intrinsic motivation was in the

form of the completion of the IEP module that formed part of the students' qualification. Extrinsic motivation involved the use of the PDAs and the certificate that the students received after completion of the module. After the video conferences socialising took place while the one-day face-to-face contact session included breakfast and a traditional South African barbeque. During this contact session students had the opportunity to mingle with the Stanford visiting team – another highlight of the programme.

8.6 Components of CAI

The pilot phase received a high rate of satisfaction and positive feedback from the students. This reaction is related to several components of the CAI lectures on the CD-ROMs. These positive aspects include four basic adequacy catagories such as instructional adequacy, cosmetic adequacy, program adequacy and curriculum adequacy (Hannafin & Peck, 1988, pp. 303-316). I analysed lecture 1 (CD copy included) as an example of the pilot phase since the lesson protocol and features of all the lectures correlate with lecture 1. Positive aspects of lecture 1 involve the following adequacies:

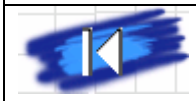
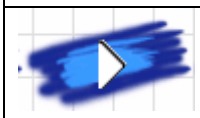
8.6.1 Instructional adequacy

Instructional adequacy reflects on the degree to which the lesson offers the required types of support and features to achieve the desired lesson objectives. Instructional adequacy deals with several main components, which are described below.

"Are the directions for lesson control clearly stated?" (Hannafin & Peck, 1988, p. 303).

The directions for lesson-control options are indicated by navigation keys. The navigation keys consist of one blue arrow and seven white user-control buttons on a blue-fragmented background. The students have the options to revisit the navigation keys from any section in the lesson. These lesson-control options appear at the bottom of every screen that forms part of the lesson. The most important aspect of the lesson is clear directions to the students. The lesson-control options include the following navigation keys:

Table 16: Navigation keys

Icon	Description
	Back
	Back to the beginning of Lecture 1
	Back to the previous section of the lecture
	Pause
	Activate
	Stop
	Go to the next section of the lecture
	Last section of Lecture 1

The lesson provides guidance of the ongoing directions by means of the abovementioned options. Help or assistance options are not provided. The directions are effective and prevent the students from floundering aimlessly during a lesson.

“Is the lesson consistent with the outcomes specified in the objective?” (Hannafin & Peck, 1988, p. 303).

The stated course objectives are systematic guides that steer the lesson activities. Two of the course objectives are to identify environmental issues and challenges of global importance and to identify international treaties to solve environmental problems. These correlate with the lesson activities namely to identify contemporary environmental problems, their causes, possible solutions and treaties. The lesson activities correlate with the instructions in Assignment 1 namely to identify one internationally important environmental problem and formulate its causes and possible solutions. The correlation of the lesson objectives, lesson activities and assignment questions ensures the validity of lesson instructions.

“Is the instructional sequence easy to follow and empirically based?” (Hannafin & Peck, 1988, p. 303).

Lesson flow is vital to accomplish learning. One frame flows smooth and logically to the following which ensures effective learning attention. The progression in the lesson is well coordinated and enables effective learning. It is easy to follow the lesson, make sense of it and comprehend the lesson content.

“Is the lesson readily understood and free from vague and ambiguous text?” (Hannafin & Peck, 1988, p. 304).

The lesson uses readily understood techniques to convey the information. The Stanford lecturer asks questions, the students have the opportunity to reply and the lecturer summarises the answers in writing on the whiteboard. This summary appears on the screen. The lesson is free from excessive jargon, ambiguous text or confusing terms that detract learner attention.

“Is the basic design logic of the lesson sensible, including the components and features of well-designed lessons?” (Hannafin & Peck, 1988, p. 305).

The design logic of the lesson is sensible. Key vocabulary, the hierarchical relationships among ideas and the choice of the desired lesson activities influence the comprehensibility favourably. The relationship among aspects such as the problems, causes and solutions to environmental dilemmas is clear, unambiguous and well illustrated.

“Are lesson procedures and activities efficient?” (Hannafin & Peck, 1988, p. 306).

Lesson procedures and activities are efficient. Lesson objectives are the main focus. The identification of problems causes and possible solutions are explored. No unnecessary information is presented. The lesson teaches the skill of exploring the problems and forming an opinion on it by discussing it.

“Have important terms, concepts and information been amplified effectively?” (Hannafin & Peck, 1988, p. 306).

The lesson employs several attention-directing techniques to focus the students’ attention on significant terms, concepts and information. Amplification techniques involve cosmetic amplification and information-based amplification (Hannafin & Peck, 1988, pp. 185-191).

Cosmetic amplification features include type size, font, text animation, computer graphics, colour and sound. The lesson uses different type sizes to present the content. This allows information to be enlarged (Hannafin & Peck, 1988, p. 186). The type size of the topics is 26, that of the text is 16 while the type size of the menu topics is 8. The lesson employs uppercase to present the headings of each topic, which makes it more difficult to read than sentence case or lowercase. The lesson uses sentence case to present the informational content. The use of italics to present the headings of the topics and the text impedes the readability. The topic on Future problems and examples uses a regular font to distinguish between main points and supporting information.

The font of the headings and text differs from the font of the menu topics. Menu topics are presented in Sans Serif MS. The use of italics to present the headings of the topics and the text impedes the readability.

Text animation and computer graphics are partly cosmetic but also substantive to illustrate important information. The lesson employs text animation to present the discussed content. The lecturer uses the image of a graph on the whiteboard to present illustrative support for content presented verbally. The graph is not illustrated on the screen.

The lesson employs colour effectively to amplify important information. The use of colour is discussed in detail under Cosmetic adequacy (Chapter 4, 8.6.2)

The lesson incorporates sound as an important aural cue to accentuate significant terms, concepts and information. The presenter draws attention to the relevant aspects by presenting information verbally where upon the students respond verbally.

The lesson employs information-based amplification techniques such as orienting strategies, repetition and recollection. These amplification techniques depend on deliberate "…manifestations of the lesson content itself and not on the capabilities of the computer used to deliver the CAI" (Hannafin & Peck, 1988).

The lecturer uses orientation to emphasise the lesson objectives. This approach aids the students to grasp the relationship among the terms, concepts and information mentioned in the lesson. This strategy helps the students to understand the integration process of existing information with current information.

Repetition of the essential aspects occurs as the lecturer presents important terms verbally, discusses them and writes them down on the white board. This information is also presented on the screen. The lesson features five examples of the identification of environmental problems, causes and solutions.

Recollection involves that the students recall information from previous or current lectures. This happens due to the students' previous preparation of the learning material and already known information.

"Does the lesson distribute emphasis according to the importance of the different parts and sections?" (Hannafin & Peck, 1988, p. 307).

The lesson emphasises important aspects adequately, causing learners to sort through the lesson. The lecturer repeatedly explores different environmental problems such as population, deforestation, fisheries, climate change, toxic substances and water resources. The lesson eases the learning task by cueing learners to important information, such as the discussion on the causes and solutions to the problems. Assigning emphasis is one of the most challenging tasks of CAI lesson design.

"Does the lesson provide opportunities for meaningful interaction between the student and the lesson content?" (Hannafin & Peck, 1988, p. 307).

The interactive lesson encourages the Stanford students to respond to the instructional content. The interactivity is accomplished through the lecturer applying the technique of questions and answers. This guides the students to participate in the discussion, help them to demonstrate comprehension of the lesson content, aid them to reflect on their own learning and assist them to grasp the lesson content. The lesson does not involve the TUT students in interaction.

"Does the lesson personalise instruction appropriately?" (Hannafin & Peck, 1988, p. 308).

Relevancy and meaningfulness are two aspects that are employed in order to ensure personalisation and to make the activities seem relevant for each student. The lecturer personalises the instructions by using the Stanford's students' names in the lesson. He incorporates significant examples into the discussion appropriately. Some students may regard the computer-learner interaction as informal or conversational. The lesson is perceived as personal while the techniques to make the activities appear significant for each student result in greater acceptance of the lesson. The lesson does not personalise instructions for the TUT students.

"Is the step size appropriate for the kind of learners and learning task?" (Hannafin & Peck, 1988, p. 309).

The limitation of the step size to the appropriate size ensures the learning of new individual concepts. The lesson limits the step sizes to the information needed in order to master new concepts. The lesson does not contain unnecessary concepts in the same step and results in effective initial

instruction. Text divided into chunks prevents the display of too much information in one lesson, thus increasing the quality of the lesson. The lesson bridges acquired steps into subsequent steps, such as the discussion of causes and solutions to different environmental problems.

“Are the pacing procedures and display rate appropriate for the learners and learning task?” (Hannafin & Peck, 1988, p. 310).

The lesson uses computer-controlled pacing of frames. The text appears on the screen and is removed by means of program control. All students do not read at the same rate which causes that some of them may not have completed reading all the information before it is removed. This may result in frustration which inhibits learning (Merrill, 1994). Pause and stop options are, however, incorporated to enable the students to take charge of the pace of frames that display new information. Students’ reading and study methods involve a key factor such as variability which should be accommodated. Computer-controlled pacing of frames requires evaluation of lessons to determine realistic time per frame. If the pacing rate is too fast the students can repeat the lesson.

“Are lesson activities, content, and procedures likely to motivate students to perform?” (Hannafin & Peck, 1988, p. 311).

Lesson activities, content and procedures are well-designed and organised to motivate the students. Relevant motivational factors such as challenge, curiosity and control (Malone & Lepper, 1987) are incorporated. The lecturer challenges the students to identify environmental problems. He then arouses curiosity by presenting new information that attract attention and encourage the students to explore additional information. The TUT students have the option of lesson control which enables them to make a choice pertaining to the lesson menu. It is possible to access any part of the menu at any time. Motivational aspects also include attention, relevance, confidence and satisfaction (Keller & Suzuki, 1988).The lecturer attracts attention by presenting information. This correlates with the abovementioned curiosity (Malone & Lepper, 1987). Relevance involves that the lesson content (environmental problems, solutions and treaties) will be useful. Confidence involves the opportunity to complete the lesson successfully. Satisfaction involves activities which allow the students to apply the information that they have mastered.

“Are required or desired record-keeping capabilities available in the lesson?” (Hannafin & Peck, 1988, p. 311).

Record-keeping capabilities are not available in the lesson. (Progress reports and achievement records are provided in WebCT6).

“Are appropriate lesson-control options available?” (Hannafin & Peck, 1988, p. 311).

Lesson-control options such as “Help” and “Review” are not provided. The lesson can be repeated by returning to the Beginning Exercise or it can be terminated at any time by activating the last topic of the menu. The lesson completely avoids the idea of trapping the students within the lesson.

8.6.2 Cosmetic adequacy

In the past, cosmetic features of CAI received more attention than other more important concerns. Colour, sound and motion played a remarkable role. Visual appeal is important in lesson design but it is not the principal concern.

“Is screen space used effectively?” (Hannafin & Peck, 1988, p. 311).

The informational content is neatly organised and arranged on the screen. The screen space is used effectively. It is possible to identify, locate and read all the information on the screen.

The use of screen space differs for every screen according to the amount of informational content presented under the topic. The amount of lines used differs from a few lines to half of the screen to three quarters of the screen to almost all of the available space. The last topic on the menu features only the heading namely Discussion of syllabus, which appears in the middle of the screen. This topic does not present any informational content on the screen due to the fact that the presenter discusses the relevant information.

Some screens allow a white space between the lines which contribute to the readability of the text. Some screens use indentation, bullets, letters and numbers to distinguish between the main points and supporting information.

“Is there a consistent and effective protocol for the various frames in the lesson?” (Hannafin & Peck, 1988, p. 311).

Consistent and effective protocol exists for the various frames in the lesson. The designers designated the different zones of the frames for particular uses. Lesson information such as the topic always appears at the top of the frame. The informational content appears towards the middle of the frame while the proceeding navigation keys are always located at the bottom of the frame. The designers used the locations, frame space and text layout consistently throughout all the frames. An exception to the rule is the last topic on the menu namely Discussion of syllabus which appears in the

middle of the screen. This is functional because the lecturer discusses the appropriate information and does not summarise the content on the frame. According to Hannafin & Peck (1988, p. 178) “The key to effective frame protocol is consistency”.

“Is the information presented free of crowding and cramming?” (Hannafin & Peck, 1988, p. 311).

The informational content differs from frame to frame. Some screens contain more informational content than others. Screens that are free of crowding and cramming are the following: Beginning exercise; Core themes for course and Discussion of syllabus. The first two screens have a white space left open between the different lines which contribute towards the readability of the text. On the Discussion-of-syllabus screen, the second last topic on the menu topic, the text is centered and consists only of the topic.

Some frames are crammed with information. Examples of these are the following: General listing of contemporary environmental problems; Identified problems; Future problems; Central themes; Tragedy of the commons; Example of tragedy of the commons – first; Example of tragedy of the commons – second; Example of tragedy of the commons – third; Different problems require different solutions; Perverse outcomes and Sequence of course. Information is presented without a blank space between the different lines which create the idea of being crowded. Some letter types are printed in italics while the lesson uses a grid as background. These features seriously impede and complicate the students’ task to sort the lesson out and to make sense of it. Repeated crammed frames result in a boring learning experience. This compromises the computer’s capability to direct learning; ending in instruction being similar to those in print media rather than being characteristic of well-designed CAI.

The topic menu is presented in uppercase which creates the impression of cramming and crowding. Each frame should present the necessary content to keep the students interested and to ensure progress through the lesson.

“Do color and sound, if used, support student learning?” (Hannafin & Peck, 1988, p. 312).

Both colour and sound are used effectively to support learning. The use of colour can enhance the performance of the students (Schwier & Misanchuk, 1995). Graphics in the form of real-life colour video clips of the three lecturers on the title page attract the students’ attention. The use of colour video clips of both lecturers and students during the lesson enliven the presentation and responses.

Colour is also used effectively to attract attention to important information. The halo in pink and blue around the name of the course International Environmental Politics emphasises it. The light blue colour that is used as background for the three topics of Lectures 1, 2 and 3 on the title page, focuses the students' attention on the specific topics of the lectures. The green colour that is applied to the image of a tree on the right hand side of the title page accentuates the environmental aspect of the lesson.

The lesson employs colour sparingly to support student learning. Examples are the graphics in the form of a seal and a line graph in grey on the title page. The use of green when the icons Play; Previous Clip; Next Clip are activated, can be regarded as "consistent with common usages in society" (Alessi & Trollip, 1991, p. 42) where green is associated with "go". The mute icon turns yellow when activated while the volume is indicated by green.

Excessive colour is avoided in the text of the lesson. Black text on white with a pale grey grid background impedes the readability. The choice of blue for the topics is effective and distinguishes it from the rest of the information. A deeper bright blue quadrangle appears in the right upper corner of the screen when the title and introduction to the course is presented. It features as a background that disappears when the video clip of the Stanford course author appears.

The use of colour to amplify information is functional. The light blue that is applied to the lessons' menu alternates with a lighter shade when the specific topic is presented. The names of the presenters appear swiftly in deep cerise and focus the students' attention on their biographical details. The image of flags of various countries contributes to the international feel of the programme and echoes the outreach aspect.

The lesson uses audio effectively as a presentation mode (Alessi & Trollip, 1991) as well as to attracting attention and supporting text (Stemler, 1997). The systematic use of sound improves the instructional value of the lesson. The students may use the option to pause the audio if necessary.

"Does animation, if used, support student learning?" (Hannafin & Peck, 1988, p. 312).

The lesson uses text animation to support student learning. Since it is applied systematically and support lesson objectives it can improve the cosmetic appeal of the lesson.

"Are lesson frames free from scrolling effects?" (Hannafin & Peck, 1988, p. 312).

The lesson frames are free from scrolling effects. The menu in Lecture 1 consists of sixteen programme topics. Thirteen of these sections are accessible on the title page while the remaining

three require scrolling down. Designers should avoid and eliminate scrolling due to the fact that it may be annoying, may distract learners' attention and reduces lesson appeal.

"Do lesson activities appeal to students?" (Hannafin & Peck, 1988, p. 312).

In this lesson the Stanford students listened attentively to the lecturer, responded spontaneously and participated in the debate. The TUT students regarded the lesson activities appealing because they were exposed to an interactive lesson by an international environmental specialist and Stanford class. According to Hannafin & Peck (1988) CAI designers often base their ideas of what would be appealing to the students on personal experience, trial and error and recommended preferences. In some cases, learners do not regard these features as interesting. The formative evaluation process requires that designers verify what learners regard as appealing, and not assume it.

"Is the lesson free from typographical errors?" (Hannafin & Peck, 1988, p. 312).

The lesson is free from typographical mistakes that can reduce the cosmetic appeal of a successful lesson.

8.6.3 Program adequacy

It is important that a lesson executes as planned. Designers use a process called debugging to evaluate program adequacy. This process is defined as follows: "Debugging is a process where lessons are executed, with the resulting input, output, and control decisions examined for accuracy. Program commands are then altered as needed until the program executes as planned" (Hannafin & Peck, 1988, p. 312). Debugging solves most of the apparent program errors in the lesson.

Sometimes, bugs occur merely in certain circumstances. It may be problematic to predict these problems during debugging. In some cases, collapses in program logic do not cease the lesson execution. Programming errors do not let the lesson crash, but unintentionally direct learners to possible but inappropriate parts of the lesson. The following aspects are important when evaluating program adequacy.

"Does the lesson run as intended?" (Hannafin & Peck, 1988, p. 313).

The computer determinedly presents the required actions in all prescribed situations. The different topics can be accessed subsequently. The lesson-control buttons function effectively. Therefore, the lesson runs as intended. The programming logic is the most important feature of program adequacy.

Program logic concerns “the manner in which the program execution is consistent with the kinds of lesson input, output and control prescribed in the lesson flow chart” (Hannafin & Peck, 1988, p. 313).

“Is the lesson free of conceptual and programming loops?” (Hannafin & Peck, 1988, p. 313).

No programming loops occurred thanks to good planning and programming. Systematic evaluation can identify loops and cautious planning and programming can eliminate problems. The lesson employs a linear design as all the students continue through the same instruction in the same sequence. Conceptual loops may occur due to the conceptual difficulty of the learning material or as a result of the students’ limitations.

“Does the lesson minimize the disk-management requirements for the learner?” (Hannafin & Peck, 1988, p. 313).

The students are able to access the lesson by switching the computer on and accessing the disk. The lesson is self-starting and does not require manipulation of the computer. Conceptual comprehension of the computer is not necessary to employ the lesson.

“Does the lesson run efficiently?” (Hannafin & Peck, 1988, p. 313).

The lesson runs effectively. The lesson designers finished the preferred activities as efficient as possible. Well-defined methods, subroutines and variables streamlined programming needs and provide extra flexibility in the lesson.

“Does the lesson include sufficient security for both the students and the disk itself?” (Hannafin & Peck, 1988, p. 313).

The designers provided sufficient security for the students and the disk. The TUT students used individual passwords to access the lesson on WebCT6. Increasing sophistication among learners require safeguards in lessons to ensure that aspects such as individual learner performance summaries are kept safe and that accidental or intentional sabotage of lessons do not occur. Security concerns are becoming progressively more important for CAI designers.

“Has the domain of appropriate responses been carefully anticipated?” (Hannafin & Peck, 1988, p. 314).

The domain of appropriate responses is not applicable in the lesson. The lesson does not employ any opportunities for multiple-choice responses, true-false responses or student input. Therefore,

significant, sustained interaction does not take place. Instead, the teaching assistant responds to constructed questions such as the formulated assignments and mini-assignments. Response management involves the way in which the computer accepts and assesses the students' input during a lesson. Responses can be classified as legal or illegal and authorised or unauthorised.

"Have appropriate procedures for evaluating student input been provided?" (Hannafin & Peck, 1988, p. 314).

Appropriate procedures for evaluating student input involved the evaluation of assignments and mini-assignments. The programme did not involve multiple-choice or true-false choice of replies in the lesson. Assignments were formulated in the form of 600 word opinion pieces or mini-assignments comprising 200 words. The assignment questions did not have straightforward correct or incorrect answers. The students had to analyse the information in the prescribed lectures and readings and then take a position on the matter. Since the students were enrolled as journalism students they had to convince their readers of their opinions, support their arguments with evidence and present their ideas logically (First Teaching Assistant, personal communication, 2006). The teaching assistant used the following grading rubric based on five categories to grade the major assignments. The categories are structure, content, evidence, writing and references. Structure refers to the organisation of ideas, arguments and conclusion. Content involves the correct use of facts, the use of theoretical concepts and the use of concise, unambiguous arguments and counter-arguments. Reliable, persuasive use of evidence is indispensable while writing has to reflect effective language and grammar usage. Appropriate reference citing is essential.

The following scale was used:

Table 17: Scales

Full mark 25	**Full mark 15**	**Full mark 10**
21 – 25 marks – excellent	13 – 15 marks – excellent	9 – 10 marks – excellent
16 – 20 marks – good	10 – 12 marks – good	7 – 8 marks – good
11 – 15 marks – adequate	7 – 9 marks – adequate	5 – 6 marks – adequate
6 – 10 marks – poor	4 – 6 marks – poor	3 – 4 marks – poor
0 – 5 marks – unacceptable	0 – 3 marks – unacceptable	0 – 2 marks – unacceptable

Scoring is shown in table 18:

Table 18: Scores

	Possible marks	**Marks earned**
Structure	25	
Content	25	
Evidence	25	
Writing	15	
References	10	
TOTAL	100	

The following grading rubric applied to mini-assignments:
21 – 25 marks – excellent
16 – 20 marks – good
11 – 15 marks – adequate
6 – 10 marks – poor
0 – 5 marks - unacceptable

Students received their grades and comments after completion of their assignments via WebCT6.

“Does the lesson display information accurately?” (Hannafin & Peck, 1988, p. 314).

Accuracy of display is a feature of the lesson. The verbal presentation and response of the Stanford students are displayed correctly on the screen. The location of the presented information “is consistent with the frame design parameters” (Hannafin & Peck, 1988, p. 314). The consistent designation of different zones on a frame for particular uses results in simplifying the learning task (Hannafin & Peck, 1988, p. 175). No split-end words occur at the end of a line. Adequate text centering, lack of word truncation and appropriate screen dimensions contribute to the phenomenon that the lesson displays information accurately. The content of the lesson is output to the correct position and presented as planned.

“Have lesson components been logically and systematically located?” (Hannafin & Peck, 1988, p. 314).

Lesson components have been systematically located and are easily identified uniformly across subsequent frames. Components such as the lesson content or topic menu appear on the specified location on the frame across successive frames. Lesson content appears logically towards the centre

of the frame with the topic menu designated towards the right bottom corner of the frame. Successive identification of lesson components eases the learning task.

“Is lesson execution consistent with the conditions specified in the flowchart?” (Hannafin & Peck, 1988, p. 314).

The lesson execution is consistent with the lesson flowchart. The lesson proceeds through a fixed sequence and executes as planned.

8.6.4 Curriculum adequacy

The extent to which the “lesson procedures, activities, and formats are consistent with accepted standards” (Hannafin & Peck, 1988, p. 314) is one of the essential factors concerning the long-term acceptability of the lesson. According to Wholeben (Hannafin & Peck, 1988) the lesson should be compatible with the approaches and methods of both teachers and students, easily integrated into current curriculum activities and compatible with types of lesson procedures already taking place.

“Is the lesson consistent with other related lessons?” (Hannafin & Peck, 1988, p. 315).

Other lessons exist in the International Security course and represent the standard of available instructional software. The newly designed and programmed lessons form part of the International Environmental Politics IDL 102 module and logically account for the anticipations that preceding lessons created. This does not imply that the new lessons should reflect preceding lessons. It is essential to scrutinise successful and popular aspects of existing lessons as they are important and form part of the anticipations of the users.

