ICT-based Distance Education
A Study of University Students’ Views and Experiences in Early Post-Apartheid South Africa
Jared O. Odero

Academic dissertation for the Degree of Doctor of Philosophy in International and Comparative Education at Stockholm University to be publicly defended on Monday 12 June 2017 at 10.00 in rum 2403, Institutionen för pedagogik och didaktik, Frescativägen 54.

Abstract
The overall aim of this study was to investigate how the introduction of ICT into distance education at public institutions of higher learning in South Africa during the early post-apartheid period from 1994 to 2002, provided learning opportunities for students and facilitated the delivery of learning content. More explicitly, it examined and analyzed the views and experiences of students and course facilitators at selected higher education institutions, which provided ICT-based distance education. The study also examined and analyzed the views and experiences of students regarding the services of a private on-campus Internet café located in a South African technikon (a technological institution). The empirical part of the current study was conducted in 2002, when some public higher education institutions in the country were involved in the provision of distance education as a means of increasing student participation and generating income. However, the proliferation of private actors who collaborated with some of these institutions to provide ICT-based distance education caused concern to the government that questioned their quality of content delivery.

A case study research design was applied to collect, analyze and interpret quantitative and qualitative data at four universities and one technikon. Two electronic surveys were administered by email and on the Web, to self-selected students at the five case institutions. The first survey examined the views and experiences of respondents (n = 605) who participated in ICT-based distance education, while the second one investigated the views and experiences of respondents (n = 274) who used a private campus-based Internet café. Non-participant observations were made at some learning centers to understand how classes were carried out, and at the Internet café, to understand the type of services offered. Unstructured interviews were held with selected students and course facilitators at one institution, whereas informal interviews were conducted with some students and the Internet café manager. Further, a literature review was undertaken to understand certain issues and trends in ICT-based distance education, within and beyond South Africa.

The findings indicate that the majority of respondents chose ICT-based distance education because it was flexible. They were also comfortable with using the English language for instruction. However, some complained that the learning materials were irrelevant and were not delivered on time. The course facilitators were generally satisfied with their work, although they were disappointed for not having the opportunity to influence changes in the study guides. Many respondents used the Internet café because they did not have any other means of accessing the Internet. Moreover, it was affordable and they used it for socializing.

The study concludes that the system of instructional design and content delivery to distance education students in South Africa should be improved to become efficient. Further studies are recommended to examine the ongoing development of ICT-based distance higher education in South Africa.

Keywords: Higher and distance education, South Africa, ICT-based distance education, students, universities, technikons, facilitators/lecturers, learning.

Stockholm 2017
http://urn.kb.se/resolve?urn=urn:nbn:se:diva-142171

ISBN 978-91-7649-856-1
ISSN 0348-9523

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ICT-BASED DISTANCE EDUCATION
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Jared O. Odero
To my parents – for knowing the value of education
A fundamental concern for others in our individual and community lives would go a long way in making the world the better place we so passionately dreamt of.

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Keywords: Higher and distance education, South Africa, ICT-based distance education, students, universities, technikons, facilitators, learning, Internet café
Svensk sammanfattning

IKT-baserad distansutbildning: En studie av universitetsstuderandes synpunkter och erfarenheter i tidig post-apartheid Sydafrika

Studiens bakgrund


Studiens inramning

Apartheidsystemet orsakade extrema ojämlikheter och administrativa problem för icke-vita studenter och personal inom den sydafrikanska högre utbildningen. När den upphörde 1994