“Are lesson procedures consistent with the expectations of users?” (Hannafin & Peck, 1988, p. 315).

Contact with the procedures of a variety of lessons shaped user anticipations over time. The lesson offers fairly reliable methods for lesson execution. The methods used in the lesson are useful and compatible with regard to other lessons.

“To the extent feasible and advisable, have teacher and user preference been included?” (Hannafin & Peck, 1988, p. 315).

Teacher preferences have been included in the curriculum as the module forms part of a specially designed programme. The Stanford academic and research teams designed the module IEP as part

of a whole range of security issues. Teacher preferences regarding instructions that match the students' learning styles, have been considered. The designers tried to accommodate the students' preferences regarding instructions in order to enhance the learning process.

"Could the lesson be used as a basis for additional, related lesson development?" (Hannafin & Peck, 1988, p. 315).

The lesson consists of Lecture 1 which forms part of the ELISA project. The content consists of 15 lectures that were all created utilising the same protocol and response formats. The lesson protocol allows for the development of supplementary lessons. The lesson could be used as an example for additional related lesson development. The ELISA project was employed as a pilot phase that could be used to create additional related lessons.

"Does the lesson contain information likely to become quickly obsolete?" (Hannafin & Peck, 1988, p. 315).

The lesson contains information that will not become quickly obsolete. Due to several challenging factors to the planet such as population growth, climate change, limited water resources, species loss, toxic substances and deforestation, environmental issues will remain universal problems. Solutions to the mentioned problems will probably remain current and future environmental issues. South Africa as part of Africa currently experiences harsh climate conditions such as exceptional rainfall in some parts of the country and devastating veld fires in other regions. Food shortages, limited water resources and population growth in neighbouring countries such as Zimbabwe, Mozambique and Lesotho cause devastation and cause crippling demands on the sustainability of the environment.

"Can the lesson be completed within the allotted time?" (Hannafin & Peck, 1988, p. 315).

The lesson was completed within the allotted time. The time required for the completion of the lesson was 90 minutes. The designers were aware of the time limits agreed upon for lesson completion. It is inadequate to teach desired proficiencies if the required time is prohibitive. Due to the flexibility in the timeline, the students were afforded the opportunity to complete the lesson in their own time.

"Does the lesson offer flexibility in how it can be used?" (Hannafin & Peck, 1988, p. 316).

The lesson offers flexibility with regard to the navigation keys, the menu and the timeline. Navigation keys can be used to go to the next section of the lesson, to go back to the previous section of the lesson, to go back to the introduction of the course, to go back to the beginning of Lecture 1, to pause, to activate the lesson or go to the last topic of the menu. The menu offers flexibility regarding user

control without compromising the fundamental design. The students can access different menu topics if preferred. Flexibility regarding the timeline refers to the possibility to pause the lesson and continue at a later stage from there. The lesson does not contain options such as a hidden menu, varying lesson parameters, specification of the number of attempts per item or storage of students' scores to printer or disc. The documentation of the students' scores is managed through WebCT6.

9 Which aspects did not work well and why and how can they be improved?

The South African team as well as the students were of the opinion that, although generally speaking, the programme worked well. It became clear, however, that various aspects could be improved. These include the following:

9.1 Combination of course material

The combination of course material involved among others the introduction of PDA technology. One of the aspects that could be improved concerns the loan versus ownership of the PDAs. Should students be able to use the wireless handheld mobiles on a permanent basis it could enhance the hands-on approach of the programme and result in augmented journalism. However, the cost of the devices played a decisive role in the financial planning and it was decided that comprehensive research on the PDAs would be performed and included in subsequent studies. Skills to use PDA technology were insufficient. Since the students were introduced to PDA technology they had to adapt to this innovation in the minimum period of nineteen weeks. One of the assignments required them to record a video clip, attach it to the assignment and forward it via Bluetooth. Only one student succeeded in accomplishing this task. The negotiations with the cell-phone supplier MTN turned out to be cumbersome, time-consuming and caused unnecessary and avoidable irritation.

9.2 Workload

Some of the students felt that the workload was too demanding. The Stanford team selected a vast amount of reading as background for the topics. Some of the students indicated that they had limited time to research the prescribed topics to complete the assignments. This resulted in the unfortunate situation that not all the students completed their assignments. Despite this barrier all the students completed the course and received their certificates.

9.3 WebCT6

Some of the students did not have the necessary skills to use WebCT6 correctly. They experienced problems when they tried to submit their assignments “I never knew where to go...So to use a thing like WebCT6 is not easy...people just posted all over the show on different forums” (Focus-group interview, 2006). This resulted in a complication, namely that the assignments that were individually posted reflected as being posted by a group. This was later rectified. The email function of WebCT6 caused a dilemma. Instead of using the correct protocol to access the email function of WebCT6, some students used their own personal email facilities to communicate with the teaching assistants. The students were informed not to use their addresses to submit their assignments. Another problem was that some students could not access all the files that they were supposed to.

Geographical barriers formed part of the problems that can be improved. Not all the students resided in Tshwane. It was made clear from the beginning of the module that face-to-face contact sessions formed part of the programme and that attendance was mandatory. However, face-to-face contact sessions proved to be an obstacle for some students who had to take leave in order to attend the sessions.

9.4 Schedule

Some of the students objected to the date that the assignments were posted on WebCT6. They felt that not enough time was allowed between the posting date and the submission date. The submission dates used to be on a Friday at 24:00. This was unpractical and they suggested that it should be changed to a Sunday, Monday or Tuesday. This could afford the students the opportunity to work on their assignments during the weekends. They felt that a schedule containing all the information should be available at the beginning of the course.

9.5 Internet use

Contradictory to the positive aspects of Internet use, some students reported that they only had Internet access at work. They were, however, not permitted to use the Internet for study purposes during working hours and had to stay after work to research and complete assignments. Internet connectivity proved to be problematic for those students who did not have access to broadband.

9.6 Components of CAI

In order to access the lectures specific hardware as well as software had to be installed. The reason for this is that the lesson contains an audio-option that required a CD-ROM drive in order to run the compact discs. Software such as Realtime One had to be installed to access the lesson individually.

10 Reasons for the discontinuation of the project

In September 2006 Stanford unexpectedly informed the South African partners that the project would be discontinued due to several reasons. Their objections related to the lack of progress regarding content scheduling, media production, course logistics, and research practicalities. This news came as a surprise because from a South African perspective the pilot phase was successful.

With regard to content scheduling I wish to point out that in September 2006, before Stanford informed TUT that the project would be cancelled, the Stanford team leader reported that she was researching the specifications for the second year module. This module was due to commence at the start of the 2007 TUT academic year.

With regard to content planning, I was surprised to learn that the mutually agreed to curriculum specifications were apparently in doubt, whereas prior to the implementation of the ELISA phase, both the Stanford and South African participants agreed on adaptation and contextualization of the existing module to fit in with TUT's Department of Journalism curricular specifications. During the interview with a Director of the FSIIS he mentioned that "The kind of local/global balance is extremely tricky. People have to feel contextually comfortable, so if it is completely disconnected from life as they know it, it's not going to register, it's not going to penetrate. On the other hand, if it is exclusively local without the global link-up then the relevance or what one is doing, is lost" (Director of the FSIIS, personal communication, 2006).

In the interview with the Stanford team leader (Personal communication, April 24, 2006) she too emphasised the importance of contextualization: "…when you want to work closer with another organization and you want to meet the needs of the students which would be learning about it, in this case, International Environmental Politics, you need very much to take into consideration what their needs are and their expectations are. So in this case the choice of the environmental course was very appropriate. What was fascinating was being able to work with the South African environmental specialist to find out what are the areas of interest to you all. I think that it is really crucial having a local person on the ground to contextualise it further. In this type of situation you have one perspective that we are giving and then to have someone who can say: 'Ok, what you have heard at this level, how do you apply it to South Africa or to you as an individual?', and then further individualise it that

way. I think it is extremely helpful. I don't think a course could be successful if you were just going to do it for the for-profit model, say: 'Here is the course, take it' because people might not necessarily understand some of the case studies or some of the expressions because everything would be couched in American terms, and those are not necessarily applicable to other countries. So that is extremely important. I have learned the value of really having someone on the ground to help tie in whatever the content is, into that local and individual perspective and then meet those needs".

Despite the mutual agreement to contextualize and adapt the curriculum Stanford afterwards referred to this contextualization as "never a good fit" (Blignaut & Conradie, 2006). With regard to media production, course logistics, and research practicalities this study does not investigate the "why?" of it as I believe that there are enough data for a whole new study into why this happened.

Chapter 5: Conclusions

1 Introduction

In chapter four I discussed the results and findings of the central question. In chapter five I will summarise the research by focusing on the research question, critical questions and the results. A discussion of lessons that can be learned from the research follows. This includes a methodological, substantive and scientific reflection of the research. Finally, recommendations for policy making and practice and further research follow.

2 Summary

This study focuses on what happens and why it happens when two diverse tertiary cultures established on different continents, meet around a computer-mediated situation. The project was registered at Stanford under the code-name “ELISA” (e-learning initiative in South Africa) and was initially intended as a three-year project from 2006 to 2008. This study involves the pilot phase of the ELISA project. The cultural divide between Stanford and South Africa presented huge obstacles, yet the mutual will to participate ensured cooperation, at least for the pilot phase. The research questions are summarised as follows:

Table 19: Research questions

Question	Formulation	Rationale
Main research question	What happens when two differing tertiary cultures meet around a common subject in a computer-mediated situation, and why does it happen?	In order to achieve the purpose of the study, it is necessary to develop an understanding of what happens when a North-South partnership between members situated in different continents, takes place. The reason why this is necessary is to contribute to the existing body of literature regarding the successes and failures of North-South partnerships.

		Another reason is to offer recommendations pertaining to the study and to formulate recommendations for further research.
Central question	What happens when an international learning module, compiled by an American university is adapted for a South African HEI, and implemented in a computer-mediated context?	In order to achieve the purpose of the study, it is necessary to explore different elements regarding the international learning module. One has also to explore the different aspects of human behaviour of the role players.
Critical question 1	What dialogue emerges and why does it emerge?	In order to answer the main and central questions, one has to focus on the type of dialogue that emerges from the partners. The answer to why dialogue emerges is that communication lies at the root of the underlying principles of the partnership. Dialogue is indispensable from the beginning to the completion of the project because ideas and critical issues have to be communicated and are to be raised and discussed. Dialogue is also a way of broadening one's own thought processes and is thus important in an outreach project.
Critical question 2	How and why is shared meaning created?	The intention to explore the creation of shared meaning is to give an answer to the central question because

		shared meaning forms an essential part of the learning module. The reason why shared meaning is created is that this process starts with shared ideas that result in a variety of objectives in order to reach various goals.
Critical question 3	How do we deal with cultural differences?	In order to answer the central question, it is necessary to get an understanding and awareness of many different cultures that exist side by side. Global objectives and local needs are combined to create a workable model.
Critical question 4	Which aspects of the process work well and why and how can they be improved to compensate for those that do not work well?	Positive aspects form part of the international learning module. In order to answer the central question, it is crucial to identify these positive aspects as well as why they turned out to be positive. These aspects can be used to compensate for the less successful aspects.
Critical question 5	Which aspects do not work well and why and how can they be improved?	In order to answer the central question, it is necessary to determine aspects that do not work well. Information on how these aspects can be improved can contribute towards a successful learning module without inherent negative aspects.

The rationale for the study is to contribute to the growing body of literature on cooperation between HEIs in developing and developed countries as well as to contribute to the domain of cross-cultural education. The focus of the study is to explore the effect of commonalities and cultural differences on cooperative learning at organisational level.

The literature review explores the influence of various inter-relating aspects such as the international Digital Divide, factors contributing to the Digital Divide, HEIs, the role of technology, cooperative learning, what dialogue emerges and why does it emerge, how is shared meaning created and why is it created, and how do we deal with cultural differences (discussed under Chapter 2, 2.1 to 7). The influence of positive and negative aspects on the learning process as well as how it can be improved is also explored.

The central question *What happens when an international learning module, compiled by an American university is adapted for a South African HEI, and implemented in a computer-mediated context?* involves various inter-relating aspects. The international Digital Divide can be described as the phenomenon of citizens with access to technology (the well-resourced) and those without access to technology (the under-resourced). Northern hemisphere countries such as North America, Europe, parts of Asia, and Australia and New Zealand in the southern hemisphere, are regarded as industrialised, wealthy and are scientifically and technologically advanced. Contrary to this, countries located in the Southern hemisphere as well as some Asian countries, show a lack of development when considered at the international level. Apart from the international Digital Divide there exist numerous other divides among people and within countries.

A multitude of factors contribute to the Digital Divide. Uneven development all over the globe, as well as varying computer and Internet access, are regarded as indications of the Digital Divide. Income differentials contribute to the chasm between the well-resourced and the under-resourced and account to a certain extent for the Digital Divide. South Africa is an example of a developing country as well as a developed country that contains two societies in one. The quality of telecommunication infrastructure, uneven distribution of fixed lines, the lack of competition in the telecommunications industry and excessive costs further contribute to the Digital Divide. Geographic barriers prevent students from becoming technically literate and reduce people's educational opportunities. Human capital comprising people's levels of education, literacy, language proficiency and skills contribute to the difference between the well-resourced and the under-resourced. Literacy barriers may lead to deprivation of knowledge and thus result in a difference in socio-economic levels. Language is regarded as a factor that initially contributed to the Digital Divide as a significant number of websites are only in English. Culture exists in various subsets of human behaviour and several attributes are present in all cultures. These attributes contribute further to the Digital Divide.

Several initiatives are available to bridge the Digital Divide. These include economic growth and development, human capital and investment, Internet literacy, Internet access, technology diffusion and telecommunication infrastructure.

Economic growth and development is identified as one of the major attempts to decrease the Digital Divide. Direct foreign investment, stable political and financial governance, capital and labour contribute to economic growth and development. National enterprises can create growth, development, revenue, empowerment and poverty alleviation. The enrichment of human capital is regarded as one of the major factors to bridge the Digital Divide. Education is an important tool in the endeavour to develop growth, expertise and human capital. Education enables Internet literacy and access, both important aspects of empowerment. Digital literacy is regarded as a similar skill to numeracy and literacy and should form part of all educational institutions. Special entry courses for those who are technical illiterate, programmes that focus on specific content, applications that contain locally relevant content, and programmes in native languages may be efficient and appropriate measures to promote Internet literacy. Initiatives such as the diffusion of technology improve communication and promote development, especially in rural areas. Income determines the use of technology. Higher income results in the increased use of technology. My findings indicate that the majority of students at Stanford possess their own computers and laptops. The promotion and expansion of telecommunication infrastructures, the affordability of wireless technology as well as the availability of the Internet contribute to the attempts to decrease the Digital Divide.

Regarding the international Digital Divide I came to the conclusion that there is a significant divide between Stanford located in the Northern hemisphere as opposed to Pretoria located in the Southern hemisphere. My findings correlate with the literature on income differentials that identify income differentials as one of the main contributors to the Digital Divide (discussed under Chapter 2, 2.1.3.1). Although the South African economy is classified as a middle income economy various barriers exist to the development of economic growth. South Africa is a classic example of two societies in one. At the one extreme is a modern, affluent, well-resourced society. At the other extreme there is an under-resourced society that is characterised by poverty, malnutrition, and the lack of electricity, running water, proper health care and modern sanitation. The term Digital Divide could undeniably have been formulated for South Africa. The literature review of the telecommunication infrastructure indicates that it is one of the important factors that contributes to the Digital Divide. I found that because of inadequate telecommunication some of the ELISA students had no Internet access at home. Geographic barriers proved to be an obstacle to students who had to attend face-to-face contact sessions away from home. My findings show that this was indeed problematic for some of the ELISA students. One student resided in Nelspruit and reported that travelling between Pretoria and Nelspruit (a distance of 334 km) proved to be time-consuming and costly. My findings correlate with the literature that regards human capital as a determining factor of the Digital Divide (discussed under Chapter 2, 2.1.3.4). The ELISA students comprised some highly talented students who achieved high marks, as well as one student who decided

to leave the programme due to insufficient technical skills. Literacy is identified as a factor that contributes to the divide between the well-resourced and the under-resourced. The ELISA students who completed the project, however, enjoyed sufficient schooling and tertiary education and were not prone to a literacy barrier. Much of the literature regards culture as an expression of the Digital Divide. Although the ELISA students represented different backgrounds, especially different cultural backgrounds, these differences did not significantly influence the programme. Surprisingly the cultural differences that indeed influenced the programme emerged not from the students, but from the academic team leaders and members on both sides. Right from the outset it was clear that a definite Stanford culture was opposed to a hard-to-define UP and TUT culture. The frequently used phrase *we at Stanford* symbolised a homogenity among Stanford colleagues as opposed to a more individual outlook among UP and TUT colleagues. Contributing cultural differences between the two teams included authority, conformity, conflict, individualism, survival-of-self, innovation, ethnicity, creativity, role division, fairness, particular ability, particular obsession, negativity, stability, predictability, personal power, unequal power relations, task orientation, transparency, and national ownership. These differences are further described in Chapter 5, 3.1. Finally a lack of mutual trust, of shared decision making, of commitment, and stability influenced the project to such an extent that it was discontinued.

Recently higher education changed significantly and will continue to change in the 21st Century. The literature review indicates that this is a national and international trend. Several developments altered higher education radically while challenges such as escalating student numbers, return on investments, financial constraints, decreasing resources and competition between service suppliers pressurised HEIs to adapt. Increasing educational needs compel HEIs to provide in these needs and to adapt to a more flexible learning style. My findings indicate that South Africa is prone to these factors. The ELISA programme is an intervention where the students furthered their careers whilst studying part time. This phenomenon illustrates the importance of higher education for students in South Africa to better their lives. The ELISA programme was hosted at TUT which is the largest residential HEI in South Africa.

New technologies are changing all facets of society. The literature review shows that educational technology should improve the learning process through increased productivity (Chapter 2, 2.2.2). Learners should be technologically literate and use technology to achieve a variety of goals. The ELISA students used technology to seek information, integrate new and existing information, collect relevant information and gather resources. The students also used technology as a communication tool to facilitate synchronous as well as asynchronous interaction between themselves and members of the research and academic teams. One of the most significant functions of technology is to create change. Educational technology necessitates support and training. The TUT technical team offered support on a permanent basis. My findings indicate that the majority of the students needed more technological training to ensure maximum benefits.

The critical question *What dialogue emerges and why does it emerge?* involves various underlying principles. My findings correlate with the literature review that indicate that cooperative research partnerships are based on various principles such as mutual trust, shared decision making, national ownership and transparency (discussed under Chapter 2, 5, *What dialogue emerges and why does it emerge*). Unequal power relations and funding are fundamental principles that either result in the success or the failure of partnerships.

The dialogue between Stanford, TUT and UP addressed the following themes: The objective of the proposed collaboration, the draft narrative for the research, the academic design and implementation of the project, the proposal outline, the time frame, the schedule for collaboration, the curriculum specifications, the course development and proposal outline, the contextualisation of learning material, the two-way learning process, the collaborative HEIs, technology, and sponsorship, funding and budget.

The project had positive as well as negative aspects. Positive aspects related to the national ownership of the curriculum that enabled the students to make the learning material their own and put it to professional use. The combination of course material as well as the blended learning material resulted in a significant learning experience that enabled the students to further their careers. They could complete the project without interruption at work in order to be financially independent. The development of critical thinking skills and dispositions were two of the most important aspects. The dispositions enabled them to look at questions from different angles and not to take reading material at face value. Some of the students regarded the use of the Internet as positive and essential for research purposes. Feedback and motivation were positive aspects due to the punctuality and encouragement of the teaching assistants. Negative aspects proved to have a detrimental effect on the use and application of the module. Ambiguity arose because previously agreed upon aspects such as the contextualization of the curriculum was later regarded as unsatisfactory. Misconceptions regarding the selection of the TUT participants occurred. Unequal power relations disturbed the relations between the partners. Another complicated aspect was the funding-and-budget arrangements. The South African team had already prepared for the second phase of the project when it was discontinued. From a South African perspective it was also hoped that, once the pilot phase was completed, more students would benefit from the outreach initiative. These multiple negative aspects resulted in a lack of mutual trust between the two teams. My findings confirm that a lack of mutual trust proved to be a challenging aspect of the ELISA project. UP was uncertain about Stanford's motives and what they could offer. UP's doubts arose from the fact that northern hemisphere countries were actively in quest of partnerships with universities in the southern hemisphere.

Initially both Stanford and UP agreed to shared decision making. The project leaders on both sides were in complete agreement about the contextualisation of the original curriculum by adapting some learning material relevant to the South African context. Later on it became clear that the project funders objected to the way that the project had been conducted. This was because the contextualised curriculum differed

from the original curriculum that was proposed for possible future participating HEIs. Stanford later on referred to the mutually-agreed-to negotiated content as “never a good match” (Blignaut & Conradie, 2006).

Despite the disagreement that arose about the contextualised curriculum, national ownership of the learning material seemed to be one of the positive aspects of the ELISA programme. The journalism students used the opportunity to make the learning material their own and this resulted in computer-generated documents that could be used in future.

My findings correlate with the literature that refers to unequal power relations as characteristic of North-South partnerships (discussed under What dialogue emerges and why does it emerge, Chapter 2, page 60). The ELISA programme revealed a discrepancy about power where UP and TUT did not agree to the exclusive authority of Stanford. This authority, however, involved the power to determine project success or failure. This authority also included the control over funding and the power to decide on project continuation or termination. Stanford kept the funds in the United States and only settled expenses already incurred.

The critical question *How is shared meaning created and why is it created?* comprises common purposes, common adversaries and common incentives. My findings correlate with the literature which indicates that cooperative learning can achieve shared goals and shared meanings. Motivation is essential for successful learning while intrinsically motivating environments facilitate successful learning. Interpersonal motivations such as cooperation, competition and recognition exist and contribute to the learning process. Cooperative learning was highly successful in the ELISA programme and motivated the students to continue with their journalistic endeavours.

Different cultural values are characteristic of diverse nations and organisations. The critical question *How do we deal with cultural differences?* emphasises these diverse values. Cultural identity involves similarity and differences. Similarity pertains to similar points between people and underlies the differences that they experience. Differences are inscribed in cultural identities and unite people regarding who they really are. My findings correlate with the literature that points out that there is an explicit divide between people from different cultures and traditions. Globalisation causes the world to get smaller, compressed, interconnected and results in a world that is *flat.* Dealing with cultural differences necessitates an understanding and awareness of other cultures. Certain countries attempt to preserve their own unique cultures where nationalism is the decisive factor. Glocalization refers to the process where the local goes global with the focus on local experiences and content. This concept of glocalization opposes the idea of one content and one ideology that dominates the world.

Examples of glocalization are endeavors such as Bollywood films where certain elements of the film are typically Western, a Singaporean public housing program where Western and local motifs are combined to form a new design, and the introduction of Gillette's Sensor Excel shaver for ladies in Japan.

The critical question *Which aspects of the programme work well and why and how can they be improved to compensate for those that did not work well?* emphasises several positive aspects of the programme. These aspects include national ownership, combination of course material, critical thinking skills and dispositions, Internet use, and feedback and motivation (discussed in more detail from page 153 to page 154).

National ownership of the curriculum implies that the students use the opportunity to make the learning material their own. My findings correlate with the literature because the students could use the curriculum. This inspired them to explore additional environmental issues. The combination of course material resulted in a valuable learning experience. My findings bear a resemblance to the literature in this regard in that this method of learning proved to be very successful. The development of critical thinking skills and dispositions was one of the most important objectives of the programme. According to the literature it is also a common objective of various disciplines. The findings of the ELISA programme indicate that critical thinking skills are imperative since the students had to construct their own learning. Critical thinking skills can be fostered to compensate for those aspects that do not work well. The findings of the ELISA programme correlate with a significant body of literature that points out that Internet use can enhance the learning process. The Internet can be used as a tool to achieve various goals and to enable the students to become global partners. Feedback and motivation are regarded as positive aspects that facilitate change. The literature proves that feedback is necessary to encourage full participation. The motivation and feedback in the ELISA programme were excellent and inspired the students to collaborate and use the opportunity for best results.

The critical question *Which aspects did not work well and why and how can they be improved?* pertains to aspects such as the initial agreement with the University of Limpopo, unequal power relations and the dismantling of prejudice. The initial agreement with the University of Limpopo went wrong from the outset. This coincides with the extensive body of literature that reports on the failures of partnerships between developing and developed countries. The University of Limpopo was sceptical and under the impression that UP wanted to impose on them. Unequal power relations and funding are fundamental principles that either result in the success or the failure of partnerships. I found that the ELISA programme shows a resemblance with the literature that reports on failed partnerships. Prejudice proved to be another obstacle. Initially the Stanford representatives doubted whether the programme would be successful in South Africa. The South African skills and expertise, however, surprised the Stanford representatives while the South African representatives wondered whether they should not conduct the programme independently.

Aspects that can be improved involve the establishment of mutual trust between the different role players and team leaders on both sides. Advancing the personal contact between the different teams can contribute to the dismantling of prejudice. Trust that is founded on personal contact can create and increase an atmosphere of successful cooperation. Equality of power relations between the two teams is another aspect that can be improved. This should be addressed in order to ensure that one partner does not have a disproportionate advantage and authority over the other. The dominant role that Stanford played regarding the management of the funding can be reconsidered. When both partners share the responsibility to control the funds a more successful working relationship can be established.

This study used the “ADDIE” model to describe and evaluate the ELISA programme. The ADDIE model comprises five stages namely Analysis, Design, Development, Implementation and Evaluation. Analysis explores the goals of the learning experience, the target population, the media, the time frame, and the cost of the exercise. Design stipulates the curriculum of the intervention and development involves the way in which the course authors compiled the curriculum. Implementation entails the delivery of the product while evaluation specifies whether formative or summative evaluation was done.

3 Discussion

3.1 Methodological reflection

The ELISA project is regarded as a case study that was used to conduct formative research to evaluate and improve the educational design. This educational design is grounded on principles that originated from preceding research. An applied research component formed part of the ELISA programme and evaluation research is a well-known form of applied research.

The study followed a grounded theory approach to inductively generate theory. Apart from the significant body of literature that exists on grounded theory (discussed in Chapter 1, p. 22, and Chapter 3, pp. 39-40), I used specific guide-lines on grounded theory research to conduct the study (Dick, 2005). Grounded theory does not gauge a hypothesis. Since I initially approached the study without a clear pre-defined research agenda, it was felt that grounded theory would be an appropriate approach. The advantage of this method is that it allowed me to be free from initial bias. The disadvantage is that, especially during the early stages of the research, the process tends to be unfocused. My position in this research is that of an outside observer, investigating what happened. From the beginning I grappled with the process of analysis of the data that I had encountered, often puzzled and frustrated by ambiguity. The research aimed to explore the research problem by focusing on the subjective experiences of human beings in social context. Attempts were made to understand the students from within as well as the subjective world of their experiences. This was accomplished by encouraging the students to express their ideas by means of discussions, project documents and the focus-group interview.

I recorded what was happening and did not try to interpret it at that stage. I took notes during all the real-life situations of the programme. The data that I collected include emails between Stanford and TUT. From these emails I identified various different connotations. While taking notes I realised that the emails reflected values such as truth because the outreach project was legitimate and based on facts. Justice and fairness was reflected in the integrity of the role players. Authority, personal power, efficiency and expertise were characteristic of the leading partners who managed various problem-solving aspects in order to reach conformity. The outreach initiative was based on role division that sometimes required rapid decision-making and this took the form of the interchange of short notes. The particular abilities of the team leaders resulted in the selection of the appropriate curriculum for the target group and the succession of telephone conferences and video conferences. Individualism, particular obsessions and an attitude of survival-of-self was apparent among some of the team leaders. Charisma was also characteristic of some of the team members. Performance and enterprise formed part of the teaching assistants' responsibilities because they had to compile the students' reading material and grade the assignments. The first teaching assistant's creativity and innovation resulted in her suggestion of online office hours at times that would suite the students.

The first teaching assistant confirmed that she experienced some personal insecurity due to the fact that particulars regarding the demographic background of the target group were unknown. The first teaching assistant was unsure in the extent of coping with the situation because she was under the impression that the South African mobile technology was far in advance of that in the US. However, the teaching assistants' enthusiasm, commitment and task orientation resulted in a wide variety of reading material being made available to the students. A certain amount of affinity developed between the first teaching assistant and some students. Severe detrimental aspects of the project were the negativity and anger that arose between the TUT leaders and the representatives of the mobile service provider. Stanford's decision to discontinue the project resulted in conflict and disbelief in the South African team.

I then coded my notes and grouped them into categories. The following categories emerged: Business plan, higher education, divides, syllabus, technology, wireless technology, and the Internet. Data also included transcripts of interviews, recordings, observation notes, transcripts of telephone conferences and video conferences and minutes of meetings, and project documents. The latter included assignments, WebCT6 documentation on online chat sessions, individual meanings posted under discussions and official grade reports. The focus-group interview resulted in a significant contribution to the data. I then started to compare the data that I had obtained from the first project documents with that of the remaining data. I selected and divided data systematically into manageable ideas, patterns, trends and correlations (Mouton, 2001). I tried to discern the theory underlying the data. Theory soon emerged and I compared data to theory.

I also identified sub-categories or properties of the information that I obtained from the participants and interviewees. Properties included goal, partnerships, authority, funding, target population, timeline, ownership, resources, increasing student numbers, distance education, availability, affordability, Digital Divide, cultural divide, physical divide, expansion, bridging, lecture outline, deviation, core course content, readings, input, contextualisation, CD-ROMs, language, input, feedback, telephone conferences, video conferences, skype calls, PDAs, sms's, use of wireless technology, South African situation, Stanford situation, availability, cost, ubiquity, service providers, telecommunication, affordability, infrastructures, and literacy.

While I was coding I became aware of certain theoretical propositions. I identified the following propositions: Stanford's business plan for a higher education international outreach initiative was formulated with reference to the objective and specifications of the proposal collaboration. The prescribed syllabus specified the content of the module and emphasised the two-way learning process between the two teams. Different divides exist among all nations and cultures. Technology is used as a tool to facilitate and achieve a variety of goals.

Links between categories occurred as well as central categories or core categories. These links provided the theory for the study. I started making notes which eventually resulted in memos. I grouped the memos and sequenced them to formulate a theory. Eventually I formulated the following theory: cultural divides between team leaders and members of a prestigious Higher Education Institution in the Northern hemisphere and their colleagues at a less prominent Higher Education Institution in the Southern hemisphere exist and influence the outcome of an international outreach programme.

Background reading is an important element of grounded theory. While collecting data I started to read literature on culture, cultural diversity (commonalities and contradictions), cooperation and cooperative learning, partnerships, educational technology, factors contributing to the international Digital Divide, bridging the Digital Divide, the effect of globalisation on education and Higher Education Institutions in South Africa. At first, in this emergent study, it was not obvious which literature sources would be relevant. I kept on reading and accessed relevant literature as part of my data collection. I compared the literature sources to my emerging theory in a similar fashion that I compared the data to my emerging theory (Dick, 2005).

Apparent discrepancies between data from the literature and the emerging theory are always possible in grounded theory research. These discrepancies should be treated appropriately because it does not necessarily prove that the theory is wrong. However, the theory should fit the situation and it should work. The theory should be extended to make sense of the data taken from the literature as well as from the empirical data-collection procedures. I found that the grounded theory research model fitted the ELISA

situation very well because it allowed for all the possible nuances that originated. It addressed all the relevant perspectives of the research.

3.2 Substantive reflection

The results of the ELISA programme are compared to the outcomes of research on comparable topics and areas. These results illustrate a correlation to other knowledge in this area. The ELISA programme provided numerous constructive results. The most important results were the development of human capital via a valuable learning experience, computer-generated documents, critical thinking skills and dispositions, international collaboration, the use of technology, and certification (explained in more detail from page 160 to page 165).

3.2.1 Valuable learning experience

The ELISA students' participation in a wide-ranging and suitable e-learning programme resulted in an exceptional and valuable learning experience. The exposure to the curriculum and national and international expertise raised awareness about environmental issues that the students previously did not have. All the students reported that they had gained from the learning exercise and that it was valuable for journalism students. The outcome of this international outreach programme correlates favourably to a distance education initiative between the University of British Columbia (UBC), Vancouver, Canada and the Monterrey Institute of Technology in Mexico. In 1997 the providing partner UBC developed a set of five ICT courses to Monterrey by integrating technologies such as CD-ROMs, the World Wide Web and videoconferencing. This technology-based distributed learning initiative was extremely successful as most of the students gave good feedback and regarded it as really valuable.

3.2.2 Computer-generated documents

Computer-generated documents provided significant results. All the students (with the exception of one who worked night shift in a demanding temporary editor capacity) completed all five major assignments and two mini-assignments that were included in the requirements of the programme. These assignments entailed 600-word opinion pieces and a 200-word opinion piece respectively. These exercises afforded them the opportunity to analyse the information in the prescribed lectures and readings and then take a position on the matter. Since the students were enrolled as journalism students they had to convince their readers of their opinions, support their arguments with evidence and present their ideas logically. The completion was mandatory in order to comply with the requirements of the programme. The students also had to prepare a 200-word piece reflecting a journalism perspective on any pressing issue relevant to

environmental journalism. The UP guest lecturer facilitated a healthy discussion about the students' contributions on different ecological issues. The second teaching assistant researched academic, professional and conference opportunities for environmental journalists in this regard. The idea was that students could use these assignments to compile and revise a written example to use later to apply for development opportunities.

A comparison with Cronjé's study (2006, p. 277) Pretoria to Khartoum – how we taught an Internet-Supported Masters' programme across national, religious, cultural and linguistic barriers - reveals a commonality with regard to computer-generated documents. In this initiative that was lectured between Pretoria and Khartoum the students produced electronic artefacts such as "essays, term papers, websites, Power Point presentations, Authorware lessons and Excel spreadsheets". I came to the conclusion that similar to the Pretoria – Khartoum initiative, the exposure of the TUT students to the ELISA programme enabled them to produce their own computer-generated documents.

3.2.3 Critical thinking skills and dispositions

The development of critical thinking skills and dispositions was one of the most important results of the ELISA programme (discussed in more detail under Chapter 2, from page 72 to page 73). The students learnt to formulate an unambiguous argument and explain their position with supporting data, gain insight into lectures and readings, demonstrate their command of the material by choosing main points and organise learnt material into a reasoned written contribution, form an opinion on an issue after obtaining information from the prescribed material, convince their readers of their views and present their ideas sensibly. An argument should be comprehensive, logical and based on solid evidence. During one of the contact sessions the Consulting Assosciate Professor from Stanford facilitated a cooperative learning session. This learning process involved small group discussions during which the students had to analyse information, construct their own understanding of the issues, share their ideas with the members of their group, and give feedback to the rest of the students. This active exchange of ideas increased interest among the students and encouraged critical thinking.

The above study which features the development of critical thinking skills compares favourably with the study "Critical thinking skills and dispositions of baccalaureate nursing students – A conceptual model for evaluation" by Colucciello (1997). She used a sample of 328 baccalaureate nursing students to scrutinize critical thinking skills and dispositions. The study focuses on whether or not there exists a relationship between critical thinking skills and critical thinking dispositions of nursing students and possible differences in critical thinking dispositions between the academic levels of junior and senior nursing students. The study emphasises that nurses had to foster their inductive and deductive interpretations; develop their skills to analyse; constantly re-evaluate new information and adjust to opposing evidence**.** The findings indicated that with regard to critical thinking skills, there exists a considerable difference

among nursing students of different levels. Critical thinking skills clearly developed among the ELISA students as they were required to access lectures and transfer the knowledge to their own creative writing. They were, however, not subjected to the development of different levels of critical thinking skills.

3.2.4 International collaboration

International collaboration and cooperation resulted in the sharing of knowledge and the enhancement of the learning experience for the ELISA students. The purpose of the collaboration between Stanford and the South African teams was to introduce an existing Stanford international security course to a South African HEI. The International Environmental Politics programme focused on universal environmental themes and identified problems and potential future problems and perverse outcomes. The course author introduced the students to five fundamental viewpoints from which to understand environmental problems of international importance. The Consulting Associate Professor from Stanford emphasised environmental sustainability and focused on the impact of drastically increasing populations on global resources. She compared a Honduras family with a Kenyan family and highlighted the equity of people on the planet who are living in very different circumstances. The guest lecturer from UP accentuated transnational biodiversity protection and the benefit of peace parks for South Africa. The students were exposed to the expertise of world famous international environmentalists and had the opportunity to make the learning material their own thus furnishing substance to the phenomenon of national ownership of the material.

The findings of the ELISA programme correlate with the contribution of the African Studies Association (Samoff & Carrol, 2002) which received a grant from the Rockefeller Foundation to address Africa's higher education situation. International collaboration and cooperation often result in partnerships which emphasise national ownership or "country-led development" (Samoff & Carrol, 2002, p. 43). Their findings indicate that one of the underlying principles is that the formulation of the direction for growth in Africa is Africa's responsibility. Similarly one of the underlying principles of the ELISA project is that the formulation of a policy to ensure environmental sustainability is the responsibility of role players in both the Northern and Southern hemispheres.

3.2.5 The use of technology

The exploration and use of technology resulted in the enhancement of the students' digital skills. The students used technology as a tool to accomplish a variety of tasks. These tasks included seeking information, integration of new and existing information and communication. The students used the Internet to research their assignments, collect significant information and integrate and synchronise new

and existing information. WebCT6 afforded the students the opportunity to acquaint themselves with the learning management system. Although the majority of the students reported that the use of WebCT6 caused problems, all the students used it to participate in the programme. The decision to incorporate a mobile communication component in the programme led to the introduction of the PDAs. This use of technologies correlates with the mission of TUT to “extend the parameters of technological innovation by making knowledge useful through focused applied research and development” (Tshwane University of Technology, 2005). The video conferences resulted in the participation of the students in interactive learning processes.

The above findings on the ELISA programme correlate with the use of technology as reported by Cronjé (2006) in the Pretoria to Khartoum study. Three Professors from UP taught a Master’s degree programme at the Sudan University of Science and Technology in Sudan. The presentation mode involved Internet-supported distance education and contact sessions. The students received six months of computer literacy training to enhance their digital skills. The results of the ELISA programme can also be linked to the study ICT- Transforming the world by transforming universities which was conducted by the Swedish International Development Cooperation Agency (SIDA) in 2002 in Mozambique (Issakson, 2002). This study focused on the connection of universities in developing countries to the Internet in order to support ICT training and digital skills. The study found that there is a significant discrepancy between the management and the deployment of technology in one of the world’s poorest countries. Venancio Massingue, Vice Rector of UEM, Mozambique indicated that there is an urgent need to master technology (Issakson, 2002). This is of vital importance in the development of digital skills of university students. Likewise the ELISA students needed more technological training and the development of digital skills as clearly indicated in the focus-group interview.

3.2.6 Certification

One of the most important results of the ELISA study is the completion of the programme. Fourteen of the fifteen students completed the programme in fulfilment of the requirements to obtain their qualifications and work as journalists. The programme was completed on schedule after eighteen weeks and the students received certificates issued by both Stanford and TUT on 18 August 2006. The programme had a 93% completion rate. Two of the TUT students had already enquired about further studies abroad, particularly at Stanford. They expressed the wish to enroll at Stanford as the programme opened new study possibilities for them. These findings correlate well with the findings of Cronjé (2006) in the Pretoria to Khartoum study where the study was completed within 18 months with a 100% completion rate. Despite the successful 93% completion rate of the pilot phase of the ELISA programme, the potential of shared goals between the two teams was not realised. Mutual trust failed and the programme was discontinued after the first year.

3.3 Scientific reflection

This research contributed to the scientific body of knowledge in various ways. The scientific reflection emphasises what is gained through this study with respect to the product, the process and the methodology. With respect to the product as designed it is noteworthy that research projects as components of partnerships often bear the unmistakable imprint of the role players that commission it. Initially Stanford wanted to introduce an existing international security course to a South African HEI. Stanford first offered this same course in Russia in 2000 to nine HEIs. However, after careful deliberation the South African team insisted on the inclusion of two lectures on South African content. Stanford realised that they could not impose a foreign degree on the South African students and agreed to the contextualisation of the content of the curriculum. Cultural influences regarding the compilation of a curriculum are important and a foreign course should be culturally and pedagogically relevant. This resulted in the decision to omit some of the original nineteen lectures and to select fifteen lectures for the programme, representing some South African content.

I regard the opportunity of curricular innovation as one of the main attributes of the project. The partial contextualization of the curriculum was one of the outstanding features that involved dedicated experts to participate. It is this expertise and commitment that enriches the project and augments it to a superior product that can enable a two-way learning process. Yet Stanford later objected to this development. A better understanding and exploration of the ELISA curricular innovation can contribute to the successful design of other outreach initiatives in cross-cultural contexts.

The scientific reflection regarding what is learnt with respect to the process focuses on the modus operandi that was followed. Interestingly enough is the fact that the process originated as a result of personal contact between two delegates who realised the potential of a North-South outreach initiative. Ironically the project was discontinued because of insufficient mutual trust and shared goals between the team leaders on both sides. This accentuates the importance of continuous personal contact between role players. The multiple divides separating the members of the two teams had a significant influence on the process. Increased personal contact between the partners could lead to trust and confidence. This was confirmed by the second teaching assistant who admitted that the huge distance between the partners was a real challenge. The design and selection of appropriate reading material proved to be particularly complicated. The selection and demographic particulars of the target group was another unknown factor that caused ambiguity. The project lacked a dedicated outreach coordinator who could gain first-hand knowledge and understanding of progress and problems on both partnering institutions. Reconsideration and anticipation of the course of action that should be taken could add to the refinement of the process.

The research that was done in the ELISA programme contributed significantly to the scientific body of knowledge regarding the methodology that has to be followed. The ELISA programme is an example of a

case study that used grounded-theory as a research approach because the theory gradually emerged and did not gauge a hypothesis. However, the project should have been designed and developed as a design experiment. This would enable the designers and developers to reassess the progress and outcome of the pilot phase and also to reconsider and amend the curriculum for the second and third years. The fact that the project was discontinued after the pilot phase indicated limitations that could otherwise have been avoided.

4 Recommendations

Recommendations pertaining to the question *What dialogue emerges and why does it emerge?* involve the following:

More care should be taken to dismantle prejudice and to create an atmosphere of mutual trust between team leaders and members on both sides. From the outset it should be agreed that the modus operandi is that of shared decision making. It should also be agreed that this should continue right through the project in order to prevent one partner (in this case the providing partner Stanford) from unilaterally and without any explicit reasons deciding to discontinue the project. Shared decision making should also be carefully monitored and upheld. It should enable the receiving partner (in this case TUT) to react and comment on the perceived problems that lead to the breach in trust. The receiving partner should be in position to review the course of the project, recommend restructuring in order to refine and enhance the project. The outcome of the pilot phase should enable both partners to suggest fine-tuning and improve the academic design and development. Equal power relations should be established and endorsed to ensure that each partner may lay claim to the same rights in the outreach initiative. The funding partner should not be the service provider too as this precludes the process of shared decision making.

The academic design and implementation of the project should be cautiously reviewed. This should enable the teaching assistants and other role players to provide more feedback to the team leaders on both sides. Close collaboration should contribute to a clear understanding of the pedagogical problem and result in curricular innovation. The pilot phase should be designed to include more than one iteration so that it could be a prototype of an intervention that increasingly attempts to meet the original goals and prerequisites. The current two semesters during which the pilot phase was conducted should be lengthened to three or four semesters in order to allow the students to make the most of it. Successive approximation should be incorporated to improve the design and implementation. The initial time frame of three years should be adhered to. Partial contextualisation of the curriculum should be incorporated.

The question *How and why is shared meaning created?* leads to the following recommendations:

More commitment and engagement of the role players should be fostered in order to obtain clarity on expectations, common purposes and common incentives. Sufficient commonality regarding the need to continue and the mutual will to cooperate should be generated. Fundamental mutual goals on both sides as well as individual goals should be promoted in order to create shared meaning.

The question *How do we deal with cultural differences?* conveyed the following recommendations:
The team leaders and members should foster an awareness of the other versus the own identity. An understanding of the traditions of cultural differences of fellow citizens should be promoted. The role players should encourage contact between people from different cultural backgrounds and cultivate tolerance and acceptance for other viewpoints. The team leaders should strive toward a mutual understanding of cultural differences between the management on both sides to ensure a successful outreach initiative.

The question *Which aspects of the process work well and why and how can they be improved to compensate for those that do not work well?* contributed to the following recommendations:
The selection of themes for future outreach initiatives should be characteristic of a partially contextualized curriculum. All the ELISA students agreed that the curriculum was excellent and particularly beneficial to all environmental journalists. National ownership of the learning material should be agreed upon because it enabled the students to put the new insights and awareness that they obtained to good use. The students should be encouraged to build on their achievements and explore more educational opportunities. Critical thinking skills and dispositions should be increasingly fostered by means of follow-up courses.

Recommendations that pertain to the question *Which aspects do not work well, and why?* comprise the following: The duration of the pilot project should be prolonged. The workload together with the time span, should receive careful attention. The time span of the programme is relevant to the workload which should be spread out evenly over three or four semesters in order to allow the students to read all prescribed material, listen to all the lectures on the CD-ROMs and to research the prescribed topics. The students should be able to complete all the assignments within the allowed time. An appropriate schedule should be placed on WebCT6 at the beginning of the academic year, specifying all the assignments and submission dates in advance. This should allow the students adequate time to access all the prescribed material and research the topics accordingly. The submission specifications should be re-scheduled from Friday night at 24.00 to a more accommodating time, preferably to Sunday night at 24.00. This should allow the students enough time to complete their assignments.

Internet access and connectivity should be expanded on campus, in libraries and hostels to facilitate the learning process. Broadband access should be available to enable the students to go online when necessary. Fast Internet connectivity should allow the students to successfully logon to WebCT6 to

access their learning material. The students should receive more comprehensive training in WebCT6. The initial introductory face-to-face contact session should be re-evaluated and subsequent hands-on training sessions should be organised during the first semester. Digital skills to effectively operate the PDAs should be developed. The PDAs should be used more effectively. The students should receive more hands-on training in mobile technology to improve their digital skills. The minimum period of 13 weeks to get acquainted to the PDA technology should be extended to 26 – 30 weeks. Every student should have a basic knowledge of PDA technology in order to perform the basic tasks and assignments involved. Weekly or two-weekly face-to-face contact sessions in order to monitor the students' progress and to maximise the use of wireless technology for academic and research purposes should be explored.

Recommendations for further research involve the following: The exploration of possible differences of opinion and undercurrents among project leaders throughout the project, the investigation of the role of power relations between international partners that are funded by international grants, the effect of these power relations on the learning experiences of the students involved, and the effect of the contextualization of the learning material on the success of the project.

Annexe A

Interview with a Director of the FSIIS, Freeman Spogli Institute for International Studies on the ELISA project, Monday April 24, 2006 at the Stanford University, California, USA

Question 1: At the beginning of the International Distance Learning program, what were your thoughts about it?