Studiens syfte


Studiens metodologi

Distansutbildningsteorier


Tre beståndsdelar i Moores teori, nämligen dialog, struktur och autonomi, används för att mäta kvaliteten och kvantiteten av kommunikationen mellan studenten och instruktören/handledaren. De är viktiga för att minska graden av bristande kommunikation och missförstånd när det gäller kursinnehållet. Dialogen representerar graden av respons mellan studenten och utbildaren och påverkas av de inblandades personligheter, handledarnas pedagogiska filosofi och miljöfaktorer, som t.ex. kommunikationsmediet. Strukturen berör graden av anpassning av ett utbildningsprogram till studentens personliga krav och behov. Autonomin indikerar å andra sidan de lärandes beslut om vad de ska lära sig, hur och i vilken utsträckning de ska lära sig. Föreliggande studie hävdar att för att distansutbildningskurser och program ska gynna studenterna bör de struktureras flexibelt. Dessutom bör dialog uppmuntras mellan handledare/instruktörer och de lärande, särskilt p.g.a. det rumsliga avståndet mellan dem. Slutligen bör också möjligheten finnas för de lärande att självstyrta sitt deltagande i utbildningsprocessen. Denna situation kan förekomma både inom och utanför Sydafrika.

Studiens avgränsning

Även om det empiriska underlaget i den aktuella studien är från 2002 har belysningen av undersökningsämnet sträckt sig till år 2016, med beaktande av den efterföljande utvecklingen av distansutbildning och IKT i högre utbildning, utifrån relevant forskning och aktuell politisk debatt i Sydafrika. Betydelsen av IKT i processen att omvandla Sydafrika i allmänhet och i synnerhet högre utbildning är alltjämt obestridlig.

Icke-sannolikhetsurvalet som användes i studien erbjud inte alla i studentpopulationen hos de valda högskolorna samma möjlighet att delta i e-post- och webbundersökningarna. Följaktligen har selektionsfel sannolikt bidragit till de låga svarsfrekvenserna i undersökningarna. Låg internettäckning och den höga kostnaden för internetåtkomst i Sydafrika under perioden för denna studie kunde också ha hindrat potentiella respondenter att delta. Intern bortfall förekom i enkätsvaren eftersom vissa frågor uppfattades som överflödiga av respondenterna och mindre relevanta för deras program. I vissa fall strök universitetsförvaltningarna specifika frågor från enkäten för att de bedömde dessa som irrelevanta. Det blev dessutom inte möjligt att genomföra intervjuer med flera studenter och kursinstruktörer eftersom de bara var tillgängliga under mycket korta perioder vid de få lärcentra som besöktes under författarens fältarbete i Sydafrika. Fler intervjuer skulle sannolikt ha gett djupare perspektiv på distansutbildningen på de utvalda institutionerna.
Analys och resultat

Analysen av kvantitativa data i den aktuella studien baseras på beskrivande statistik sammanfattad i kategorier och variabla svarsmönster. Svaren presenteras med hjälp av tabeller, grafer och diagram med frekvenser och procentuell fördelning, korstabuleringar, standardavvikelser och medelvärden. Självselektionstekniken som användes för att samla in kvantitativa data är en typ av icke-sannolikhetsurval som har reducerat analysens räckvidd till beskrivande statistik. Det finns goda skäl att varna för användning av inferentiella tekniker på undersökningsurval som förvärvats genom icke-sannolikhetsmetoder eftersom resultaten skulle vara ogiltiga.

Tretton (13) bandinspelade ostrukturerade intervjuer från fallstudie 1 avlyssnades och transkriberades under en period av två månader. Varje informant tilldelades ett ID-nummer i konfidentialitetssyfte enligt vedertagen forskningsetisk praxis och för enkel identifiering i samband med citering av utsagor i resultadelen.


Slutsatser


Litteraturöversikten i kapitel 2 visade att distansutbildningsstuderande i Sydafrika avbryter sina studier i större omfattning än campusbaserade studenter på grund av ekonomiska skäl och andra personliga faktorer. På samma sätt, även om fler icke-vita kvinnor idag deltar i högre utbildning, är det inte många som väljer utmanande områden som medicin och teknik. Distansutbildningens flexibilitet var dock den mest prioriterade orsaken till att man deltog enligt vad som framgick av studieresultatet i kapitel 6. Dessutom önskade en majoritet av de tillfrågade
en förbättring av läromedelsdistributionen medan de kursansvariga önskade mer inflytande i utformningen av studieguidearna.

Undervisningsspråket verkade vara särskilt problematiskt för de icke-afrikaanstalande (fallstudie 1). Generellt sett är detta fortfarande en utmaning i Sydafrikas utbildningssystem, som förespråkar användningen av alla elva officiella språk, men i praktiken endast engelska och afrikaans används i undervisningen. Lärarstödet var otillräckligt, särskilt bland de studenterna på grundutbildningen som efterfrågade mer studiestöd under lektionerna. Internetcaféstudien visade att många respondenter inte hade tillgång till internet och andra IKT-faciliteter hemma. Caféet som ligger på Tekniska högskolan fyllde det gapet och gjorde det möjligt för dem att umgås. Sammantaget var de nöjda med internetcaféjänsterna som var billigare än på andra caféer utanför campusområdena, men de ville ha snabbare internetanslutning.

Medan den aktuella studien verkar ha uppfyllt sitt övergripande syfte utgör icke-sannolikhetsurvalet en begränsning på grund av det självselektade tillvägagångssättet som användes för att administrera de elektroniska frågeformulären. Tillgången till internet var fortfarande begränsad i Sydafrika 2002, vilket möjligen bidrog till de låga svarsfrekvenserna i de elektroniska undersökningarna.

Rekommendationer för framtida forskning

Med tanke på att internettäckningen i Sydafrika är idag bättre kvarstår de utmaningar som undersökningen konstaterade genom den tillämpade undersökningsmetoden, vilken kan fungera som lärande inspiration i det nödvändiga arbetet med att ytterligare beforska det aktuella studieområdet i Sydafrika och, särskilt, i andra utvecklingsländer.

Fler studier behövs för att förstå den strukturella rasåtskillnaden som fortfarande råder i samhället på grund av apartheid och dess förödande inverkan på olika gruppers möjligheter till lika utbildning, social rättvisa och bättre framtidsutotikter. Varför tar det så lång tid att komma närmare den omvandlingsvision som utmålades 1994? Är regeringens investeringar tillräckliga för att förbättra kvaliteten i landets utbildningsväsende och i synnerhet universitetsutbildningen, inkl. satsningar på IKT-baserad distansutbildning? Vem driver på kvalitetsarbetet i de sydafrikanska universiteten idag?
Acknowledgements

First and foremost, I wish to thank the former members of academic staff at the Institute of International Education (IIE), Stockholm University (SU), where I was initially admitted into the PhD program. The members, who include Professor Emeritus Ingemar Fägerlind, Professor Emeritus Holger Daun, Professor Albert Tuijnman, Professor Vinayagum Chinapah, Senior Lecturer Dr. Zhao Shangwu, Ms. Görel Husén Strömqvist, the late Dr. Jan-Ingvar Löfstedt, and Associate Professor Dr. Henrik Hansson, were instrumental in honing my research skills. I am also very grateful to them for enabling me to teach courses in the IIE Master’s program, present papers at local and international conferences, participate in research projects, and publish in scientific journals. I thank them too for providing me with material support and advice during the process of writing this dissertation. Lastly, I would like to express my deepest gratitude to Professor Chinapah, who recognized my research skills and invited me to work with him on various international research projects within the field of education, from 2014 to 2016.

At the Department of Education (SU), I thank Professor Jon Ohlsson (Head), Professor Tore West (Deputy Head), and Associate Professor Anna-Lena Kempe (Director of Research Studies), who provided me with the requisite support during the past one year, in order to complete this thesis. I equally thank Ms. Christina Edelbring (Administrative Officer for PhD Studies), for assisting me with vital information and other practical requirements. Finally, I wish to thank Professor Emeritus Robert Höghielm, for his precious advice that strengthened my methodology chapter.

I shall always be grateful to my former IIE colleagues such as Dr. Wycliffe Odiwuor, Dr. Lidija Kolouh-Söderlund, Dr. Ellen Carm, Dr. Romanus Ejiaga, Dr. Elizabeth F. Heen, Dr. Dinah Richard Mmbaga, Dr. Nuzzly Ruiz de Forsberg, Dr. Åsa Brattlund, Dr. Gao Shuting, Dr. Reza Arjmand, Dr. Michiyo Kiwako Okuma-Nyström, Dr. Mikiko Cars, Dr. Khaleda Gani-Dutt, Dr. Cresantus Biamba, Dr. Ernesto Villalba, and Mrs. Cynthia Villalba. Their perspectives enriched my intellectual journey. I appreciate collaborating with Ms. Melinda Mathe to conduct diverse research projects during the past two years, and deeply acknowledge her assistance with formatting the tables and figures in this dissertation. I also thank Shuting very much for providing similar help at the most crucial moment.