Answer: It came out of an existing program at Stanford whereby we had brought a number of PhD students in the Social Sciences from the Soviet Union and the former Soviet Union and Eastern Europe to Stanford for training in Political Sciences, Sociology and Anthropology. That turned out to be a very costly program because Stanford is an expensive place to go to school so every student basically every year cost us about $50 000. So after five or six years of this, longer I guess, eight years, we thought about using a different model and that model would focus not on graduate students but on undergraduates and not bringing them here, but bringing Stanford Social Science courses to students there. And the idea was to help both students and their faculty to think more critically than they had during the Soviet period because the damage done to the Social Sciences in the Soviet Union as a consequence of the communist regime was extraordinary. So we thought this would be probably a more viable model, we could probably reach more students at a lower, much lower per student cost. So that was the inspiration for it.

Question 2: Do you think that critical thinking skills would be an important aspect of an international learning program?

Answer: I think critical thinking skills is terribly important and by trying to export some of this we were not meaning to suggest that we had all the answers. In fact, what we are doing is adapting the way we teach courses at Stanford and then trying to see how those techniques or how those methodologies transfer because arguably the most important skill set which we are trying to provide our own undergraduates with in a large context is that they learn to think critically.

Question 3: We are about half way through the first year of the program that the Stanford team leader is doing with us. Do you think it is too early to see whether the expectations are being met?

Answer: I think it probably is too early. I don't think we are going to know how this has all been worked out until we have gone through the process once and then to reflect on it by talking to the faculty, talking to the students and find out what worked and what did not work and then we would have to adapt it.

Question 4: Did the programs in Russia work well?

Answer: Yes but they were continually being adapted and revised with feedback from the students and from the local instructors. The pedagogy was being adapted, some fine tuning of the content but that wasn't really the issue. It was how to think about the writing assignments, how to try to improve their writing skills, a lot of hands-on work with Stanford-based teaching assistants where we would evaluate

not only the quality of the content that we were getting from the students but how they expressed themselves, how they organise arguments. And then we did the same thing with the instructors and in the last several years we have built teacher training into the program as an integral part of it. So the Stanford team leader runs either in Moscow or here, a week-long seminar for all of the instructors and we take faculty from Stanford School of Education who specialise in teacher training, we bring them to the Russian instructors and just talk about ways of teaching. So in that sense changes to the program have been continuous.

Question 5: What are your thoughts on the effect of globalisation on education?
Answer: It's a very good question. What we are finding certainly in terms of our own students at Stanford, but also the Russian students and I suspect the South African students as well, is that in addition to whatever guidance we give them with respect to source material, they have the access of going on to the Internet which is great. The problem with the internet is it is unfiltered in a sense, so students will google in the title of something, they will get 400-500 entries but in some cases, like many cases, they are not equipped with the skills to distinguish between what is quality research that's available on the internet, and what is the opposite. The much broader availability of information is great but learning how to work one's way through it in a critical fashion, is a skill we have not really developed yet. And this is true of students in South Africa or students in Russia or students here. The problem is not the lack of stimulation or the lack of information, it is knowing how to filter through it in order to determine what is useful and what is not. When I think of the impact of globalisation on education, that's the first thing that I think about.

Question 6: What are your thoughts on the cross-cultural transfer of learning materials?
Answer: With respect to the program with the Russian universities we, most of us involved at the Stanford end, have spent a lot of time in Russia and have at least a good superficial command of Russian culture. So we did our best going into the process to make sure that we identified readings to support the lectures that were balanced between American scholars and Russian scholars; or US scholars, European scholars and Russian scholars with reference to a particular issue. We did not adapt the content of the course specifically, that is we didn't pull out some lectures and substitute them with other lectures. But we tried - very subconsciously - to provide supporting material that would be sensitive to the fact that these were courses being taught in Russian regional universities to Russian students because none of the people on the Stanford side, with one exception, are specialists on Africa. We have tried to take our cue from our South African partners and one thing I know that we were trying to think through is how to put together an environmentally-oriented course that would be much more specific to South Africa. So I think this first year is a kind of a testing year, we are moving forward with what we have but we are very open to coming up with a curricular unit that is as fully integrated into South African life and culture as it can be. Otherwise it would just be a extremely limited value. So we are just trying to maximize the value of this exercise. So it's not easy.

Question 7: What are your thoughts on the Digital Divide?

Answer: One of the things that I find really interesting, with respect to the Digital Divide question, and part of the reason why we are using these handheld devices instead of computer- based access, is that in those places for whatever reason access to the internet over wireless networks is less available than it is in the US. We have to figure out technically and technologically how to minimise the Digital Divide in places where we are trying to have an impact. So when the Stanford team leader first came to me and said we are thinking of using handheld devices pedagogically and methodologically we are not sure what this entails but we are told that this is how young people in South Africa communicate. Not only in South Africa but also in many parts of the world. So we need to figure out how to use the technology that the students use in order to improve their educational prospects. The sense I have is that for all of us this is learning by doing, it is not as though any other sense, or clear sense, or how to do this - but there is at the same time a strong sense that we need to figure out how. The kind of local/global balance is extremely tricky. People have to feel contextually comfortable, so if it is completely disconnected from life as they know it, it's not going to register, it's not going to penetrate. On the other hand if it is exclusively local without the global link-up then the relevance of what one is doing is lost.

Signature……..
Director of the Freeman Spogli Institute

Signed at ……..on this…….day of June 2006.

Annexe B

Interview with a Director of the Freeman Spogli Institute for International Studies on the ELISA Project, Monday April 24, 2006 at the Stanford University, California, USA

Question 1: What is your role in the ELISA project?

Answer: I direct the Initiative on Distance Learning which is a program that offers Stanford's courses in International Security to Russian regional universities with the goal of helping rejuvenating the study of Social Sciences in Russia and also to help develop higher order thinking skills. So far this program has been in the works running for six years. We have just been finishing our sixth year and that also incorporates not only offering courses to students but teacher training in terms of working with our local Russian instructors on the ground and student conferences. So, we try to incorporate face to face mechanisms in addition to the distant component. I also co-direct an international outreach program with the Co-director of the FSIIS, my colleague from the Stanford Center for Innovations in Learning and this IOP program falls under the rubric of the International Initiative. And I believe you spoke with a Director of the FSIIS about that this morning and you have also read about the International Initiative. The idea is to find not necessarily only distance learning programs but other educational programs at Stanford that would benefit and would enjoy working in a more international environment, either bringing and collaborating in research ways with foreign institutions or finding ways to deliver Stanford courses to other institutions and vice versa, bringing foreign courses to Stanford. So, in this kind of educational outreach realm I am working on the ELISA programme which is what you are involved in as well on the South African side. Reinhold is working on a teacher training project in Chili and then we have also jointly been working on a third kind of interest which is taking a web-based learning tool designed for pre-med students studying Anatomy and Physiology, a web-based tool that helps them learn Anatomy and Physiology and bringing that into China. So we are working with the medical school at the Peking University and doing very similar research. Some of the research questions are very similar to yours. What does it take to adapt an existing Stanford program to work in a different environment? What would it take to make this program, developed for Stanford medical students, available for Chinese medical students? Is it just simply a question of translating it into Chinese, or does there have to be more cultural adaptation involved? So we are kind of involved in similar issues in a way with this. I have come to know you through the e-learning initiative in South Africa or ELISA as we are calling it.

Question 2: You mentioned the critical thinking skills. Do you regard it as important?

Answer: Of course. I mentioned that in the context of the Russian situation which is very different from other countries' situation. In the Russian context everything was so influenced by Communist ideologies in many respects, so particularly in the Social Sciences it is this ability to think beyond the bounds set by ideology which became very difficult. And when the Soviet Union fell apart you had universities and in particular the regional universities, which is why we are working with them, who we are desperately trying to recreate these new departments of Social Sciences. And we stepped in and trying to help fill the curriculum void, but more importantly, as you can imagine, we believed that part of the learning process

in Social Sciences is through interaction and learning critical thinking skills and you do that through interaction and discussion and many other ways. So we do feel that that is important and what we have tried to do in our IDL program in Russia is to try and incorporate the ability to teach and to learn critical thinking skills and also dispositions. The skill set is different from the dispositions. The dispositions is how a person is able and willing to use critical thinking skills. So, is a person willing to look at a question from different angles or are they willing to take something just that they read at face value? That's very different from just critical thinking skills. Some of them might have the skills, but they might not always want to employ them. And we are actually finishing a two and a half year study of the ideal program as studying the outcome of critical thinking, learning were we successful and helping teaching the students critical thinking skills? And we are still waiting for some of the results to come in. Hopefully it will be helpful.

Question 3: Do you regard it necessary for education to be adjusted to new and changing requirements?
Answer: Yes absolutely. I mean that is why Stanford always tends to maintain its number two, number one status in the world for university rankings. Because it is always at the cutting edge and trying to do something new and different in terms of not only content but also pedagogy. So that is why you will see the Wallenburg Hall on Wednesday which is designed to help bring technology into the classroom. Do these things help in the learning process? And if so, what is the best way to use technology? What kinds of technology would be the best? There are so many questions they deal with and Stanford was at the forefront of distance learning really when it began so many years ago when it was beginning employing technology. Not correspondence courses which some people do, or do not, consider as distance education, but when you started looking more at the technology based stuff, Stanford was really at the forefront of that. I think there always has to be changing styles because you not only have a changing student population, you also have changing economies. So many people nowadays say that we are going into more of a knowledge-based economy and that is why you see it rise and people in the United States and elsewhere going on to get further higher education degrees beyond just a Bachelors, but then onto Masters and PhD level. If we are turning into a knowledge-based society, then knowledge is the key, then the more knowledge you have, the better. Well it reminds me of conversations that I had while at TUT in terms of "Do you then open up higher education to everyone, do you make a PhD accessible to anyone, (or even a Bachelors degree for that matter) or do you still try and place merit-based restrictions on who can go into these programs?" In the US it has changed very much since the sixties where even a Bachelors degree was very specialised in the fifties. And then after the fifties' and sixties' turmoil you then wanted to have it for equity reasons, you wanted to open it up for more people. So now Bachelor's degrees have become very standard, and Masters degrees are more of a different situation. So also you have to look at the economic base, how many higher education graduates can be supported by the new economy? So, just a wide range of issues but education always has to keep up with it. I am looking at it from a very American perspective where you look at the Institution of Higher Education in particular as being very market driven in a way. We are not as bound by Government

restrictions as other countries are, so we try and respond to market forces as best as we can. If there is a demand for right now nurses then everyone starts looking at creating nursing programs and so we can be more flexible. Is that a good or a bad thing? I don't know, but I think you need to maintain the ability to be flexible to adapt. I think we are also coming up on mid-term examinations. Any time of the day or night you will see students in the library working. I think it is standard in all of the residences on campus they have internet connections. So students can connect any time. One of the differences is that we are so tied to our laptops and computers where you all have the mobile phones. It is just a different way of allocating resources. Everyone at TUT, I think 98%, has a phone. Maybe they are not the high end phones but they can sms and share information. Just imagine if they had the ability to access those high tech phones? In a couple of years costs will always come down.

Question 4: When was the ELISA project launched?
Answer: Officially it was launched in January 2006 but discussions had been ongoing on since November 2004. So we had a very long, one year of discussion phase until fall of 2005 and then we really got it started on the planning phases in the fall. We launched it in 2006 in terms of programmatic effort. So I think that is a fair chronology of what has happened.

Question 5: Do you think that technology has the potential to shift the emphasis from the traditional classroom to the virtual classroom? Do you think that it is a possibility?
Answer: That is the great debate now, isn't it? They have been debating it particularly at Stanford because five years ago everyone was talking about distance education and how virtual education was going to be panacea. It was going to make it more open to all kinds of people. I don't know if you are familiar with the success story of the University of Phoenix? They have an extensive website. What it is a for-profit only online school, college I guess, and I think they have been accredited, at least for certain like management courses where you can get a Bachelors and a Masters in certain specialities. I have heard them talk about actually beginning to offer PhD's. This is all in a virtual online setting. Now, they have a success story. They have a very good business model and they are basically targeting a specific audience, they feel the business, certain market sphere in the US has a demand for certain people and the University of Phoenix saw a business opening and came in and created this institution to train people specifically for this labour market. And now they have been able to expand because as people see its successful to a certain degree, it is extremely effective for continuing adults who are already working, who need another degree for work and want to go on and get certified, whatever. So, in a business model like that it works out very well but if you look at traditional universities, they use the term here "bricks and mortar", meaning an on-campus university versus virtual. You see some prevalence that have been somewhat successful, and some that have been not. One of the successful cases I can talk about at Stanford is our School of Engineering. Some fifteen years ago they launched the Stanford Center for Professional Development (SCPD). They offer for the first time degrees for Stanford students who only take courses through this system. What they do is they offer a Stanford class that has been taught on

campus and they film it, they produce it and they stream it out on the web to people all over, usually business companies, people in the military, traveling people in the UN and other places. And they have been successful because I think the content that they are offering lends itself well to that type of situation. The other program I wanted to mention was Duke University that has a local School of Business. They offer a business degree as well and I think they are one of the few top schools to do something like that. You see a lot of smaller less renowned schools that put out distance education programs, and they might or might not be accredited. But you do wonder about the standards. But then again for someone who is not interested in the prestigious name of an institution, someone like that might be fine if they just need additional knowledge. It is all about what the end consumer wants or needs. To get back to your original question in a very roundabout way I think many institutions such as Stanford and Harvard are not convinced that you are going to see “brick and mortar” universities disappear. The private learning process, for at least the BA degree, the Bachelors, is part of bringing young people together to learn to become socialised outside of the family units on campus and that is extremely important in terms of personal development. And I think most people will argue that that still has a very important role to play. And to socialise people effectively you do need to bring them together in educational institutions. Not to mention all the benefits that come from being in an educational institution visiting lectures and that you have to mingle with other people from other countries that have different backgrounds. It’s a wonderful learning experience. Some people say that where you can see virtual universities coming more into their own would be at the Master’s level or specialised training level where you have people who are already adults, already in the workplace, already have a degree, they just need a second degree. They need specialised training and they can do it while they continue working. In the United States this is very important now for economic reasons. Most people don’t have the luxury, if they need to go back to get retrained, to quit their job and go back to school. So many of them have families and they need to continue working. So there are all these considerations and if you look at when a lot of these people were writing about virtual universities being these wonderful things, about five or six years ago, the market was still kind of high and things were jumping aboard. You begin to see less and less enthusiasm now a little bit, and lots of joint veterans have gone under, they don’t have the market. So there are some successful cases as well but in my personal opinion because they have found niche markets they can really turn cost effective and satisfy certain labour demands. So that’s my opinion.

Question 6: What is your perspective on the effect of globalisation on education?

Answer: I guess looking at one facet of that would be if you looked at the way US education has changed over the last several years, you do see an emphasis placed on an understanding of the need for say language programs. And you have also seen a growth during the last ten years of interdisciplinary country studies programs. Here we have a centre for East Asian studies which allows students to get degrees in a country or region that gives them backgrounds not only in the language but the culture, the economics, the political situation. So you have people who specialise in that region on a variety of different levels and then they can specialise. So you can have this growth in interdisciplinary programs.

The recognition of the need for better and more intensive language studies programs, the need to encourage students even if they are going into graduate level, if they are going to get an engineering degree, they still have to take two years of a foreign language. I think that is extremely important, you do see things like that. And I think you see it also in the recognition of needing to be more aware and to go back to your question earlier about how education changes, and again focusing at the level Higher Education, part of why Stanford initiated this new International Initiative is simply because the university recognises the need to change the way Stanford engages and looks at and considers the rest of the world apart from how institutions of higher education have traditionally looked at that. So really now Stanford is at the forefront of that, having other people come and visit us and ask us about why we are doing this, how is this important? But you know what, part of the reason why Stanford did this, is because they got feedback from people who are on the advisory board at Stanford, who primarily come from business and they say: "You know what? We are seeing people coming out of these colleges that don't really understand different cultures. They might know engineering, they might know business, they can tell you the first thing about where Cattmandoo is", which is very much in the news these days. So, there's got to be a better way that we can train students and particularly if you really agree with what Thomas Friedman says: "The world is flat", it is more and more important that you can engage with people from other cultures. And that is something that the US has always been lacking in a bit, just given our isolation from where we are regionally. In my opinion, I don't think historically enough emphasis has been placed on looking beyond our borders. And then if you wanted to study in an international relations field, that was one thing, but it was always done from a very Amero-centre perspective. And so the growth of these interdisciplinary country studies programs are very helpful to get people to think outside of the American centre. A due point which I think is important, particularly nowadays.

Question 7: What are your perceptions of cross-cultural transfer of learning material?

Answer: I guess it depends on the type of courses and the types of interactions you are speaking about. I think in general, obviously based on my experience in Russia and what I have been learning and working with TUT, is that I think it goes beyond just simply a language issue. I have met with people who say that: "Well you know, we can take your course and just translate it into this language and offer it as it is". And that just doesn't work that way because I think it depends on the types of courses really. If you look at any type of discipline or any type of content there is specific language that is very, very specific and native to that content and many cases are difficult to translate. We found that in the Russian context and that is why, after speaking in great lengths with our Russian colleagues we were thinking about this, we decided not to translate the courses into Russian. The reason being, they said you know, as much as we hate to admit it, English is becoming the lingua franca of political science and global diplomacy. It has been for a while but if you really want to be able to understand the issues of the nuclear-nonproliferation treaty or a lot of these things, you need to understand English because there is so many words now. I think you see that to a degree also in technology. There is so many words now that began and originated in English that have become cognates in other languages, but still the meaning and the life behind the

word came from the English context. It is very hard to take some of these words and translate them because you do loose the meaning behind it and you lose the cultural setting. The Russian students came out with this: “We want to learn about America and the American perspective. We want to be able to learn that and translate it and compare it with the Russian perspective. So we want to study this in English because that’s how we understand American culture”. So much of learning about a culture’s language. So that’s the one side of it in terms of language. It goes beyond just simply translating something. I think what was interesting to me when we came to South Africa the first time and I was talking to Johannes and others, is that content matters a great deal as well. I understand the history of South Africa at a very high level. I don’t understand a lot of the specifics and so I understand how, when I am approaching this, saying: “We have these wonderful courses in International Security” I now can see how some people would say:” You know, this is not what we need right now, we need to focus on content that benefits us”. So I think that is important looking at content, particularly if you are talking about it in a more of a social science discipline. In Engineering, Mathematics, Physics, things like that, you don’t really have to worry so much about cultural adaptation. I guess I am focusing more on courses that do have very much of a cultural component build into them. Mathematics or Physics are kind of boundless in a way. When you talk about History or International Relations, it comes from a cultural perspective cultural component build into them. One thing that is really necessary is that it depends on the model. If we were developing these courses for commercial purposes, and we were advertising, saying: “Here it is. This is a Stanford course in this content, buy it, take it or leave it, whatever” that has different sort of expectations. But when you want to work closer with another organisation and you want to meet the needs of the students which would be learning about, in this case, International Environmental Politics, you need very much to take into consideration what their needs are and their expectations are. So in this case I think the choice of the environmental course was very appropriate. What was fascinating was being able to work with the environmental specialist and others to find out what are the areas of interest to you all. I think that it is really crucial having a local person on the ground to contextualise it further. In this type of situation you have one perspective that we are giving and then to have someone who can say: “Ok, what you have heard at this level, how do you apply it to South Africa or to you as individual”, and then further individualise it that way. I think it is extremely helpful. I don’t think a course could be successful if you were just going to do it for the for-profit model, say: “Here is the course, take it”, because people might not necessarily understand some of the case studies or some of the expressions because everything would be couched in American terms, and those are not necessarily applicable to other countries. So that is extremely important. I have learned the value of really having someone on the ground to help tie in whatever the content is, into that local and individual perspective and then meet those needs. And then of course the technology has to be appropriate and as we are finding in our case, a CD-ROM is not the most appropriate mechanism. It works well in Russia, that’s what we are finding and here at Stanford we use streaming video for the same course. So, what do we need to do to make it accessible to the students? That’s the question, right? So if a high percentage of the students aren’t able to do the readings or the videos, we don’t know for certain, but what they say is not because of the lack of interest but simply

because they don't have access? And that's pretty amazing. So that leaves me to think that we didn't do our homework, collectively to say: "Okay is this going to work or not?" We had assumed all of us that they would have access at work. So okay now you really have to really think how you are going to access? Another thing is to know your audience. What we are finding is even though we did our best in this winter to find readings that would be appropriate for the students, what we are finding is that they are still too theoretical, they are very academic. We again are coming from a very political science background. If you look at all the people on the team, I am a political scientist, A Consulting Associate Professor is a political scientist, second teaching assistant is a political scientist, so that's our background. And what we thought would be very appropriate turns out not to be very appropriate. What I should have done is to find a student in Journalism who had an interest in the environment and have them look at it from a journalism perspective: "Ok, what would be your needs?" From that perspective it is very different. It is very important to know your audience. I just find it fascinating.

Question 8: What are your thoughts on the effect of the Digital Divide in education? What can be done to minimise the effect of the Digital Divide in education?

Answer: I am just beginning to learn about what is happening in Africa but it fascinates me to learn that the cell phone is really coming to its own, also in Asia, and also in ways that the creator of the cell phone never would have imagined. It's being used for political purposes like to sign petitions, to mobilise people for political action which is fascinating. I have read about riots in China were peasant farmers who were protesting against the government coming and taking some of their land and building a power plant that would have polluted their farms. And they protested and they actually blocked people coming in and a couple of people died because the police came in and opened fire. What I noticed in several of these articles from the New York Times is that people came out to protest because they got a sms. And that is how local I would be willing to bet that that in some way happened here at Stanford campus. People found out at the last minute that Bush is coming to town. In our case we sent out emails, but also some people have sms, so you send sms. And that is how we get the word in. Look how quickly they could mobilise people. The Bush administration kept it to the last minute, they didn't want protestors and you can't keep information under wraps anymore. It is very difficult. So this tied us into the whole question of the Digital Divide. There is Digital Divides in many different directions. So may be the developed world, Europe, the US and Canada have a divide in them in terms of, maybe not the technology production capability, but the technology creativity, the technology use. Many countries have the edge over us. Why can't we do this type of study that we wanted to do in South Africa, here? Because Sarah said she can't find a service provider to give us the service that we need for the phone that we have. Because no provider can service all of the aspects of the phone. Where as in South Africa, that was kind of standard and understood that the service provider would provide all these bells and whistles. But we can't do all that here, which says a lot. So there are different Divides and it is always changing. I hope we can learn from those countries that are using cell phone technologies in a much more interesting manner. That is how technology is always developed and you continue growing. I just hope that technology can be in

some way the great equaliser. Because there has in the past been this huge Divide, computers versus non computers, and that was always the big thing. But now that you get into the more wireless technologies can you imagine what is going to happen in the next fifteen years? I hope that you might really see it levelling off so that even if we might still use computers and other people would use sms's and cell phones, the result might be the same. That's my hope and there's so much potential there. The whole human tendency is just to have something as small as possible. And not only for politics or education but also for economics as well. It is just amazing what people, entrepreneurial people are finding. New ways to use this technology that we, and certain countries say like Finland who developed Nokia, never would have found, this possible application for these phones. It is just purely communication devices, it is fascinating.