I salute and thank the dissertation support team at SU Library comprising Anna Stigell, Cilla Öhnfeldt, Inga Nyman Ambrosini, and Ingela Tång, for their efficient assistance with the dissertation layout and other technicalities. Likewise, I wish to extend many thanks to Rebecca Sandberg and her team at Universitetsservice US-AB in Stockholm, for helping me efficiently with the printing process.

I sincerely thank Stockholm University for generously funding me to conduct this research via a PhD Position (Doktorandtjänst), and the Nordic Africa Institute in Uppsala, Sweden, for awarding me a travel grant to cover fieldwork expenses in South Africa, from February to May 2002.

I wish to express my heartfelt gratitude to all those who supported me in various ways in South Africa during fieldwork, particularly the then members of staff at the Telematic Learning
I am profoundly thankful to members of the Andersson family, namely, Martin, Fiona, Kajsa, Kjell, Daniel and Erik, who have assisted me in various capacities during the years I have lived in Sweden. I am especially indebted to Martin and Fiona for being supportive, kind and generous towards me. I also thank Kåre Myrberg for helping me in many ways.

I wish to thank my family in Kenya that has always been supportive. I specifically thank my parents who ensured that my siblings and I acquired education at all costs. To my late father, I say, “Dad, this is for you: I have attained it against all odds.” To my kind and loving Mum: “Thank you for your continuous prayers.” Lastly, I am grateful to my siblings for their words of encouragement, and to my wife, for her patience.

My biggest disappointment in this journey was supervision. While many doctoral candidates narrate their good experiences with supervision, my supervision history is filled with bitterness ranging from a change of topic after the first four years in the PhD program, to a stagnation in the analysis process, which was later dismissed since the provided guidelines by my former supervisor would have invalidated my results. Though a doctoral candidate should be an independent thinker, my experience with supervision was that I had very little say in shaping my research.

What happens when a candidate’s suggestion for a type of analysis is either disregarded by the supervisor or gets complicated by being guided to follow another framework? What happens when a supervisor views a topic as the “instrument of analysis” instead of recommending the application of well-documented methods of analysis? What happens when a doctoral candidate is asked by the supervisor to seek help from “experts” elsewhere for data analysis, yet supervision duties are paid for at Stockholm University?

Notwithstanding the fact that supervisors are obliged to guide, is there any recourse for a candidate like me who spent the first four years with a supervisor who could not read my work or advise on the research instruments for data collection? Do I get any remedy for having been assigned a supervisor who had no clue about my topic of study and never gave any written comments? What happens when a candidate is in a structurally weak system that provides no room for change of supervisors? What happens when a candidate is constantly bombarded with non-scientific advice within the framework of supervision? I have learnt that a candidate’s views in the supervision process can be easily shunned by the powers that be.

For a long time, I thought I was the most stupid PhD candidate who could successfully mentor various Master’s students, yet could not get my own manuscript ready. Interestingly, I delivered
when I was assigned other research projects. With time, I became a pariah, a man deemed incompetent by the so-called academic rumormongers: a man who showed no advancement in his thesis writing. It then reached a level where it did not matter to look at that pile of unproductive work. As a result, I developed a mental block. Talk about the opportunity cost of doing a PhD.

Over and above the stated frustrations, I am highly grateful to Associate Professors Marianne Teräis and Joakim Landahl from the Department of Education (SU), who were readers during my First Reading Seminar in October 2016. Marianne was instrumental in restructuring my quantitative analysis by debunking the guidelines I had received from my former supervisor. Joakim, on the other hand, emphasized the importance of contextualizing the period of my study in order to understand the ongoing processes of transforming South Africa’s higher education system. Their inputs were invaluable.