Question 9: What were your expectations at the beginning of the ELISA project?
Answer: We are about half way through the first year of the pilot study. I really don't think I had concrete expectations. I had hopes which I would categorise as different. I really wanted to create a good product because I am not a technologist per se, my goal was really to give the students a great educational experience. I really wanted them to come away, not only learning from the technology side but coming away from the content knowledge, a new way of looking at the world they wouldn't have thought of before. And also just to give them access to different types of thinking. And I'm saddened to see that despite our best efforts we were not able to give readings that would really reach the student. I think it is reaching some of them but it is not reaching all of them. And so, to make this a better experience we have to be able to reach all the students. And I'm saddened by the fact that they can't view the lectures and do the readings because they don't have access to it. I think it is wonderful to have the opportunity to do a pilot, and now I can fully appreciate it why the TUT team leader was always calling it a pilot, a pilot, a pilot, and the Head of the Department of Journalism at TUT as well. Because even though in my mind I said yes, it's a pilot, I really had hoped it to be a product that could really benefit the student. My first concern is reaching the students and having them have an experience that they would walk away from, that they would say: "I am really glad I did that". The last thing that I would want is them to walk away and say: "That was a waste of my time".

Signature……..
Director, Freeman Spogli Institute

Signed at ……..on this…….day of June 2006.

Annexe C

Interview with a teaching assistant of the Freeman Spogli Institute for International Studies on the ELISA Project, Tuesday April 25, 2006 at the Stanford University, California, USA

Question1: I noticed that you are interested in Sub-Saharan Africa. Why is that?
Answer: I think just from my personal experiences of having lived there I became very interested in the challenges to education in that part of the world. So for me to be here in California but then have the chance to be involved remotely with the project in South Africa, was very interesting.

Question 2: You mentioned that you visited numerous places in South Africa. When was that and would you like to visit South Africa again.
Answer: That would have been around early 2000 and I would love to.

Question 3: How did your role in the ELISA project start?
Answer: The Stanford team leader contacted me last year over our winter break about this project and told me a bit about it and I saw some of the background materials and she told me a bit about the position, the teaching assistant that they needed. That is a very standard thing for a graduate student to be a teaching assistant for other classes. So she talked a bit about the design of the project because it is very unique, even at Stanford. It is an unusual type of course so, and the fact that I could be involved with South African students was really appealing. She showed me that this project was also operating in Russia before. Here I was able to look through that material and it seemed like something that would be fun to be involved in.

Question 4: Do you think that it is necessary for education to be adjusted to new and changing requirements?
Answer: I think you have to adapt, especially in a case of a course like this because our goal is not only the substance, it's not only the environmental substance but it's really how can we best use this technology to enhance learning, and actually a lifelong skill. The idea is not just only for this short period of time. So I think it's important that the learning environment create a place where the students can experiment and grow in that way. Fifty years ago that was unforeseen.

Question 5: You are involved with the grading of the assignments. Were you also involved with the selection of the prescribed readings?
Answer: Yeah, the second teaching assistant more so. She and I worked in consultation to select some of the readings and that was challenging because we didn't know at the time exactly what the academic background was of all of the students. And it is also challenging when you have a range of backgrounds; where do you place the reading? You want them to be challenging enough for your more advanced students but not so challenging that they overwhelm the others and they feel discouraged. So that was sort of a constant give and take and I think we learned a lot. Even just in the first half of the

project after the team came back and they gave us some feedback about that. Being so far apart is very challenging I think for the design and selecting the proper readings and also access. “Can the students quickly get stuff on the Internet or do we really need to make sure the materials are in their hands?” There are all sorts of complications like that that need to be worked out.

Question 6: What are your perceptions on the role of technology in education?
Answer: I must say in part I feel like it’s sort of a black box to me. I’m trying to understand how much access the students have because if like me, they can get on the Internet as much as they want, it’s a very fast connection, then technology can play a very different role in their education.
But if they have very limited Internet access and the server is very slow then the curriculum and the content need to be adjusted accordingly. So the role that technology plays is in part dependant on those things. I’m finding that some of the logistical concerns at this stage are some of our biggest hurdles right now, things like making sure that on their device they have the sms, mms capabilities and that sort of thing. So from here it’s sort of hard to know what to expect from them in terms of their capabilities with the technology. Because I think it could have potentially very strong implications because they would have access to so much. I know when we were designing the courses one of the problems was that the South African environmentalist specialist could not get access to some of the South African journals. But if the technology was up and running very smoothly that could improve and the implications for education from the technological side could be greatly enhanced.

Question 7: What are your perspectives on the effect of globalization on education?
Answer: It is interesting. Some of my perceptions are being shaped by what the students are choosing to write in the essays. So, two things. One is that when we think of the design of this course it’s a matter of how much should it be strictly South African, how much should the sources be South African, how much should the content, the case study be South African, and how much should it be the rest of the world? And what can we learn from the rest of the world? What do we need to know about India and China when we think about South Africa? Globalization certainly played a role in the selection of the readings. And from reading the students’ essays it is clear that they are also thinking about globalization in terms of the South African context and what the implications are for their own country. So it’s certainly an issue that’s up the forefront.

Question 8: Do you think that technology shifted the focus from a traditional classroom to a virtual classroom?
Answer: My concern is that we haven’t necessarily created a virtual classroom because I don’t know if it’s a function of the WebCT6 interface. But I’m not sure how much students are communicating with each other. May be they are on their devices, and that’s something that I not necessarily know. The technology has certainly allowed me to communicate with them and for them to communicate with me. But in a classroom situation there’s collaboration with each other and I’m not sure that it could be happening and

I'm not aware of it. But I think some of the students are even friends with each other and so I imagine they are talking on their cell phones and communicating in that way perhaps. So maybe in that sense it has created a virtual classroom. There is a chat room on WebCT6 and I tried to have a time when we used it but I think people's schedules are all over the place. So I think it's possible to create more of a virtual classroom particularly if the students are full time students and the class meets at a certain time. Then I think that potential is much greater.

Question 9: How do you think can the effect of the Digital Divide be minimized?
Answer: Something I think that's important to talk about is to understand the issues around the Digital Divide between South Africa and the United States in general. In some ways you could say that each place is more advanced in certain dimensions. In the US Internet access is much easier, it's much faster, there's wireless all over campus. I can take my laptop and be anywhere and be online very fast. I can upload enormous documents and that's something our South African students cannot do. However, if you look at the local technology, the cell phone and what people are doing there, that's much more advanced than what your average Stanford student is doing. I for example, sent my first text message less than a year ago. People don't do that kind of thing so much. I have never connected to the Internet on my phone before this project. I didn't realise that you could really do that on a phone. And I know that in South Africa that is a much more developed technology. I heard that when our team came back they were talking about the students who were zapping each other. I could figure it out but it is not something that people do so much here. So each place has different enhanced abilities. There are a couple of different divides going on and that is particularly relevant for this project because we are relying on Internet technology and incorporating this mobile technology. It's more complicated than a situation where you have a very rural village and for the first time you expose people to cell phones and for the first time you expose people to the Internet. Some of the South African students are quite capable of these devices. In some ways it's a matter of learning from each other in some instances, this side of the project is trying to help that side.

Question 10: What were your expectations at the beginning of the project?
Answer: I tried to go into it with a very open mind because the Stanford team leader, as much background as she gave me, also wasn't sure about the exact background of the students. For example, how old are they? We knew they weren't undergraduates, like eighteen years, we knew they were working adults. But we didn't know are they fifty years old, or are they thirty years old? There was a lot that we didn't know but I tried to keep an open mind and that makes it much more difficult, particularly with the technology. I'm not sure of how it is in South Africa but here, for example, I know people who are my age, and I am thirty, are generally much more capable of using technology than our parents are. So I wasn't quite sure what I could expect from the student capability. I didn't know whether I would need to teach or do any explanation about the technology? With the cell phones, the devices, I knew that they would know more than I did, because in South Africa, that's the technology. That's what people do. Here

it is very expensive and people just don't do it, there are other ways that people communicate. So I tried to keep an open mind. I was hoping that this project would be a great learning experience, that the content would be something new. I knew that TUT selected this course because they didn't offer something of the exact type. So I was hoping that it would be a new exposure. And I know that Professors involved here are fairly reputable and are good resources. So I was hoping that it would be an exciting thing for the students to have access to different Professors. I know when we have visiting Professors here it is very exciting to have access to someone from another country. So I was hoping that it would do that.

Question 11: Do you feel that your expectations are being met?
Answer: I would like to think that I am a resource for the students. My expectations are really their expectations. I don't know if it is part of the South African culture for Professors to ask feedback from their students? Here it is very common. So in some ways I will only know how good a job I'm doing based on what the students say. And sometimes that is very hard. I think one of the challenges of an online programme is building that kind of rapport. If you see a professor or a teaching assistant every day, you get to know him or her, and you talk. But online is much more difficult to foster. I hope that my comments to the students and my availability are something that is meeting their needs. And to the extent that I am meeting their needs, is the extent to which my expectations are being met.

Question 12: Do you think that cultural diversity is important in the adaptation of the course?
Answer: It is obviously a very complicated thing to think about. A lot of what you are talking about happens in the United States as well for example in the online classes where groups of the same ethnocity would sit together. That's human nature. But obviously, South Africa has a unique history. It's interesting being on my side because I don't see the students. My cues into some of the dynamics are that I see in the essays that people certainly have a couple of different levels. It's a mix. And you can sort of try and figure out from names if someone is from Indian descent. And you can think that maybe that means that they have this sort of opportunity. But again, I don't know for certain. One of the great things about this programme is that it tries to meet the students where they are. So if you have both an advanced student and a student who had less exposure to the technology, they can both benefit and learn from each other. I think maintaining diversity is a nice thing for the students themselves because they can learn more from each other and also learn about their countries. My experience in Southern Africa is that some of the students, when they were growing up in their earlier years, went to schools where most of the students were like them. So a mixed group may actually be good for the students to see that maybe these people didn't have this. Everyone had a different experience going to school in South Africa. As a journalist and a South African adult, it is important to enhance that experience.

Signature……..

Teaching assistant, Freeman Spogli Institute

Signed at ……..on this……day of June 2006.

Annexe D

Interview with a Co-director of the Freeman Spogli Institute for International Studies on the ELISA Project, Wednesday April 26, 2006 at the Stanford University, California, USA

Question1: You were part of the initial program but you are not part of it at this moment. What was your role in the ELISA project?

Answer: I met the TUT team leader at a conference in Cuba and that is how I actually got connected to the University of Pretoria. Then we started talking in concrete terms about a potential research collaboration. We have always wanted to do some research looking at the potential use of mobile technologies and I knew that mobile technologies are very popular in South Africa. So that's how ELISA kind of started building upon the distance learning model that the Stanford team leader and others built up for Russian universities. We kind of used that but really looked more at potential use of mobile technology to support the kind of interaction aspect of a distance learning program. When I went to South Africa last year and met with the Director of the Distance Learning Programme of the School of Education I was happy to learn about their distance learning programme, how they started using mobile phones to support the programmatic aspect of the learning programme and were thinking about providing feedback in a kind of formative assessment way, that is really where it clicked. If it's OK I can just tell you a little about a project that we did here at Stanford that focused on aspects of a learning community that I thought might be of benefit for a distributed community, especially if you look at mobile technologies. So what we did here at Stanford was to have a couple of large lecture classes with 300 students attending. One of these classes is a three quarter one year program called Human Biology. Students have four lectures during the week and then the following week they meet in small seminar groups and with a teaching assistant they go over the content that was introduced during the lectures in the previous week. Then that seminar is an opportunity for the students to clarify any misconceptions and for the teaching assistant to get some feedback from the students on how they are doing. It allows in general terms to increase the communication between the teaching team and the students. That was the design of that program, large lecture classes and seminar groups. The Professors then met with the teaching assistants and asked them what the key challenges of the program were. The teaching assistants said firstly that there was not a lot of communication going on because there was not a lot of personal motivation. Secondly there was not enough feedback for the teaching team to really understand where the students were in terms of the curriculum. Thirdly there was not a lot of feedback to the student in terms of how they were doing. In the past some of the Professors introduced weekly problem sets, a list of questions that students were given on Thursdays and then on Mondays the teaching assistants or the Professors would collect them and try to go through them to kind of see how the students were doing. But of course with 300 students it was really hard to keep on top of things. So we actually developed a web-based problem set or system where students were able to go to a website on Thursday evening and answer questions related to the content that was introduced during that week. We used a combination of multiple choice and open-rationale questions. I am not a big fan of multiple-choice questions but what it allows you to do is to have a computer system quickly grade and analyse them because it is all multiple choice. What an open

rationale allows you to do is especially if you ask the students, OK of these five choices which ones are the correct choices and in the open box you have to say why. So the open rationale gives you an opportunity to look into the thinking of the student. So it's more than just multiple choice yes, and no, it's actually aha, this is your argumentation. And on Monday mornings at eight o'clock the teaching team meets, they go to the website, they logon as teaching team, they click on a button and they are able to actually get a breakdown. They could actually come up with a list of the most missed questions. So there was a list for the entire 300 students which said that 50% of all students did not get answer 5b of 5 correct. Then the teaching assistants could actually zoom in to their student groups of 20 students and that was much more manageable. They could say, "Well, Johnny in my group did not understand that question and Felicity did not get another question". So they could actually very easily and very quickly zoom in to an individual and to a group and get feedback on how the students were doing in terms of understanding the concepts that were introduced. That allowed them to customise and plan for the seminar group that was coming up. The students had to submit their answers to the problem sets on Sunday evening at midnight when the deadline was. They were able to get immediate feedback on whether they answered it correctly or not and also with the correct answers they were given an answer to the open rationale. So they were also getting some feedback. In addition to the feedback to the team and the feedback to the students the faculty member could actually each week pick a couple of students from each seminar group and could quickly zoom in because it's all web-based and send out an email to Johnny and say: "This is where your thinking went wrong". That was very motivational because usually in a large lecture class there is no personal contact between the professor and the students. So it was much more manageable for a faculty member to provide customised personal feedback to a select group of students which changed every week. So, what we were able to do by using technology in a large lecture class in a web-based environment is firstly to provide feedback, secondly to receive feedback and thirdly also support the communication aspect which ultimately made it a little bit more motivating for the students. Now, take that concept which is quite often used in traditional course management systems such as WebCT6 or Blackboard. Couldn't you take the same principles, meaning the same kind of technology to firstly get feedback on a more regular basis from the students, secondly to give feedback to the students on a more regular basis and thirdly also by having these targeted messages to students, increase motivation? Couldn't you apply that concept in a distributed distance learning class where 99% of students have access to capable telephones and basic sms's? So that's where the concept of or the technology part of ELISA started, really looked at how you can utilise mobile handheld devices to provide some kind of dialogue or feedback between the distributed students and the teaching teams. That was the original idea. I have not been engaged since the Stanford team leader and others started to refine that idea and actually designed the intervention. There have been some unique changes to make it possible with whatever course was available to do this with. But that is how it all started. So if you actually have some built-in interaction that is based on feedback on how the students are doing in terms of certain concepts then you have a tremendous motivational vehicle at your fingertips. And the big question of course is does it ultimately make a difference in the added value to the learning?

Question 2: What is your opinion on the role of technology in education?

Answer: I have been at Stanford for almost 13 years now. I took a break in between and went to the Apple Research Laboratories and worked with a program called the Apple Classrooms of Tomorrow (ACOT). This program facilitated by Apple computer studies was a longitudinal study that included research at universities in Europe, Australia and also in the United States. They were looking at a very simple question: “How does technology change the conversation around teaching and learning?” It is my firm belief that technology is no guarantor for added value to the teaching and learning process but technology combined with other tools, other pedagogical approaches, can act as a catalyst of change and can actually create a more active learning environment that engages the learner more in the learning process. It is not a guarantee that it will happen but I think it has the potential and there are a lot of ingredients that would need to be in place. I always talk about at least five factors. Number one is the design of the learning activities. You really have to think about how you would design a learning activity both from content and from a learning activity perspective. How would you engage a designer to really engage students in learning? Number two is student skills. The students need to have the skills to work in these kinds of environments. For example if you think that one promising strategy for this part of my course is small-group work, then you would want to make sure that students know how to work in small groups. Because just creating small groups is no guarantee that everyone in the group actually participates in learning. So you have to make sure that the students have the skills to really participate in certain activities. If they don’t have the skills then introduce some skill builder or trainer. Number three is faculty or teacher development. Now if you go away from a traditional lecture then you really have to make sure that a teacher also understands his or her role as coach or facilitator rather than just the owner of facts and throwing these facts out. The fourth one is tools, including software tools. You really have to look at all these things, think about what you want to do, think about the skills that the students have and the teachers and then look at tools, including software tools that would really help you to achieve your learning goals. And then finally number five is assessment. If you use group work then you really need to think about how you can use student groups to help them give feedback to each other in the learning process. There’s a big discussion between formative and summative assessment. Do you want to assess *for learning (for)* or do you want to do assessment *of learning? Of learning* happens at the end, which is not always inefficient to the student but the process of assessment *for learning* is this kind of formative feedback. Unfortunately most educational systems whether it is the university or K12 are so grade-driven, al that you need, all you can do is have a test at the end. But that is not always the best approach for the learning process. So, what are some innovative ways where you can still get some kind of a grade for a student, or an individual grade if you work in groups? I would rather focus on assessment *for learning* than *of learning.* I realise that there is no way, at least not yet, to get away from the summative assessment. But focus more on formative assessment.

Question 3: What is your perspective on the effect of globalisation on education, especially in the South African context?

Answer: My academic background is an international and cross-cultural educationalist. So I look at the potential of globalisation from various perspectives. The first aspect is that I think learning environments, classrooms, whether they are physical or virtual or any combination in between, are becoming more and more diverse. If you go to a high school here in California, and you have the same issues in South Africa, you have students from all kinds of socio-economic intellectual backgrounds. So, how do you create a learning environment that allows students from different perspectives, different backgrounds, to participate in the learning process? So globalisation has an impact on how you teach in your local classroom, that's one thing. The second aspect is going away from your group and looking more outside. I am a firm believer that if you are able to connect learners to learners from other countries, bringing to the discussion and the learning process different perspectives, you have a tremendous opportunity to add richness to the learning process. Because all of a sudden your perspective is challenged and if your perspective is challenged, that's where a lot of potential learning kicks in.

Signature……..
Co-director, Freeman Spogli Institute

Signed at ……..on this…….day of June 2006.

Annexe E

Interview with the UP Team Leader, ELISA Project Leader and Supervisor on the ELISA Project, Wednesday September 24, 2008, Pretoria

Question 1: What dialogue exists between First World universities and their counterparts in developing countries?

Answer: The abovementioned dialogue focused on the possibility of cooperation between the distinguished HEIs. The principle partnership involved Stanford and UP with the prospect to include other HEIs. The University of Limpopo (UL), formerly the University of the North, was identified as a possible collaborator to implement the programme. The initial discussions between the role players at UP and the University of Limpopo were not successful due to the fact that the UL were not interested in an outreach programme from Stanford. TUT, however, agreed to cooperate and implement a Political Science module in an existing journalism course. The TUT role players realised the potential of an International Security Course developed by Stanford and decided to adapt TUT's requirements to fit in with Stanford. Initially UP was sceptical and during the first negotiations wished to know what Stanford could offer that UP could not do itself. It all arose from the fact that overseas universities were eagerly seeking partners in the southern hemisphere so that the former may obtain additional funding. Previously there was the idea that the universities in the southern hemisphere were being exploited by their northern hemisphere counterparts for financial gain. Studies in higher education concerning Africa are very popular. A number of partnerships between universities in the north and those in the south, as well as in Africa generally, have already been concluded and these profit from such undertakings. An example is the collaboration between the University of Iowa and Nigeria. In the Republic of South Africa it is specifically the universities in need, such as TUT and the University of the Western Cape, that benefit from it. However, UP is not regarded as a university of need and does not collaborate with Iowa. There are various incentives to participate with HEIs in outreach programmes. Stanford had a financial incentive to support the ELISA programme in South Africa and for this they received a direct grant to fund it. UP's incentive was to make best use of the outreach initiative to empower the participants. The incentive for TUT was to make use of the opportunity of exposing the students to new perspectives.

Question 2: What did not work well in the ELISA programme?

Answer: The agreement with the University of Limpopo (UL) went off the rails from the start. From the dialogue it appeared that UL was under the impression that UP wanted to impose on them so as to get an opening to get to the Americans. They saw themselves as guinea pigs with no say in the matter. A Professor from UL, felt that he would not learn anything from such an outreach programme. The fact that he left the meeting after ten minutes underscored the suspicion that existed.The background dialogue is the dialogue of power. The South African role players were of the opinion that they were indeed working from a position of power. The South African did not wish to be under the exclusive influence of Stanford and could easily have turned down the offer of the outreach programme.

Another problematic issue was the dismantling of the prejudice among the Stanford role players. At the beginning they argued from a mindset wherein they had doubts whether the project would be viable in South Africa. They were, however, surprised by the South African expertise. On the one hand, the South African role players were disappointed with the lack of sufficient sources and the prevailing impatience. For such reasons the South Africans wondered whether they shouldn't have run the programme themselves. Another aspect that caused problems was the joint long-term project development. The problem was the potential lack of ownership. One could argue that such a project is neither mine nor yours. A typical description of it might be: "Not made here".

Question 3: Which aspects worked well and why?
Answer: Joint projects of short duration. Exchange of personnel because it can be achieved without complications – the one person arrives, the other leaves. Successful interpersonal relationships were some of the positive aspects. The ELISA programme was noted for the fact that several role players withdrew during the running of the programme. A variety of reasons compelled the South African role players, such as the UP research assistant and the UP team leader, not to proceed with the programme. However, the UP team leader became involved again and managed the programme jointly with the Stanford team leader of Stanford to its end.
Another positive aspect was the phenomenon that the students could make the curriculum material their own. Ownership of the curriculum had a far-reaching effect on the students. Stable technology is essential but difficult to obtain. The initial enthusiasm when the students implemented the technology successfully was apparent. The "no significant difference phenomenon", as formulated by Russell and Clarke was applicable here.

Question 4: How is shared meaning created and why was it created?
Answer: Shared meaning is created through common purposes, common adversaries and common incentives. Cooperation and competition are often considered as dependent on each other. For example, cooperation and competition are necessary in a tennis match. It is inevitable that in a single tennis match, one of the players will win and one will lose. Anyone of the players, however, must be willing to run the risk of losing in order to continue playing and finish the match with the chance to be the winner.
Malone (1981) emphasises the important role that motivation plays. Interpersonal motivations such as cooperation, competition and recognition are relevant when people have mutual goals. Mutual goals create interdependence among the different members of a group. Positive interdependence (cooperation) is part of the interaction and supports the learning process. Shared meaning, in the ELISA project, was undoubtedly created between various role players. The initial mutual goal was to implement and complete the intervention. The academic and research teams wanted to promote the research as well as the outreach actions. Stanford wanted the financial support while the students wanted to complete the course. The mutual goal ceased to exist when Stanford decided to withdraw from the programme.

Signature.....

UP team leader, ELISA project leader and Supervisor

Signed at.....on this .....day of October 2008

Annexe F

Interview with the Research Assistant for the ELISA Project, Wednesday October 22, 2008 at the University Of Pretoria

Question 1: What was your role in the initial discussions of the project?

Answer: I acted as research collector as no researcher was available in this early stage of the project.

Question 2: What were your instructions?

Answer: My instructions were to act as Assistant. As initially we did not know what they had in mind, we all functioned as a think tank, generating ideas and exploring possibilities. I had to record as accurately and objectively what was happening during the initial discussions, but I also asked questions and made comments.

Question 3: Where and when did the initial discussions begin?

Answer: In November 2004 in Stanford, at Stanford University with the Stanford team leader and the Co-director of the FSIIS.

Question 4: Who were the South African representatives?

Answer: The TUT team leader from the University of Pretoria initiated the outreach programme with Stanford, after having met the Co-director of the FSIIS at a conference in Cuba just before. She invited the UP team leader and me to accompany her to the US.

Question 5: Did Stanford and the UP agree on basic terminology of the project?

Answer: We noted several different connotations of concepts. For example, concepts such as course, module, unit, programme and component varied. It took quite a while to figure out what the scope of the project would be, whether at module level or programme level, and to identify suitable courses in South Africa that would accommodate their material. Initially, we did not realise that they already had a lot of developed material that they wanted to deliver as is.