Likewise, I wish to thank both Professor Paul Johannesson from the Department of Computer and Systems Sciences (SU) and Associate Professor Ulf Fredriksson (Department of Education, SU) for being readers during my Second Reading Seminar in November 2016. Their thorough scrutiny of the draft manuscript helped me to reformulate specific sections for clarity. Revisiting those issues with Ulf earlier this year qualified the material for the final reading by the Green Reader, Professor Lázaro Moreno Herrera, who is also from the Department of Education. His verdict in April permitted this study to be publicly examined. I deeply honor Professor Herrera for his expert opinion on my research.

Last but not least, I wholeheartedly thank Associate Professor Petros Gougoulakis from the Department of Education who recently became my main supervisor. From the beginning, Petros showed commitment by reading my manuscript and commenting on areas that needed elucidation. Furthermore, he went beyond his call of duty by frequently communicating with me to ask if there were any difficulties in the writing process. I sincerely thank him for the support he gave me, particularly during the final stages that were dark due to some personal challenges. He always came up with solutions and encouraged me to look ahead into the future, and not in the past. Petros has been my brother in this journey and has abundantly supported me in all aspects, to ensure that I succeed. I once again thank him very much.

Finally, this journey has also been a spiritual awakening. To the Almighty God, I say, “There were some very dark moments when I almost gave up, but You kept me going. Many thanks for guiding and protecting me.”

Jared O. Odero
May 2017, Stockholm
A Provincial Map of South Africa

Source: http://www.infohub.co.za/


xii
<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC</td>
<td>African National Congress</td>
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<td>AVU</td>
<td>African Virtual University</td>
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<td>BEE</td>
<td>Black Economic Empowerment</td>
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<td>CD</td>
<td>Compact Disc</td>
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<td>CD-ROM</td>
<td>Compact Disc Read-Only Memory</td>
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<td>CHE</td>
<td>Council on Higher Education</td>
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<td>COOL</td>
<td>CoOperative Online Learning</td>
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<td>DHET</td>
<td>Department of Higher Education and Training</td>
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<td>DoC</td>
<td>Department of Communications</td>
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<td>DoE</td>
<td>Department of Education</td>
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<td>DVD</td>
<td>Digital Versatile Disc or Digital Video Disc</td>
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<td>ELearning</td>
<td>Electronic Learning</td>
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<td>E-University</td>
<td>Electronic University</td>
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<td>F2F</td>
<td>Face-to-Face</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>HEIs</td>
<td>Higher Education Institutions</td>
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<td>ICT</td>
<td>Information and Communications Technology</td>
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<td>ID</td>
<td>Identity</td>
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<tr>
<td>IIE</td>
<td>Institute of International Education</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<td>JCSE</td>
<td>Joburg Centre for Software Engineering</td>
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<td>LMS</td>
<td>Learning Management System</td>
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<td>MBA</td>
<td>Master of Business Administration</td>
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<td>MoE</td>
<td>Ministry of Education</td>
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<td>MOOCs</td>
<td>Massive Open Online Courses</td>
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<td>NDP</td>
<td>National Development Plan</td>
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<td>NSFAS</td>
<td>National Student Financial Aid Scheme</td>
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<td>NWG</td>
<td>National Working Group</td>
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<td>ODL</td>
<td>Open and Distance Learning</td>
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<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<td>OER</td>
<td>Open Educational Resources</td>
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<td>PC</td>
<td>Personal Computer</td>
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<td>SA</td>
<td>South Africa</td>
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<td>SAIDE</td>
<td>South African Institute of Distance Education</td>
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<td>SAIRR</td>
<td>South African Institute of Race Relations</td>
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<td>SAPs</td>
<td>Structural Adjustment Programs</td>
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<td>SASCO</td>
<td>South African Students Congress</td>
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<td>SD</td>
<td>Standard Deviation</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<td>SMS</td>
<td>Short Message Service</td>
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<td>SOL</td>
<td>StudentOnline</td>
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<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<td>TELI</td>
<td>Technology-Enhanced Learning Investigation</td>
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<td>TSA</td>
<td>Technikon South Africa</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>UIS</td>
<td>UNESCO Institute for Statistics</td>
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<td>UK</td>
<td>United Kingdom</td>
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<td>UKeU</td>
<td>United Kingdom electronic University</td>
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<td>UNESCO</td>
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<td>University of South Africa</td>
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<tr>
<td>URL</td>
<td>Uniform Resource Locator</td>
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<td>United States of America</td>
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<tr>
<td>USAf</td>
<td>Universities South Africa</td>
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<tr>
<td>VCR</td>
<td>Videocassette Recorder</td>
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<tr>
<td>VLE</td>
<td>Virtual Learning Environment</td>
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<tr>
<td>VUDEC</td>
<td>Vista University Distance Education Campus</td>
</tr>
<tr>
<td>ZAR</td>
<td>South African Rand</td>
</tr>
</tbody>
</table>
# Table of Contents