Question 6: What did your duties involve once you were back in South Africa?

Answer: I co-arranged and invited possible partners from different departments at UP, the University of Limpopo and Tshwane University of Technology to participate in an information sharing session. They were identified as possible future partners to collaborate in the project, as they represented diverse teaching and learning scenarios with different access to technology. Making use of mobile technology was a high priority, as especially rural students do not have Internet access, or even electricity. Stanford wanted to some extent to replicate the Stanford team leader's project to teach critical thinking skills to rural Russian students. After attending this information session, the Universities of Limpopo and Pretoria were not interested, for different reasons. I acted as administrative, liaison and general support assistant.

When the Stanford team leader and the Co-director of the FSIIS visited South Africa in March 2005, I arranged their accommodation, provided them with transport and took them on the tour of UP's campuses. The Co-director of the FSIIS looked for collaborators on another project concerning Medical Teaching, and I identified and arranged interviews with possible partners at all UP's campuses.

Question 7: When and why did you withdraw from the project?

Answer: The TUT team leader resigned from UP and took up a position at TUT. I still took part in negotiations with the stakeholders at the Department of Journalism at TUT in the initial stages of the project. When it became clear that the whole project would reside at TUT, it made sense to move the logistic support to that side, as well. I continued with my duties as research assistant until the Stanford team leader informed me by email that my input was not required any more. At that stage I officially withdrew from the project where my involvement had been dwindling in any case. At no stage did Stanford University remunerate me for my participation or services.

Signature.....

Research Assistant ELISA Project

Signed at.....on this ..... day of October 2008

Annexe G

Discussion with a teaching assistant at the Freeman Spogli Institute for International Studies on the ELISA Project, Tuesday April 25, 2006, at the Stanford University, California, USA

Question 1: How long have you been involved in international experiences?

Answer: My first real international experience was in 1998 when I travelled to Latvia as part of the US luge team and was immersed in the culture. I also travelled to Mexico, the Caribbean and Canada. Academically I first travelled to Tanzania in 2003. Between 1998 and 2003 I was both professionally and academically involved in international issues but those two experiences were milestones.

Question 2: Why are you specifically interested in the rural communities?

Answer: My home is very rural. It's in the mountains of New York in a town called Lake Placid and I think that personally what interest me most about both my professional life and personal life are connections with people and relationships with people. I think that in urban areas it is much more difficult to initiate and maintain relationships with people. It can be very distracting and busy and many people have very little time and the family unit in urban areas is not as strong as in rural areas where the family units are stronger. And I just think my professional academic interest in social economic development and I'm interested in the real contacts because that is where I see the greatest potential for a positive impact.

Question 3: What are your perceptions of cross-cultural transfer of learning materials?

Answer: In terms of cross-cultural transfer of learning materials the most important component is transferring critical thinking skills. I don't like the word transfer but rather share because if resources are going to be transferred from Stanford to the University of Pretoria, one thing that I was very interested in at the beginning of the project is: "How can the students at the University of Pretoria share and transfer knowledge and learning materials back here to Stanford?" Many of my colleagues here at Stanford are interested in environmental issues in Africa but yet lack access to that kind of information or learning materials. But going back to the initial question I think that an important part of the transferring is that it is collaborative, the reasons for being transferred are also contributing something back. I think that is an important part and I think before you can transfer any kind of knowledge in either direction you need to share an understanding of critical thinking and the role that that plays because raw materials without a way of interpreting them, understanding them, extracting important points, I don't think will be effective.

Question 4: How did you decide on the readings?

Answer: It was a very difficult task. I worked with the Stanford course author, the original course author largely, and as well as two Professors here at Stanford who teach a class called International Environmental Policy. One is Armand Rosenkranz and a Consulting Associate Professor and actually in working with her on the readings, that's how she got involved. She is my advisor. So I took Ron's initial syllabus and a couple of different factors came into play. What was the original syllabus that went along

with the lectures? We couldn't change the lectures because they were video-taped, so we needed something that was relevant to the lectures and in some cases in the lectures he refers to the readings often. It would have been difficult to stray very far from the initial readings because the lectures were based on readings. So that was an important component. A second component that I tried to bring to it was in the case where there were originally Russian writings, I tried to introduce some African related writings so either re-inviting some African authors which in my search was very difficult to find in the environmental policy realm, very few, authors writing and publishing in journals on this issue, on the issues that the Stanford course author lectures about going back to the initial course that were appropriate. So what I did try to do in some circumstances is refer to just similar topical issues that as a South African journalist would be interested in or need to know. So for example one of the readings was one of South African Government's Green Policy Papers and that was really to just introduce if these students had never read a policy paper I think as a journalist it would be really interesting to expose them to something because these White and Green Policy Papers are there for the public to respond to. And so as a journalist being able to read a Policy Paper and dissect some information from it and share with the public and inform them as to what was going on at a policy level. I think that would have been an interesting reading. So that was another factor that came in as how could I add some relevance specific to Africa, South Africa appropriate for the readings. And then the third was linked into level of theory and difficulty and that is a hard balance because I didn't want to underestimate the potential of students and reduce the level of readings for South African students that a Stanford student would do and that of course was not intended. So what I tried to do was we ended up using a taxed school of environmental politics. It's a cross between an academic, it's very well researched and very well supported by some of the top academics but it is very readable, I hope and I would like to get some feedback from you and the other students. I was just speaking on another point of including aspects of environmental journalism in the readings and this year there wasn't a lecture schedule on Environment Journalism. There wasn't a space to put readings on a particular folder. I don't know if you have been able to use WebCT6, but on WebCT6 I did create a folder of environmental issues in the news which is where I was hoping to create and collect similar very specific examples of good writing on environmental issues to address that need of the students. That was my goal on that. And I think that if the class is going to continue next year and I think it is going to be taught to journalism students I think it would be great to have a lecture or a couple of lectures addressing how to bring all these issues in and address them in the context of Environmental Journalism and that would be an appropriate place for more readings and more material on the field of Environmental Journalism.

Question 5: How do you experience the input of the students?

Answer: In terms of my observations from the video conferences I think an important aspect of distant learning that I am just learning myself is the logistics of how do you set up a conference call so that everybody is engaged. It can be a very difficult thing to do and so to be honest I think the technology and circumstances has prevented optimal input from the students or limited the potential of some student

input. Because I do think if we were all sitting face to face in a classroom and had more time there would be a lot more input from a greater number of the students at the table. What was interesting to me was a couple people that felt very comfortable talking would speak often and others didn't speak as much but, and maybe this is relevant to your study, I don't think that is very different at Stanford. I think that if you come into a class at Stanford 74.0% of students would even say that if I don't speak in the first one or two classes, I am shy or very quiet and reserved the rest of the entire course, where as if I become someone who is known as speaking and more likely to participate and engage later. So I have been trying to reflect on the video conferencing and think if the level of participation and observations I made were due to technology or whether that's a natural process in a classroom that one or two students kind of take a lead and other students observe and more take it in. When I think of my experiences at Stanford I do think without real close attention to engaging every student, that's usually what happens. So in terms of the video conferences I would say that I think for next year, and this is something that I'm very interested in general academia, is how do you bring everybody into the conversation. I think that would be worth the Stanford team and the TUT team sitting together and talking about how we can improve video conferences so that we are really engaging everybody.

I do want to comment also on the energy and interest from the students. That is one thing that being in the United States has always been frustrating is that a lot of times the people here in the United States take education for granted. And that is one thing that I like about working in the rural areas, East Africa for example, as well is this desire to learn and being exposed to many things. It's not an everyday day occasion, in the rural areas there is less education, there is less opportunities to experience new things and so their appreciation is so much greater. And just the students in this class, reading their papers and looking at the video conferences, their interest and real desire to learn about these environmental issues was really visible.

Question 6: Is recycling import in California?
Answer: To give you a little background about New York City, when I was living in New York City in 2002, the mayor of New York City, completely got rid of recycling because it cost more money to recycle than to process recycling. He didn't see that as a worthy investment where as some people say this is an important investment we are making into our future. He said that in the short term it is not in the budget. So he just cancelled our recycling programs so NYC, the largest city probably creates the most wasting. It is interesting that California is definitely a different culture and a different place than the United States. So when you are looking at your research I would even think about that, because California is much more progressive in terms of trying new things. I think you will probably see a lot more progressive forms of education or attitudes about education here than you will at a more conservative institution like Princeton and Harvard. In terms of separate types of recycling in California it is not even a question, everybody here is very in tune with the environment and very in tune with recycling where as you can go to New York and you don't see that same commitment or culture.

Annexe H

Focus-group interview: Friday June 9, 2006 at Telematic Education, Tshwane University of Technology

Participant observer:

I want to welcome you here – it's our final session and I think it went very well, I don't know what you think? I would like to welcome the facilitator here today. He is our facilitator for this session and you will be in his hands completely and also welcome to the technical assistant over there. She is responsible for all the video clips. I am really grateful that they could be here to help us out this afternoon. Please feel free to say whatever is on your mind.

Facilitator:

I don't know if you know that we have a focus group about your programme? If you look on the piece of paper in front of you, you will see what we really would try to find out tonight. Just for your information the camera there is really just to record what it is what you are saying. Have a look at the camera – now it's there and now just forget about it. What I've done is I have given you each two pieces of paper, one with your name on it and the other one without your name and it's got the same question on it. The reason why I am doing that is to know what are your perceptions of the programme?

The reason why I am doing that is just so that you can drop down thoughts, while you are busy chatting. I would like to have those papers back when you are done. Just as a record for myself. So if there is something that you want to say, anonymously, you can do it on the one without your names. If you want to say it on record use the paper with your name on it, otherwise on the one without your name on it. I just want to give you the choice.

Also then on your WebCT6 Course, I've put a survey on there, it's like a little test. You could also down post stuff – with the same question again – if you want to say it there. Make your choice – the one with your name or anonymously. You see with that survey I give you the opportunity to write in your name, but if you don't write in your name it is an anonymous survey. Then we don't know who said what or anything.

Ok I'm going to start. What I'll do – we are going to start from a basic question – what are your perceptions of the programme? What you need to say is your thoughts of your experiences of this programme since you started. Then I will ask some volunteers to think and just to tell us what is the first thing if you think of this programme. I will give you a minute.

Students:

- I don't think the workload was that heavy!
- I am glad you didn't!
- The problem I had with the workload is that the assignments were posted about two days before it was due. That gave us just too little research time.
- Especially if you work during the day and the high speed Internet connection that you need to get all the information at work, then you cannot scamp off your work and do your study there.
- I am studying at Unisa – they've got a myUnisa online – if you do Unisa subjects, they've got all the modules and all the assignments at the beginning of the year already posted so that you know how to space everything through the year. It was different with the TUT one.
- I don't think the research might have taken us some time, but talking about a 600 word assignment really was not a lot of work. I think if maybe the questions were posted a bit before the time it would be better, because I mean there will obviously be a couple of days that you might have not logged on to WebCT6 and have a look at it and suddenly you do and then you see there that an assignment is due and you have to do it today or tonight. Sometimes there is no assignment so you are wondering if it has been updated or is something wrong with the system, but I think doing a 600 words assignment is really not that tough – it's very easy to do and it is very quick. The thing that takes the time is the research. So you kind of need access to quite a good Internet connection in order to do that effectively.
- Not only an Internet connection at work but at home as well.
- The time is in the research.
- A good idea is as soon as we can do this assignment, you should get a sms note or get an email, because everyone is looking at their emails everyday and if there is a note that says there is an assignment, go to WebCT6, everyone will go.
- Or phone, I mean we have all got the same phones.
- What is cool though is that the Internet is on the phones, it is wireless and that's quite fast.
- If WebCT6 does not work that's a problem.
- We've got to download all the Java software and stuff to get it to work.
- Assignment 5 was posted early and we think – yes it was posted early, and then I started doing research on it immediately on that and then we don't logon – we think ok we've got Assignment 5 and when we logon, we see oh, it's been changed. And then you have to start all over.
- I think that happened last week – Assignment 5 and everyone thought Assignment 5 is it. We got back on and there was two more.
- It wasn't that bad, because I mean we all did the assignment. We all coped and it wasn't that hectic anyway. Retrospectively of course.
- I did not do all the assignments.

- Then it also depends on your Internet access, because for me most of the research is done on the Internet. You don't even go to the libraries anymore to look for the books, so it's like someone said, we've been working all day, you can't sit there and do research during work hours, because there is no time. So every time I had to stay after work and do the research – to do the assignment, everything had to be done after work, my only Internet access is at work. I don't have Internet at home. That was also a problem.
- I've got two subjects on WebCT6, one is Mass Communication and the other one Environmental Studies. The Environmental Studies takes up to one minute to load on the modem, where as Mass Communication takes only twenty seconds.
- It is because of that big picture of the buffalo.

Participant observer:

If you would like to substitute the picture of the buffalo, what would you choose?

Students:

- Nothing – just a plain background.
- Simple pattern, but not the image.
- The smaller the files the better.

Students:

- I don't think that WebCT6 anyway was designed for broad banding. You know you logon with a dialogue – that really takes long – and then you have all these sort of other things slowing it down.
- To just keep checking for the system.
- What is that thing that you need the Java for? I don't understand that.
- I think the whole programme is built on Java.
- Can't they use the cobalt programme?
- No, Java, that's why we can't logon with our i-mates because it's not Java enabled.
- What does Java roam time do?
- It makes the Java work.
- I think a great thing will be that if it did not work on WebCT6, if it was possible for future reference, not to use WebCT6 as a platform, but maybe just a normal FTP site or a normal website where you can actually use your i-mate for logging on.

Just sort of integratable, because we have to use one computer with a fast Internet connection to logon to WebCT6 and then you got your PDA, which can't logon to WebCT6 and then you can't integrate your email, because WebCT6 has got its own email – everything is a bit of staggered and fragmented.

Facilitator:

Tell me something about the relevance of the course to your work?

Students:

- I think it was pretty relevant.
- I am using it at the moment. I am working for an online website and we've got to go around and do stories about mine tenders and municipalities involved with the mining activities and everything and that's very relevant.
- Living in South Africa, we deal with a lot of environmental issues which ties in with health, which is also quite a touchy subject. So it's very relevant.
- I think regardless of whether you are actually working on an environmental beat or anything, the environment has to do with your job.
- This allows you to think about it. You think about so many other effects that a certain thing can have.
- When you read something you don't just take it at face value. Because personally I would say, most of us didn't care. But you know that is the way that we talk – it's the way we are doing it – that makes you think about it. This course really got us thinking more. Then it changes your perspective on the course. You see things in a very different light when you begin to write something.
- It was interesting to see or find out that in some cases no one stayed grouped or showed any responsibility where development and things were taking place.
- Like yesterday when I did housing, budget keeping and they didn't take the environment into account. So because I am doing this course, I thought about it. I asked the MEC and she answered me. It was a so-so answer but no one thought about it. That's where I was, a bit ahead.
- Currently I am with the Department of Trade and Industry (DTI), you know I am based within that communication. I've just started and most of the things that come out you know, they all have these things and also I am asking a lot of questions. What does the industry do to protect the environment? Do you have a sort of policy within in the DTI that needs to regulate things? It's very interesting and challenging.

Facilitator:

How did the whole thing work with the fact that part of the course is presented from here and part of it was presented from Stanford. How did you experience that?

Student:

- The communication was that Assignment 5 was posted by the Stanford people. They posted their Assignment 5 and the Head: Journalism Department of TUT then said, no ways this was supposed to be ours. That was a communication problem for us.
- But apart from that emailing the first teaching assistant who sort of oversized our assignments and marked it and everything, she was very punctual and she always got back to you very quick. I don't think there was any flaw in actually communicating with them, because they're in the States and I don't think that was a problem at all. One thing I was thinking of is that a sort of broadband wireless and stuff – you can actually watch television on your cell phone and that's actually great with something like this. I don't know of these are sort of broadband wireless enabled, but so if you can watch television on your cell phone, you will be able to sort of just get a direct feed from wherever. You know if they are, as opposed to then being able to eliminate computers, because not needing to get the CD and put in the CD to watch the lecturer, you can just actually watch it on your PDA, download it from a site, because the broadband like that is available as well.
- The World Bank Foreign Trade audio clips were great.
- Sorry I just want to ask, did anyone put an attachment with video parts or anything to their assignment?
- I did.
- I did not find that there was a real opportunity to use the technology, really, unless you go out of your way and you found a video clip or so.

Facilitator:

Will you say technology is only PDA technology?

Students:

- This was given to us to take video footage – or so – well of something happening. I tried to use it one day. There is a ferro-chrome mine close to us and they had a lot of air pollution**.** So I took the video option and I tried to record and the thing is that the texture of the pixels doesn't capture the air pollution. So I think it did not help.

Facilitator:

What applications did you actually find with your PDAs – something that you could actually use it for?

Students:

- Contacts.
- Practical Journalism.
- At the end of the day I didn't do really anything until I get something to do, so it was like an extra thing to carry around, in my case.
- I think they will – I think there are lots of stuff that you can do with the i-mate definitely and especially with this course, but and I think it would have been much more easier if we can logon to WebCT6 and via these and set them up to get our email which is directly concerned with the course – and we could download maybe video or music or audio files and things to use with these things and maybe if the assignments where geared. I saw the last assignment we had to do, which was for last night gave us the option – either you must write it as a 300 word editorial or you can just record yourself saying the same thing in about the same words, which is great and which you can do totally. But then also there is no way to submit it via the i-mate on to WebCT6. You have to connect the i-mate to your computer, download a file and upload it via your computer on to WebCT6. As opposed to just have to send it on the i-mate directly to the website.
- I think especially one thought that would be great if it was in a more simple website, was the foreign function. Because that way right from the i-mate we could have some of discussion forum on the latest readings or on the latest assignments. So integrating the phone.
- Then it will definitely become more useful. It is not a redundant thing, it can definitely work, I think there is so much stuff that you can use. You can even like integrate, properly the calendar with all of these assignments, when they are due, when you have to do the readings. It can just totally organise the whole course. It just needs to be integrated and set up to accommodate that.
- It took me about a month to get use to the i-mate. Of all the functions and everything.
- After a while it becomes second nature, but it takes a while for me.

Facilitator:

It is interesting when I hear you speak, I mean you're actually integrating the fact that you are using technology into the course itself that become an integral part of the course it seems like.

Student:

- What the i-mate?

Facilitator:

It's almost like you I don't want to say you wouldn't be able to do the course without technology, but you are looking for ways to use technology, or take technology into your learning experience.

Students:

- Yes, definitely, I mean you've got the i-mate – it would have been nice to be able to use it as much as you can. I think the course could have been set up to use it a lot better, because like I said I think there was only that one last assignment that gave us the option to this or that, but then that already, like I said again could help us a lot more, sort of logistical issues about then getting the video clip action to be uploaded on WebCT6.
- Maybe just from the cell phone, the i-mate. It is that the Internet feed is a bit really too slow.
- I didn't think it was slow.
- It wasn't up to standard.
- Like if I had to open up a Yahoo mail – just to check my emails it was way too slow.
- Mine was fast.
- Mine was quite fast.
- Mine was fast as well.
- I think it depends on your connection.
- Because I am out there at Hartebeespoort Dam so maybe that was the problem.
- When I am here it works perfectly, but if I am in Nelspruit, then I have problems.
- I never thought of that.

Facilitator:

What is it that the Americans brought to the course?

Students:

- There was this one thing that we call the SEJ, Society of Environmental Journalists. They are like bombarding us with emails.
- I only got this one email.

- Be glad!
- I only got that package thing today and I thought they talk about all these emails and I was feeling quite hurt, you know.
- It is interesting to see that there is such a movement in America and the fact that there is on a daily basis new emails about new subjects, air pollution seems like a natural gas or whatever.
- They discuss it constantly.
- They are almost like an Environmental Journalist. You can join in, in what they make. It is valuable.
- Their expertise was exposed to us.
- I don't read every single email, but sometimes there are valuable things.
- I think that was their idea with this – that we can logon to some of the websites. You can actually go on to clips, video clips and photographs and just postings that normal people from the field submit on to this website. I think that was kind of a great idea if I can from heaven knows where, see a polluted dam or something.
- I am going to shut up now, I am not going to say anything anymore.
- I just admit that whatever – if I can take a video clip right now and submit it – and someone else can be able to access that information – it's like a small community of environmental journalists. I think because of the technology, problems we have been experiencing there hasn't been quite a practical option.
- If they can take our assignments and send it to SEJ to read some of our stuff as South Africans, because we have got quite a bit of writing that we are doing ourselves.
- But you can submit it yourself.
- I was just thinking that if Stanford can take some of the best writings and say that is from the South Africans – these are their issues.
- Also under normal circumstances I don't think we would have had the opportunity to work with the University of Stanford. It has opened the possibility of great opportunities. I mean, I know a lot of us enquired as to do post-graduate studies with them – doing a fellowship and those kind of things. I don't think under normal circumstances any of us would have thought of Stanford and to study there. That really helps.
- One thing I felt is that sometimes I got like praised in my assignments and that is so fantastic and the feedback was fantastic, but it was often a week when I had given nothing to that assignment, to be honest. And I think this is so great and I love the way you angled this and that – honestly they are easy on us.
- And you get 95% for the assignment.
- Maybe they're too easy on us.
- Definitely.
- I think that the assignments they gave us to do were great. They were right on the money, but I think a way too lenient when it comes to marking. You shouldn't be averaging 95% for a course, especially

when it comes to Stanford who is one of the top universities in the world. Here I don't think I have ever gotten 95% for an assignment. If you really work hard for an assignment, you should be getting 75-80%. That's an A. Getting 95% for an assignment you must have been a genius.

- Maybe you are a genius.
- It feels in general if this course is very heavy on quantity, but not on quality.
- We did not hand in crap, but we did not hand in stuff that is 95% worth.
- What about those many assignments that they also added to the work load, because we did that many assignments that not had been marked.
- The bio-sphere things hadn't been graded.
- I thought that was like quite hard work to get that assignment together. It was not only a little bit of research.
- I only want to say one thing about the assignments. I found especially the last three assignments – I mean the one question itself was actually 160 words. It is about nine different points they want us to address in 600 words. I really struggled with that – maybe I can't keep my thoughts concise enough. It's a bit jumping around – it doesn't flow enough.
- The first assignment from the UP guest lecturer was impossible for me.
- The bio-sphere type of thing? It was very un-understandable.
- Because the whole text that we were supposed to read was a summary already. How do you summarise on a summary?
- But another thing just adding on like the assignment we had to do for yesterday, like critically discuss a future policy issue for South Africa, involve all the major stakeholders – what their viewpoints are? What your viewpoints are and what the outcome is? 250 – 300 words?
- You have to pick as broad as possible an environmental situation and you can't get to an argument, let alone develop it and conclude it.
- Yes, you can't.

Facilitator:

Something that I am not too sure about is, were there some of the Stanford students that do the same course?

Students:

- I think a Consulting Associate Professor said something about students doing the same questions or some of the same questions.
- I think it is based on the same work, but I don't think they did it simultaneously.

Facilitator:

Do you think that could add to the experience if they have contact with it?

Students:

- They didn't make a lot of these assignments sort of very local or they are trying to. So that's not really going to help. If you localise in the content – there is nothing to discuss with. If I talk about the pollution in the Hartebeestpoort Dam, someone of Stanford is not going to give a damn about what I am talking about, because they will do their local specific issues.
- But the Russians can talk about their ice caps melting.
- It gives you insight into the problems that they are facing, it opens up your world. So they are going to see what we are facing.

Facilitator:

I am just specifically thinking about that going to be a cross-cultural interchange – so we want to expect to have kind of a cross-cultural interchange.