Abstract .......................................................................................................................................... ii

Svensk sammanfattning ............................................................................................................... iii

Acknowledgements ........................................................................................................................ ix

Abbreviations ................................................................................................................................ xiii

Table of Contents ......................................................................................................................... xv

Chapter 1: Introduction ................................................................................................................. 1

1.1 Background of the Study ..................................................................................................................... 1

1.2 Global Trends in Higher Education ..................................................................................................... 2

1.3 The Context of South Africa ............................................................................................................... 4

1.4 Problem Statement and Research Questions ....................................................................................... 8

1.5 Aim and Objectives ........................................................................................................................... 10

1.6 Significance of the Study .................................................................................................................. 10

1.7 Limitations and Delimitations of the Study ....................................................................................... 11

1.8 Structure of the Study ........................................................................................................................ 11

Chapter 2: Higher Education in South Africa........................................................................... 14

2.1 Introduction ....................................................................................................................................... 14

2.2 Some Socioeconomic Effects of Apartheid ....................................................................................... 14

2.3 Higher Education under Apartheid .................................................................................................... 20

2.4 Post-apartheid Higher Education ....................................................................................................... 21

2.5 Financing Higher Education .............................................................................................................. 28

2.6 Distance Education ............................................................................................................................ 33

2.7 ICT Strategies in Education .............................................................................................................. 39

2.8 ICT Strategies in South Africa .......................................................................................................... 44

2.9 ICT Access for Distance Education Students .................................................................................... 46

2.10 Distance Education Activities and Modes of Content Delivery ...................................................... 48

2.11 Summary ......................................................................................................................................... 52

Chapter 3: Literature Review and Theoretical Discussion ...................................................... 55

3.1 Introduction ....................................................................................................................................... 55

3.2 Higher Education: Changing Patterns ............................................................................................... 55

3.3 Distance Education: Definitions, Trends and Emerging Technologies ............................................. 60

3.4 Distance Education Theories ............................................................................................................. 77

3.5 Summary ........................................................................................................................................... 84

Chapter 4: Research Methodology ............................................................................................. 86

4.1 Introduction ....................................................................................................................................... 86

4.2 Research Design ............................................................................................................................... 86
Appendix A7 Access to personal Computers, Printers and Internet (Cases 1-4) .................................. 217
Appendix A8 Video and Material Ratings (Cases 1-4) ........................................................................ 218
Appendix A9 Asynchronous/Offline Learning (Cases 1, 2, & 4) ......................................................... 220
Appendix A10 Access and Participation in Online/Virtual Lectures (Cases 1-4) ................................... 224
Appendix A11 Program Delivery and Learner Support (Cases 1-4) ..................................................... 229
Appendix A12 Comparing ICT-based Learning and Traditional Modes (Cases 1-4) ............................. 234

List of Tables

Table 3.1: Educational opportunities and benefits associated with the development of ICT .............. 66
Table 3.2: Diverse models of distance teaching universities ............................................................. 68
Table 3.3: Comparison of theoretical perspectives .............................................................................. 82
Table 4.1: A brief description of the five case institutions ................................................................. 88
Table 4.2: Fieldwork activities ............................................................................................................ 96
Table 5.1: Total population and survey sample of cases ................................................................. 110
Table 6.1: Mean scores of males and females on selected teaching modes ........................................ 133
Table 6.2: Male and female overall mean score on the perception ratings for ICT-based programs ....... 139