Students:

- Let us take some of their solutions from the discussions.
- Or otherwise the assignments should have been localised.
- You can localise the assignments, but the problem that they face – the solutions that they use – they could learn from us.
- Even if there might be different case studies – like general point solutions, policy making decisions – it stays the same.
- Tackle it the same way – educate the community.

Facilitator:

I was wondering what it is that they brought to the table, that the Americans brought to the table?

Students:

- I think that the CD lectures were really interesting.
- Very well prepared.

- Very well presented.
- It was great.
- Good lecturer.
- And you feel as if you were actually in a class – because there are people there and they are making comments and things that like. It is very helpful.
- I am not quite sure how advanced the departments are in a university in South Africa with regard to things like that. I am not speaking you know of any other supporting my point of view, I might be wrong, but I don't think we will be able to deliver a course with sort of such specialisation, because I mean, what was his name – the Stanford course author – he really knows what he is talking about and he has years and years of experience – and I don't think the environmental issues have actually been that mainstream in this country as an academic and developing sort of background. I am sure some universities might have a department and I am sure that they might be pretty on board with everything, but he was very good. All the lecturers, all the video lecturers that we've had were great as well.
- I mean sitting in front of my computer going through the CD lectures – it feels like it's your lecturer and you're in class and you can pause.
- We actually learn a lot better.
- You could have a cigarette while you are listening.
- You can stop to make some coffee, or watch your favourite soapy – it's like you are seeing the material, you are hearing it, you have got the notes popping up in front of you all the time, reinforcing the learning process.
- It was a huge learning process.
- That's great – yes.
- What is not good is that you can't ask questions or bring up a point.
- I don't think that's too crucial. I think that we pretty much get the gist of it.
- This is a system where we say that this is week one's lecture and then at the end of the week, we should be able to go to a forum and put our own points and debates on the table.
- If it's not going to count any points, who are going to do it?
- Then we will be able to tackle our assignments better.
- I think it is being interesting as well.
- And after each one we have a discussion about it, we talk about it.
- One becomes much more aware of the reporting in newspapers.
- You do.
- For general interest sake, I mean those lectures – you see the lecturer and everything – you don't need the direct correspondence. Maybe it's like being passive in a class – you have the opportunity to ask your own questions. If you do have a question, it's pretty well covered.

Facilitator:

To what extent do you use WebCT6 to communicate with the facilitators overseas, use bulletins, the bulletin boards, email on WebCT6?

Students:

- There are about 15 messages. You've got a default topic and then people started talking about something and other people started talking about things.
- I only posted about two or three messages.
- I never knew where to go. If you want to address the first teaching assistant, you don't know if the default was on – I am not technology literate, user friendly things attract me. So to use a thing like WebCT6 is not easy. If they have a point where they say post to – I think what will make it much easier is that it should be more user friendly.
- The headings of the separate discussion topics.
- The basic format of a forum basically on the Internet has that certain area**,** where you can see each message sort of in a tabled form and who posted last, and maybe this has to be this week's lecture and post your comments here on that, in a more interactive user friendly way. You know people just posted all over the show on different forums.
- I think it all comes down to WebCT6, because like I actually emailed the first teaching assistant on one or two occasions. I didn't use my email on WebCT6, I used my personal email to do that. It was just such a hassle to get in there and to get past the buffalo and then you have to logon and then you have to get to the email and then you have to write the email, because you put in her name – like it says in WebCT6 – it's just so much easier to get into my own email and send it to her.
- The one time I emailed her from WebCT6, I never got a response. So don't know if there was something wrong with it.
- I don't think she got it, because I tried to email and then it's like you can't get into the email, you have got to put in her name. And then I thought ok put in her name and her surname or her initial and her surname or the surname and the initial, because you tried once and it doesn't work, because it's very sort of case and character sensitive. You have to input the data perfectly before you can send the message.
- I'll send all my data through my personal email.
- I still cannot use the WebCT6, because at one time I tried to post and it said something… something expired, and my work was gone.
- I had my whole assignment typed and something happened, we logged off and everything was just gone.
- I had to redo my first assignment three times – because of that.

- You know typing it – just attached it – it also did not work.
- The attachment worked for me quite well, I managed to do it like that all the way through.
- It worked for me quite well, I actually worked like that.
- Copy and paste that's fine – if you didn't know it was your first assignment – then you're going to redo it.
- I had a cross as well. I tried to post it and someone else's and mine crossed and I couldn't post it.
- I also got someone else's on the first assignment.
- You know what the problem might be, because at the bottom it says like type of assignment and it's always individual and when you post it, it's says group. So she was the first one who posted it as an individual assignment and it takes it as posted like a whole group of assignments. Then it was rectified a couple of days afterwards.
- After that I have just emailed everything.
- I think the biggest thing is to try and cut WebCT6 out of this.
- Whatever the system and whatever the Internet system you are going to use, be compatible with the i-mate, because that will make it a lot easier.
- The i-mate in general and lots of these things are made for America and Europe, where most people use broadband and you come here with dial up and you just sit there for ages – it just has to be something that you can use more simply.
- I like it that you have a website where you can go to and check your things and see where you're assignments are.
- Especially on the PDA though.
- I went to Cape Town – I couldn't access WebCT6 at all – not in Internet Café's also. It says the WebCT6 is not accessible and the Java thing and everything.
- I think it's the language that the website is written in. Every time I sat at a different computer, because I sat anywhere I could not open it on that computer. You have to download it.
- Normal HTML or something like that.

Facilitator:

Did you guys manage to open all the other files and stuff that wasn't on WebCT6?

Students:

- Not on WebCT6.
- Yes.
- If you went to WebCT6 I got a "this page cannot be displayed" message.

- You sit there for half an hour while it downloads and we trust that it will be downloaded and then it says: “Not displayed”.

Facilitator:

Some closing comments perhaps?

Students:

- I think it was a great course. It was very interesting. I thought the Americans were great and they brought a lot to the table and I thought that the PDAs were great, they were convenient, they weren’t use to their full potential. I think they could be used to their full potential, but that requires not using WebCT6. So in being able to access everything that you need just on a normal Internet HTML site so you can access from your PDA. It will be even greater, if you have got a phone with a better processor, so you can even watch all the videos and all the lectures on the phone as well. So just having integrating all of the stuff and just having it on your phone and not sort of have a separate email address for WebCT6 and a separate address to download this. That was fine and it was great and amazing and I really enjoyed the course and the PDA is a really good idea, but you can use it in a lot better ways.
- I think this was a fantastic course – you know the content that you learn that’s available is wonderful, but what I find very frustrating and obviously I don’t know for the people that are doing their third year now, if they had the same experience, that I found it frustrating that my current schedule – the mass of work and readings and listening to the lectures, I couldn’t always get around to everything and I would have loved to – perhaps one can consider spreading it over more than six months, because, I actually feel disappointed that there is a lot of stuff I couldn’t get around to see, because with having an assignment almost always every week on top of another very full course and working full time, is just very difficult.
- If I can add something, sorry Michelle hold that thought, one thing is if you can just change it from Friday night due date. Ok say that everything can be accessed from your PDA – make the due date a Sunday night instead of a Friday night – and if you had a Friday and Saturday and Sunday to work it would be better.
- It will be effective if you are working full time and you have got evenings and weekends.
- Even if they posted three assignments – so that you can see what you have to do in a month – doesn’t help because you’re so busy doing the other ones that by the time you get to the third one you have got a day left. I mean it’s a good thought, so that they can give the assignments ahead of time so that you can start thinking about it, but I didn’t find it advantageous, because when I got around to do it, I had no time. It was still not easy.
- I suggest that they do the course over a year at least.

- Maybe an assignment every two weeks.
- I don't think that is a good idea.
- Why not?
- I didn't think the workload was too much.
- We do – that's how we experienced it and I think definitely a year.
- The fourth year course load is actually a lot more than the third year course load and maybe that's the difference as well.
- I am a third year student and I also think it's very heavy, because as I said not being able to work on WebCT6 assignments during the day, everything at my home always became late because I was busy with my assignments. It becomes frustrating.
- It also forces you to use Internet as your library, because you cannot touch your library.

Facilitator:

Anything else?

Students:

Thank you

Participant observer:

Thank you so much for attending the course.

Annexe I

Letter of Informed consent

e-Learning Initiative in South Africa (ELISA)

3 February 2006

Dear Participant

You are invited to participate in a research project aimed at teaching and e-learning between Stanford University, California, United States of America and Tshwane University of Technology, Tshwane, South Africa.

Your participation in this research project is voluntary and confidential. You will not be asked to reveal any information that will allow your identity to be established, unless you are willing to be contacted for individual follow-up interviews. Should you declare yourself willing to participate in an individual interview, confidentially will be guaranteed and you may decide to withdraw at any stage should you wish not to continue with an interview.

Accompanying this letter, is a document explaining your role in the research process.

The results from this study will be used to contribute to the domain of successful cross-cultural education and to contribute to cooperation between Higher Education Institutions.

If you are willing to participate in this study, please sign this letter as a declaration of your consent, i.e. that you participate in this project willingly and that you understand that you may withdraw from the research project at any time. Participation in this phase of the project does not obligate you to participate in follow-up individual interviews, however, should you decide to participate in follow-up interviews your participation is still voluntary and you may withdraw at any time. Under no circumstances will the identity of interview participants be made known to any parties/organisations that may be involved in the research process and/or which has some form of power over the participants.

Participant's signature…….....: Date: ……

Researcher's signature……..: Date:……..

Yours sincerely

Researcher

Annexe J

Request to Whitehead Foundation

	9/1/05-8/31/06	*9/1/05-8/31/07*	*9/1/07 8/31/08*
Stanford University	**42,205**	**54,154**	**63,407**
Faculty PI – 2%	2,000	2,060	2,122
Project Director – 10%	7,000	7,210	7,426
Fringe benefits	3,672	3,782	3,896
Teaching Assistant – 50% (1/ quarter/course)	13,475	27,759	28,591
Research Assistant – 25% (2 quarters/year)	0	0	0
Fringe benefits – Graduate Students @ 3.45%	458	944	972
Office supplies	500	500	500
Telecommunication	500	500	500
Printing/copying	300	300	300
Postage & freight	500	500	500
Working meals	500	500	500
Books & publications	500	500	500
Video conferencing (3 times per semester per course)	700	700	700
International travel			
Conference/site visit travel (2 persons)	8,000		8,000
Stanford Faculty to Pretoria	4,000	8,000	8,000
Indesign Critical Thinking Test	100	100	100
Subcontract – Tshwane University of Technology	**77,190**	**103,493**	**107,350**
Project Director @ 15%	10,500	10,815	11,139
PhD candidate (De Swardt @ 2 semesters UP)	15,000	15,450	15,914
PhD candidate (TUT student @ 2 semesters)	15,000	15,450	15,914
TUT Instructor honorarium – P Diederichs ($1000 per course)	1,000	2,000	2,000
Benefits rate @ 25%	10,375	10,929	11,242
Mobile phones – TUT Telematic education ($200 per phone for 20 students)	4,000		
Phone provider – TUT Telematic Education ($80/mos For 20 students for 5 mos)		8,000	8,000
Office supplies	750	750	750
Telecommunication	500	500	500
Printing/copying	300	300	300
Postage & freight	500	500	500
Working meals	750	750	750
Books/publications	500	500	500
International travel			
Conference/visits to Stanford (3 persons)		12,000	12,000
Website design & maintenance (if use WebCT6)	**2,000**	**2,000**	**2,000**
Creation of complementary TUT lectures	1,5000	3,000	3,000
TUT indirect cost charge @ 20%	12,865	17,249	17,892

SUBTOTAL	**119,395**	**1647**	**170,757**
Stanford infrastructure charge – 8.5%	10,149	13,400	14,514
TOTAL	**129,544**	**171,047**	**185,271**

Assumes 3% cost rise per year **485,862**
Assumes increase in course offerings/university participants from one to two over three-year project

References

Abbott, M., & Doucouliagos, C. (2003). The efficiency of Australian universities: A data development analysis. *Economics of Education Review, 22 (2003)*, 89-97.

Advanced Micro Devices, I. (2008). Can the Digital Divide be eliminated? Retrieved March 1, 2008, from http://www.50x15.com/en-us/internet_usage.aspx

Akinboade, O., & Lalthapersad-Pillay, P. (2005). South Africa and the New Partnership Africa's Development: Economic spin-offs and linkages. *South African Journal of Economics, 73*(2), 243-268.

Akoojee, S., & McGrath, S. (2003). *Assessing the impact of globalisation on South African education and training: A review of the evidence so far.* Retrieved May 27, 2005, from http://explore.up.ac.za/articles/164.1935.17624/1.pdf

Alessi, S. M., & Trollip, S. R. (1991). *Computer-based instruction: Methods and development*. New Jersey: Prentice Hall.

Ali, F. (2003). The South African telecommunications environment: A brief assessment of regulatory change. *Communicatio, 29*(1&2).

Altbach, P. G. (2004). Higher education crosses borders. *Change*, Retrieved June 14, 2008, from globalcurriculum.org

Anderson, S. K., & Middleton, V. (2002). You want me to do what? The cultural and psychological struggle of putting a course online. *The Technology Source.* Retrieved February 20, 2008, from https:ts.mivu.org/default.asp?show=article&idnd=917

Apap, J. (2002). Shaping Europe's migration policy - new regimes for the employment of third country nationals: A comparison of strategies in Germany, Sweden, the Netherlands and the UK *European Journal of Migration and Law 4(3)*, 309-328.

Babbie, E. (1998). *The practice of social research.* Belmont: Wadsworth Publishing Company.

Barth, F. (1998). *Ethnic groups and boundaries*. Retrieved July 29, 2009, from https://scholar.google.com/scholar?cluster=14461411779702112199&hl=en

Bates, A. J. (2005). *Technology, e-learning and distance education* (2nd ed.). London: Routledge.

Bates, A. W., & De Los Santos, J. G. E. (1997). Crossing boundaries: Making global distance education a reality. *The Journal of Distance Education, 12*(1), 49-66.

Bates, T. (1999). *Cultural and ethical issues in international distance education* Paper presented at the UBC/CREAD.

Bent, P. D., Bolsin, S. N., Creati, B. J., Patrick, A. J., & Colson, M. E. (2002). Professional monitoring and critical incident reporting using personal digital assistants. *The Medical Journal of Australia, 177*, 496-499.

Benton Foundation. (2000). You have to have a telephone. *The Digital Beat, 2*(25).

Bernhardt, J. M. (2000). Health education and the digital divide: Building bridges and filling chasms. *Health Education Research, 15*(5), 527-531.

Berry, J. N. (2000). Bridge all the Digital Divides. Retrieved March 6, 2008, from http://www/libraryjournal.com/index.asp?layout=articlePrint&articleID=CA158869

Bertling, C. J., Simpson, D. E., Hayes, A. M., Torre, D. L., Brown, D. L., & Schubot, D. B. (2003). Personal Digital Assistants herald new approaches to teaching and evaluation in medical education. *Wisconson Medical Journal, 102*(2), 46-50.

Bhabba, E. (1994). *The location of culture*. London: Routledge.

Bichelmeyer, B. (2004). The ADDIE model - A metaphor for the lack of clarity in the field of IDT. Paper presented at the Annual Conference of the Association for Educational Communications and Technology. Retrieved May 31, 2007, from http://0-scholar.google.com.innopac.up.ac.za/scholar?q=ADDIE+model&hl=en&lr=

Blignaut, A. S., & Conradie, P. (2006). Design-reality gap assessment of a failed e-initiative at a South African HEI. Faculty of Humanities, Tswane University of Technology.

Bogdan, R. C., & Biklen, S. K. (1992). *Qualitative research for education*. Boston: Allyn and Bacon.

Bradwood, J. R. (2003). *What works: Vodacom's community services phone shops*. Retrieved May 13, 2008, from http://66.102.1.104/scholar?hl=en&lr=&q=cache:xPb2XNGKd5EJ:www.bdsknowled

Bruns, A., Cobcroft, R., Smith, J., & Towers, S. (2007). Mobile learning technologies and the move toward 'User-led Education'. *Australian Journal of Educational Technology, 19*(2), 139-160.

Callahan, E. (2006). Cultural similarities and differences in the design of university web sites. *Journal of Computer-Mediated Communication, 11*, 239-273.

Carrim, N. (1998). Anti-racism and the new South African educational order. *Cambridge Journal of Education, 28*(3).

Castells, M. (2001). *The Internet Galaxy? Reflections on the Internet, business and society*. Oxford: Oxford University Press.

Castells, M. (2002). Local and global: Cities in the network society. *Tijdschrift voor Economische en Sociale Geografie, 93*(5), 548-558.

Chandiwana, S., & Ornbjerg, N. (2003). Review of North-South and South-South cooperation and conditions necessary to sustain research capability in developing countries. *Journal of Health, Population and Nutrition, 21*(3), 288-297.

Chen, W., & Wellman, B. (2003). Charting and bridging digital divides. *J-Ways, Digest of Electronic Commerce Policy and Regulation, 26*, 155-161.

Chetty, M., Tucker, W., & Blake, E. (2003). *Using voice over IP to bridge the Digital Divide - A critical action research approach.* Paper presented at the Proceedings of South African Telecommunications.

Chinn, M. D., & Fairlie, R. W. (2006). *The determinants of the global digital divide: A cross-country analysis of computer and internet penetration*. Paper presented at the Oxford Economic Papers. Oxford University Press.

Chute, A., Thompson, M., & Hancock, B. (1998). *Distance learning: An implementation guide for trainers and human resources professionals*. New York: McGraw-Hill.

Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research, 53*(4), 445-459.

Clarke, D. J. (2002). E-learning: Big Bang or steady evolution. *Learning Technologies 2002*. Retrieved June 17, 2008, from http://www.logilent.com/company/bigbang.pdf

Coertze, P. J. (Ed.). (1959). *Kultuurkunde*. Johannesburg: Voortrekkerpers.

Cohen, L., Manion, L. & Morrison, K. (2002). *Research methods in education.* (5th ed.). London: Routledge.

Colucciello, M. L. (1997). Critical thinking skills and dispositions of Baccalaureate nursing students - A conceptual model for evaluation. *Journal of Professional Nursing, 13*(4), 236-245.

Coppola, B. P. (1996). Progress in practice: Exploring the cooperative and collaborative dimensions of group learning. *The Chemical Educator.* Retrieved October 9, 2008, from http://72.14.205.104/search?q=cache:zigNudUWSU8J:chemeducator.org/sbibs/s0001

Costello, A., & Zumla, A. (2000). Moving to research partnerships in developing countries. *British Medical Journal, 321*, 827-829.

Cronjé, J. C. (1997). Education for technology, technology for education. *University of Pretoria Technology Plan*. Retrieved June 16, 2008, from http://hagar.up.ac.za/catts/abc/Techplan97.html

Cronjé, J. C. (2006). Pretoria to Khartoum - how we taught an Internet-supported Masters' programme across national, religious, cultural and linguistic barriers. *Educational Technology & Society, 9*(1), 276-288.

Cronjé, J. C. (2009). Qualitative assessment across language barriers: An action research study. *Educational Technology & Society, 12*(2), 69-85.

Dahl, S. (2004). *The current state of knowledge*. Retrieved August 11, 2006, from http://ssrn.com/abstrac=658202

Daniel, J. (2005). Preface. In McIntosh, C. (Ed.), *Perspectives on distance education: Lifelong learning & distance higher education* (pp. ix-x). Paris: UNESCO/Commonwealth of learning.

Davenport, S. (2004). Panic and panacea: Brain drain and science technology human capital policy: *Research policy, 33*(4), 617-630.

De Haan, J. (2004). A multifaceted dynamic model of the Digital Divide. *IT&Society, 1*(7), 66-88.

Delgado, R. (2004). *New initiative planned to raise university's international cachet*.

Delgado, R., & Stefanic, J. (Eds.). (2000). *Critical race theory: The cutting edge*. Philadelphia: Temple University Press.

Department for Education and Skills. (2005). *Harnessing technology: Transforming learning and children's services*. Retrieved February 21, 2008, from www.dfes.gov.uk/publications/e-strategy.

Dick, W., & Carey, L. (1996). *The systematic design of instruction* (4th ed.). New York: Harper Collins College Publishers.

Dick, B. (2005). Grounded theory: A thumbnail sketch. Retrieved November 4, 2008, from http:o-www.edu.au.innopac.up.ac.za/schools/gcm/ar/arp/grounded.html

Dick ,W., Carey, L., & Carey, J.O. (2005). The systematic design of instruction. Retrieved October 22, 2006, from http://www.ou.nl/info-alg-otec/master%20Actief%20leren/Stukjes_materiaal/Materiaal%20O22411/O22411_the%20systematic%20design%20of%20instruction.pdf

Drahos, P. (2002). Developing countries and International intellectual property standard-setting. *The Journal of World Intellectual Property*, 767-789.

Dyer, S., Ramirez-Valles, J., Walter, B., Washiensko, K. M., & Zimmerman, M. A. (1996). The development of a measure of enculturation for native American youth. *American Journal of Community Psychology, 24*(2), 295-310.

Edejer, T. T. T. (2000). Disseminating health information in developing countries: The role of the Internet. *British Medical Journal, 321*, 797-800.

Eloff, I., Engelbrecht, P., Kozleski, E., Oswald, M., Swart, E., & Yssel, N. (2002). *Epistemological and methodological issues in a transatlantic research project on inclusive education*. Paper presented at the AARE, 1-5 December 2002, Brisbane, Australia. Retrieved November 16, 2005, from http://www/.aare.edu.au/o2pap/elo02038.htm

Eng, T. R., Maxfield, A., Patrick, A. J., Deering, M. J., Ratzan, R. C., & Gustafson, D. H. (1998). Access to health information and support: A public highway or a private road? *The Journal of the American Medical Association, 280*(15), 1371-1375.

Enger, O. C. (2004). *Decision making across cultures*. Retrieved August 8, 2006, from www.ansiktdesign.no/ole/papers/SOL403.pdf

Erickson, F. (2001). Culture in society and educational practices. In Banks, C. A. M. & Banks, J. A. (Eds.), *Multicultural Education*. New York: John Wiley & Sons.

Esselaar, S., & Gillwald, A. (2007). *2006 South African ICT sector performance review*. Retrieved May 15, 2008, from http://66.102.1.104/scholar?hl=en&lr=&q=cache:2pt5QUtYYRIoJ:www.lirneasia.net/

Ferlander, S., & Timms, D. (2006). Bridging the dual Digital Divide. *Information, Communication & Society, 9*(2), 137-159.

Ferraro, N. (2008). *The Internet and the developing world: Internet evolution*. Retrieved May 8, 2008, from http://www.internetevolution.com/document.asp/doc_id=143698&print=yes

Freeman, R. B., & Lindauer, D. L. (1999). National Bureau of Economic Research. *Why not Africa?* National Bureau of Economic Research, working paper 6942.

Gagne, R. M., Briggs, L. J., & Wager, W. W. (1988). *Principles of instructional design*. New York: Holt, Rinehart and Winston, Inc.

Galusha, J. M. (1997). Barriers to learning in distance education. *Interpersonal Computing and Technology, 5*(3-4), 6-14.

Gandhi, L. (1998). *Postcolonial theory: A critical introduction*. Edinburgh: Edinburgh University Press.

Gannon, M. J., & Associates, A. (1994). *Understanding global cultures* Thousand Oaks: Sage Publications, Inc.

Gay, G. (2000). *Culturally responsive teaching: Theory, research & practice*. New York: Teachers College Press.

Gee, Q. (2005). Review of script displays of African languages by current software. *New Review of Hypermedia and Multimedia, 11*(2), 247-255.

Glaser, G. (1992). *Basics of grounded theory analysis*. Mill Valley: Sociology Press.

Gokhale, A. A. (1995). Collaborative learning enhances critical thinking. *Journal of Technology Education, 7*(1), 22-30.

Gordo, B. (2003). Overcoming digital deprivation. *IT&Society, 1*(5), 166-180.

Greenagel, F. L. (2002). *The illusion of e-learning: Why are we missing out on the promise of technology*. Retrieved June 16, 2008, from http:www.league.org/publication/whitepapers/0802.html

Greenhalgh, T. (2001). Computer assisted learning in undergraduate medical education. *British Medical Journal, 322*(7277), 40-44.

Halimi, S. (2005). Lifelong learning for equity and social cohesion: a new challenge for higher education. In *Lifelong learning & distance higher education* (pp. 11-22). Paris: UNESCO-COL.

Hall, S. (1990). Cultural identity and diaspora. Retrieved September 27, 2008, from http://0-scholar.google.co.za.innopac.up.ac.za/scholar?hl=en&lr=&q=dialogue+of_po

Handy, C. (1991). *Gods of management*. London: Arrow Books.

Hannafin, M.J. (1999). Learning in open-ended environments: Tools and technologies for the next millennium. Retrieved June 20, 2008 from http:0-itech.l.coe.edu.innopac.up.ac.za/itforum/paper34/paper34.html

Hannafin, M. J., & Peck, K. L. (1988). *The design, development and evaluation of instructional software*. New York: Macmillan Publishing Company.

Held, D., & Hirst, P. (2005). The argument of our time. Retrieved June 5, 2005, from http:globalenvision.org/library/8/528/6/

Henning, E., Van Rensburg, W., & Smit, B. (2004). *Finding your way in qualitative research*. Pretoria: Van Schaik.

Hernández-Catá, E. (2004). Executive summary. In Hernández-Catá, E. (Ed.), *The Africa Competitiveness Report 2004* (pp. iii-v). Geneva: World Economic Forum.

Hickling-Hudson, A. (2003). Multicultural Education and the Postcolonial Turn. *Policy Futures in Education, 1(2),* 381-401.

Hodge, J. (2004). Universal access through roll-out targets and licence conditions: lessons from telecommunication South Africa. *Development in Southern Africa, 21*(1), 205-225.

Hodge, J. (2005). Tariff structures and access substitution of mobile cellular for fixed line in South Africa. *Telecommunications Policy, 29*(7), 493-505.

Hofstede, G. (1980a). *Cultures consequences*: McGraw-Hill.

Hofstede, G. (1980b). Motivation, leadership, and organization: Do American theories apply abroad? . *Organizational Dynamics*, 22, 42-63.

Hofstede, G. (1991). *Cultures and Organizations.* Berkshire: McGraw-Hill Book Company Europe.

Hofstede, G. (2003). Geert Hofstede cultural insights for international business. Retrieved August 8, 2006, from http://www.cyborlink.com.besite/hofstede.htm

Hongladarom, S. (2002). The web of time and the dilemma of globalisation. *The Information Society, 18(4)*, 241-249.

Hoogveld, A. W. M., Paas, F., Jochems, W. M. G., & Van Merrienboer, J. J. G. (2002). Exploring teachers' instructional design practices from a systems design perspective. *Instructional Science, 30*(4), 291-305.

Hüsing, T., & Selhofer, H. (2002). *The Digital Divide Index. A measure of social inequalities in the adoption of ICT*. Paper presented at the Xth European Conference on Information Systems ECIS 2002 - Information Systems and the Digital Economy. Retrieved July 31, 2008, from http://0-scholar.google.co.za.innopac.up.ac.za/scholar?q=how+to+bridge+the+digital

Hüsing, T., & Selhofer, H. (2004). DIDIX: A Digital Divide Index for measuring inequality in IT diffusion. *IT&Society, 1*(7), 21-38.

Iboma, J. (2008). *Microsoft goes native: Plans applications in African languages*. Retrieved May 8, 2008, from http:www.africanloft.com/microsoft goes-native-plans-applications-in-african-langu

Inglehart, R., & Carballo, M. (1997). Does Latin America exist? (And is there a Confucian culture?): A global analysis of cross-cultural differences *Political Science & Politics* 30(1), 34-47.

International Telecommunication Union (2007). Connect Africa. Retrieved March 1, 2008, from http:www.itu/ITU-D/connect/Africa/2007/index.html

Internet World Stats. (2008a). South African Internet usage, population, broadband and market report. Retrieved March 14, 2008, from http://www/internetworldstats.com/af/za.htm

Internet World Stats. (2008b). Surfing and site guide Internet World Stats. Retrieved March 16, 2008, from http://www.internetworldstats.com/surfing.htm

Internet World Stats. (2008c). World Internet users. Retrieved March 1, 2008, from http://www.internetworldstats.com/stats.htm

Isaksson, D. (2002). *ICT - Transforming the world by transforming universities*. Stockholm: Swedish International Development Cooperation Agency. Stockholm: SIDA

Jalongo, M. R. (2007). *Beyond benchmarks and scores: Reasserting the role of motivation and interest in children's academic achievemen*t. Retrieved October 7, 2008, from http:www.thefreelibrary.com/_/print/Printarticle.aspx?id=168163375

Johnson, D. W., & Johnson, R. T. (1994). Learning together. In Sharan, S. (Ed.), *Handbook of cooperative learning methods*. Connecticut: The Greenwood Educator's Reference Collection.

Johnson, D. W., Johnson, R. T., & Holubec, E. (1994). *The new circles of learning: Cooperation in the classroom and school*. Alexandria, VA: Association for Supervision and Curriculum.

Johnson, D. W., Johnson, R. T., & Smith, K. A. (1998). Cooperative learning returns to college: What evidence is there that it works? *Change, 27-35*.

Joshi, D., & Avasthi, V. (2007). *Mobile Internet UX for developing countries*. Paper presented at the Mobile HCI 07. September 11-14, 2007, Singapore.

Kahlil, M. (2003). The wireless Internet opportunity for developing countries. United Nations Information and Communication Technology. Retrieved March 14, 2008, from http://www.doingbusiness.org/ExploreEconomic/?economyid=197

Keller, J. M., & Suzuki, K. (1988). Use of the ARCS motivation model in courseware design. In Jonassen, D. H. (Ed.), *Instructional designs for microcomputer courseware*: Lawrence Erlbaum Associates, USA.

Keller, J. M., & Suzuki, K. (2004). Learner motivation and E-learning design: A multinationally validated process. *Journal of Educational Media, 29*(3), 229-239.

Kenny, R. F., Zhang, Z., Schwier, R. A., & Campbell, K. (2005). A review of what instructional designers do: Questions answered and questions not asked. *Canadian Journal of Learning and Technology, 31*(1). Retrieved May 31, 2007, from http://www.cjlt.ca/content/vol31.1/kenny.html

Khondker, H. H. (2004). Glocalization as Globalization: Evolution of a Sociological Concept. *Bangladesh e-Journal of Sociology, 1*(2).

Kikuchi, H. (2006). Motivational factors affecting online learning by Japanese MBA students. *Australasian Journal of Educational Technology, 22*(3), 398-415.

Ko, S., & Rossen, S. (2004). *Teaching online: A practical guide*. Boston: Houghton Mifflin.

Kozma, R., McGhee, R., Quelimalz, E., & Zalles, D. (2004). Closing the Digital Divide: Evaluation of the World Links program. *International Journal of Educational Development, 24*(4), 361-381.

Kozma, R.B. (1991). Learning with media. Retrieved December 10, 2006, from http://robertkozma.com/images/kozma_rer.pdf

Kozma, R.B. (1994). Will media influence learning? Reframing the debate. *Educational Technology Research and Development, 42*(2), 7-19.

Kubichek, H. (2004). Fighting a moving target: Hard lessons from Germany's Digital Divide programs. *IT&Society, 1*(6), 1-19.

Larsen, K., Martin, J. P., & Morris, M. (2002). Trade in educational services: Trends and emerging issues. *The World Economy, 25*(6), 489-868.

Leigh, A., & Atkinson, R. D. (2001). *Clear thinking on the Digital Divide*. Policy Report, June 2001.

Leiner, B. M., Cerf, C. G., Clark, D. D., Kahn, R. E., Kleinrock, L., & Lynch, D. C. (1999). *A brief history of the Internet.* Retrieved March 1, 2008, from http://0-arxiv.org.innopac.up.ac.za/html/cs/9901011v1

Lemmer, E. (2001). The globalisation debate and implications for higher education. *Journal of the Faculty of Education, 30*(1+2), 14-32.

Lewis, D. J. (2001). *Policies to promote growth and employment in South Africa*. The World Bank Southern Africa Department. Informal discussion papers on aspects of the economy of South Africa. Retrieved May 2, 2006, from http://0-scholar.google.co.za

Lohr, L. (1998). *Using ADDIE to design a web-based training interface.* Paper presented at the "SITE 98: Society for Information Technology & Teacher Education International Conference (9th, Washington, DC, March 10 - 14, 1998) Proceedings".

Losh, S. C. (2003). Gender and educational digital chasms in computer and internet access and use over time: 1983 - 2000. *IT&Society, 1*(4), 73-86.

MacKnight, C. B. (2000). Teaching critical thinking through online discussion. *Educause Quarterly* (4), 38-41.

Mahalingham, R., & McCarthy, C. (2000). *Multicultural curriculum*. New directions for social theory; practice and policy. New York: Routledge.

Makhaya, G., & Roberts, S. (2003). Telecommunications in developing countries: Reflections from the South African experience. *Telecommunications Policy, 27*((1-2)), 41-59.

Malone, T. W., & Lepper, M. R. (1987). Making learning fun: A taxonomy of intrinsic motivations for learning. In Snow, R. E. & Farr, M. J. (Eds.), *Aptitude, learning and instruction* (pp. 223-253). London: Lawrence Erlbaum Associates.

Marson, I. (2004). *OpenOffice gets the Zulu touch*. Retrieved May 8, 2008 from http://news.zdnet.co.uk/software/0,1000000121,39164770,00.htm

Mason, R. (1998). *Globalising education: Trends and applications*. London: Routledge.

Matsumoto, M., & Obana, Y. (2001). Motivational factors and persistence in learning Japanese as a foreign language. *New Zealand Journal of Asian Studies, 3*(1), 59-86.

Maynard, M. L. (2003). From global to local: How Gillette's Sensor Excel accommodates to Japan *Keio Communication Review*(25).

Mbigi, L., & Maree, J. (2005). *Ubuntu: The spirit of African transformation*. Randburg: Knowres.

McCombs, B. L. U.S. Department of Education. (2000). Secretary's conference on educational technology 2000. Retrieved July 6, 2008, from http://www.ed.gov/schtat/eval/tech/techconf00/mccombs_paper.html

McIntosh, C. (2005). Perspectives on distance education: Lifelong learning & distance higher education. In McIntosh, C. (Ed.), *Perspectives on distance education: Lifelong learning & distance higher education* (pp. 1-10). Paris: Commonwealth of Learning: UNESCO Publishing.

McMillan, J. H., & Schumacher, S. (2001). *Research in education: A conceptual introduction.* (5th ed.). New York: Longman.

McPhie, E. (2004). Building capacity to narrow the Digital Divide in Africa from within. In Hernández-Catá, E. (Ed.), *The Africa Competitiveness Report 2004* (pp. 59-71). Geneva: World Economic Forum.

McSweeney, B. (2002). Hofstede's model of national cultural differences and their consequences: A triump of faith - a failure of analysis. *Human Relations, 55*(1), 89-119.

Meijering, L., & Van der Hoven, B. (2003). Imagining difference: The experience of 'transnational' Indian IT professionals in Germany. *Area 35(2)*, 174-182.

Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass.

Merrill, M. D. (1994). Don't bother me with instructional design, I'm busy programming! In Twitchell, D. (Ed.), *Instructional design theory* (pp. 295-310). New Jersey: Englewood Cliffs.

Missen, C. C., McNulty, M. L., Ibrahim, M. A., & Liverpool, L. S. O. (2003). The African Universities Digitization Project. Retrieved September 27, 2008, from http://www.widernet.org/Proposals/audp.htm

Molenda, M. (2003). In search of the elusive ADDIE model. Retrieved May 30, 2007, from http://0-scholar.google.com.innopac.up.ac.za

Mouton, J. (2001). *How to succeed in your Master's and Doctoral studies.* Pretoria: Van Schaik.

MTN Group. (2008). *Y'ello Trader*.

MTN Press Office. (2009).

Ngambi, M., & Katembo, B. I. M. (2006). Historically black colleges and universities: A think tank resource for Africa. *The Journal of Pan African Studies, 1*(6), 43-48.

Nyamnjoh, F. B. (2004). *Globalisation, boundaries and livelihoods: Perspectives on Africa*. Identity, Culture and Politics, 5(1+2), 37-59. Paper presented at the Afro-Asian Dialogue Conference.

Ogunsola, L. A., & Okugasa, T. O. (2006). Digital Divide between developed countries and less-developed countries: The way forward. *Journal of Social Sciences, 13*(2), 137-146.

Oyelaran-Oyeyinka, B. (2005). *United Nations University-Institute for New Technologies.* Partnerships for building science and technology capacity in Africa. Paper prepared for the Africa-Canada-UK-Exploration. 30 January - 1 February 2005, London, UK.

Oyelaran-Oyeyinka, B., & Lal, K. (2005). Internet diffusion in Sub-Saharan Africa: A cross-country analysis. *Telecommunications Policy, 29*(7), 507-527.

Paul, R. W. (1990). Critical thinking: What, why and how. *Critical thinking: What every person needs to survive in a rapidly changing world* Retrieved October 25, 2008, from http://0-scholar.google.co.za.innopac.up.ac.za/scholar?q=critical+thinking+Paul+and+

Paulson, K. (2002). Reconfiguring faculty roles for virtual settings. *The Journal of Higher Education, 73*(1), 123-140.

Perkins, P., Fedderke, J., & Luiz, J. (2005). An analysis of economic infrastructure investment in South Africa. *South African Journal of Economics, 73*(2), 211-228.

Peterson, C. (2003). Bringing ADDIE to life: instructional design at its best. *Journal of Educational Multimedia and Hypermedia, 12*(3), 227-241.

Piazolo, D. (2001). *The Digital Divide*: Kiel Institute of World Economics, Germany. CE Sifo Forum.

Pityana, N. B. (2004). Higher education in South Africa: Future perspectives. Retrieved November 18, 2005, from http://66.249.93.104/search?q=cache:4qKZI_yY_ZgJ:www.unisa.ac.za/contents/about

Pogge, T. (2005). World Poverty and Human Rights. *Ethics & International Affairs 19*(1).

Ramutsindela, M. (2004). Glocalization and nature conservation strategies in 21st Century Southern Africa *Tijdschrift voor Economische en Sociale Geografie, 95*(1), 61-72.

Ray, B. (2002). PDAs in the classroom: Integration strategies for K-12 educators. [IJET]. *International Journal of Educational Technology, 3*(1). Retrieved March 8, 2007, from http://0-www.ed.uiuc.edu.innopac.up.ac.za/ijet/v3n1/ray/index.html

Reeves, T. C., & Hedberg, J. G. (2003). *Interactive learning systems evaluation*. Englewood Cliffs: Educational Technology Publications.

Republic of South Africa. Department of Environmental Affairs and Tourism. (1996). Green Paper for Public Discussion.

Republic of South Africa. Department of Education. (2004a). *Draft White Paper on e-Education*. (Volume 470. Number 26734). Government Gazette.

Republic of South Africa. Department of Education. (2004b). *White Paper on e-Education*. Government Gazette, 2 September 2004.

Republic of South Africa. (2007). The Presidency. *Development indicators mid-term review*. Retrieved July 29, 2008, from http://www.info.gov.za/otherdocs/2007/developmentindicator/development_indicator.pdf.

Republic of South Africa. Government Communication and Information System (GCIS). (2008a). *SA Yearbook 2007/2008/ Communications*. Retrieved May 19, 2008, from www.gcis.gov.za.

Republic of South Africa. Department of Education. (2008b). *Education Statistics in South Africa 2006*. Retrieved July 29, 2008, from www.education.gov.za.

Republic of South Africa. (2009). *Mid-year population estimates 2009*. Retrieved July 29, 2008, from http://www.statssa.gov.za/publiations /statsdownload.asp?S=P0302&SCH=4437.

Rickinson, B., & Rutherford, D. (1995). Increasing undergraduate student retention rates. *British Journal of Guidance and Counselling, 23*(2), 161-172.

Robinson, J. P., DiMaggio, P., & Hargittai, E. (2003). New social survey perspectives on the Digital Divide. *IT&Society, 1*(5), 1-22.

Rogers, E. M. (2000). The communication of innovation: The need for Internet access multiplies with obstacles. Retrieved March 6, 2008, from http://www.cnn.com/SPECIALS/2000/virtualvillages/story/essays/rogers/print.html

Romiszowski, A. J. (2004). How's the e-learning baby? Factors leading to success or failure of an educational technology innovation. *Educational Technology, 44*(1), 5-27.

Rosen, J. (2000). The bloods and the crits. In Delgado, R. & Stefanic, J. (Eds.), *Critical race theory* (pp. 584-590). Philadelphia: Temple University Press.

Rudman, F. W. (2003). Critical history of the acculturation Psychology of assimilation, separation, integration, and marginalization. *Review of General Psychology, 7*(1), 3-37.

Rumble, G. (2001). The costs and costing of networked learning. *Journal of Asynchronous Networked Learning, 5*(2), 75-96.

Samoff, J., & Carrol, B. (2002). *The promise of partnership and the continuities of dependence: External support to higher education in Africa.* Paper presented at the 45th Annual Meeting of the African Studies Association, Washington. Retrieved September 29, 2008, from http://0-scholar.google.co.za.innopac.up.ac.za/scholar?q=University+of+Iowa-nigeria

Schein, E. H. (2003). On dialogue, culture and organizational learning. *Reflections, 4*(4), 27-37.

Schwab, K. (2004). Preface. In Hernández-Catá, E. (Ed.), *The Africa Competitiveness Report* (pp. i-ii): World Economic Forum.

Schwier, R., & Misanchuk, E. R. (1995). *The art and science of color in multimedia screen design, part 1: Art, opinion and tradition*. Paper presented at the Annual Conference of the Association for Educational Communications and Technology, Anaheim, CA, February 8-12, 1995.

Shakuntala, R. (2008). *'I need an Indian touch': Glocalization and Bollywood films*. Paper presented at the International Communication Association, TBA. Retrieved July 12, 2009, from http://www.allacademic.com/meta/p228862_index.html

Sherry, L., Cronje, J. C., Rauscher, W., & Obermeyer, G. (2005). Mediated conversations and the affective domain: two case studies. *International Journal of E-Learning, 4*(2), 177-190.

Shervey, G. (2007). Designing web-based instruction. Retrieved May 30, 2007, from http://www.members.shaw.ca/shervey/design/index.htm

Slavin, R. E. (1984). *Research methods in education: A practical guide*. New Jersey: Prentice-Hall Inc. Englewood Cliffs.

Spenneman, D. H. R. (2004). Digital divides in the Pacific Islands *IT&Society, 1*(17), 46-65.

Stanford University. (2006a). FSI. Freeman Spogli Institute for International Studies. *Research at FSI Stanford.* Retrieved January 15, 2006, from http://fsi.stanford.edu/research/

Stanford University. (2006b). SCIL. Retrieved February 5, 2006, from http://scil.stanford.edu

Stanford University. (2006c). *Stanford University Certification of Human Subjects Approval*. Unpublished manuscript.

Stanford University School of Education. (2006d). Goldman Shelley. Retrieved April 16, 2006, from http://ed.stanford.edu/suse/faculty/displayRecord.php?suid=sgoldman

Stemler, L. K. (1997). Educational characteristics of multimedia: A literature review. *Journal of Educational Multimedia and Hypermedia, 6*(3/4), 339-359.

Stetar, J. (2000). Tensions between globalisation and nationalism in higher education: Implications for quality assurance efforts. *South African Journal of Higher Education, 14*(2), 28-33.

Steyaert, J. (2002). Inequality and the digital divide: Myths and realities. In Hick, S. & McNutt, J. (Eds.), *Advocacy, activism and the Internet* (pp. 199-211). Chicago: Lyceum Press.

Strover, S. (2003). Remapping the Digital Divide. *The Information Society, 19*(4), 275-277.

Suarez-Orozco, M. M., & Qin-Hilliard, D. (2004). *Globalization: Culture and education in the new millenium*. Berkeley: University of California Press.

Swiniarski, L. B., & Breitborde, M. (2003). *Educating the global village: Including the child in the world*. New Jersey: Merrill Prentice Hall.

Tapscott, D. (1998). *Growing up digital: The rise of the Net generation*. Retrieved January 23, 2008, from http://0-www.ncsu.edu.innopac.up.ac.za/meridian/jan98/feat_6/digital.html

Tayeb, M. (2001). Conducting research across cultures: Overcoming drawbacks and obstacles. *International Journal of Cross Cultural Management, 1*(1), 91-108.

Taylor, K. M. G., Bates, I. P., & Harding, G. (2004). The implications of increasing student numbers for pharmacy education. *Pharmacy Education, 4*(1), 33-39.

Telkom SA Ltd. (2007). *Telkom Tariff List*.

The World Bank Group. (2007). *Doing business in the United States*. Retrieved March 14, 2008, from http://www.doingbusiness.org/ExploreEconomic/?economyid=197

Tomasulo, D. (1999). Action methods for teaching culturally diversity awareness. *Issues of education at community college: Essays by fellows in the Mid-Career Fellowship Program at Princeton University, 1998-1999*, from Educational Resources Information Center (ERIC)

Tshwane University of Technology. (2005). *Unpacking the vision: Drivers of TUT*. Retrieved November 18, 2005, from http:www.tut.ac.za/sup_files/in_context/files/drivers2.htm

United States Department of Commerce. (2000). *Falling through the net: Toward digital inclusion. A report on Americans' access to technology tools*. Retrieved March 12, 2008, from http://www.ntia.doc.gov/ntiahome/fttn00/contents00.html

Van Dijk, J. A. G. M. (2006). Digital Divide research, achievements and shortcomings. Retrieved March 9, 2008, from http://www.sciencedirect.com.innopac.up.ac.za/science?_ob=ArticleURL&_udi=B6

Van Dijk, J. A. G. M., & Hacker, K. (2003). The Digital Divide as a complex and dynamic phenomenon. *The Information Society, 19*(4), 315-326.

Vodacom Annual Report. (2009).

Volmink, J., & Dare, L. (2005). Addressing inequalities in research capacity in Africa. *British Medical Journal, 331*, 2.

Wallsten, S. (2001). An econometric analysis of telecom competition, privatization, and regulation in Africa and Latin America *The Journal of Industrial Economics, 49*(1), 1-19.

Wallsten, S. (2005). Regulation and Internet use in developing countries *Economic Development and Cultural Change, 53*(2), 501.

Werner, H. (2001). From guests to permanent visitors? - From the German "Guestworker" programmes of the sixties to the current "Green Card" initiative for IT specialists. Retrieved June 9, 2008, from http://0-scholar.google.co.za.innopac.up.ac.za/scholar?q=germany%27s+green+card

Wiley, D. (Ed.). (2002). *The instructional use of learning objects* (1st ed.): Bloomington

Windows. (2006a). *Quick Start Guide for Pocket PC Phone*.

Windows. (2006b). *User Manual for Pocket PC Phone*.

Würtz, E. (2006). Intercultural communication on web sites: A cross-cultural analysis of web sites from high-context cultures and low-context cultures *Journal of Computer-Mediated Communication, 11*, 274-299.

Yin, R. K. (2003). *Case study research: Design and methods* (Vol. 5). London: Sage Publications Inc.