List of Figures

Figure 2.1: Number of students enrolled in public HEIs, by attendance mode, 2009-2013 .................. 25
Figure 2.2: Percentage distribution of student enrolment in public HEIs, by attendance mode and gender, in 2013 .................................................................................................................. 27
Figure 2.3: Streams of university income (South African Rand [ZAR] billion), 2000 and 2013 .......... 29
Figure 6.1: Gender distribution of the respondents (n = 605) .......................................................... 118
Figure 6.2: Racial composition of the respondents (n = 605) ............................................................ 119
Figure 6.3: Educational status of the respondents (n = 605) ............................................................. 120
Figure 6.4: Factors for the respondents’ selection of ICT-based courses (n = 605)............................ 121
Figure 6.5: Respondents’ comfort in using English for ICT-based education (n = 605) ...................... 122
Figure 6.6: Employment status of the respondents (n = 605) ......................................................... 126
Figure 6.7: Respondents’ means of financing studies (n = 605) ....................................................... 127
Figure 6.8: Internet access among the races (n = 605) ................................................................. 129
Figure 6.9: Respondents’ race and marital status (n = 274) ............................................................. 142
Figure 6.10: Respondents’ educational status (n = 274) ................................................................. 143
Figure 6.11: Respondents who used English language on the Internet (n = 274) ............................... 144
Figure 6.12: How often the respondents used the Internet café (n = 274) ........................................ 145
Figure 6.13: Why respondents used the Internet café (n = 274) .................................................... 146
Figure 6.14: The top three reasons for using the Internet at the Internet café (n = 274) ...................... 147
Figure 6.15: The cost of Internet connection at the Internet café (n = 274) ....................................... 147
Figure 6.16: What the respondents liked the best about using the Internet café (n = 274) .............. 148
Figure 6.17: The worst things that needed improvement at the Internet café (n = 274) ................. 152
Figure 6.18: Comments for improvements at the Internet café (n = 274) ........................................ 154
Chapter 1: Introduction

1.1 Background of the Study

This thesis focuses on distance education within the public higher education system of South Africa during the early post-apartheid period, from 1994 to 2002. The country gained democratic freedom in 1994, marking the end of a white minority government that had since 1948, imposed a policy of racial segregation called apartheid (separateness). The period of study is significant because the new multiracial government had just begun to implement a process of political transformation that would redress past injustices attributed to apartheid, in order to establish an inclusive society. Likewise, the process of merging higher education institutions to dismantle the apartheid system that had racially separated students began in 2001.

From a policy perspective, distance education in South Africa was emphasized then as a means of enhancing student access and participation in higher education, particularly for the historically marginalized races. Moreover, universities were urged by the government to meet the needs of social transformation in the country, while information and communications technology (ICT) was identified as a strategy for enabling teaching and learning. In this respect, the provision of distance education began to shift from a purely correspondence model that did not consist of interaction between learners and teachers, to a blended model with face-to-face meetings and ICT support. The blended model was provided by some on-campus public institutions, which had formed partnerships with local or international private institutions, to offer ICT-based distance education both as a way of meeting the increasing student demand for participation, and earning revenue (Badat, 2005; Breetzke, 2007; Council on Higher Education [CHE], 2004; Czerniewicz, Ravjee, & Mlitwa, 2006; Glennie & Bialobrzeska, 2006; Mabizela, 2005).

Additionally, the South African institutions of higher education were responding to emerging international trends in the 1990s, which indicated that ICT was important in advancing the knowledge economy. However, extant literature on the transformation of higher education during the early post-apartheid period until 2000, reveals a dearth of studies on curriculum inquiry at the institutional level, including aspects of globalization, massification, the relationship of State and higher education, diverse forms of knowledge, and ICT in distance education (Badat, 2010; Bitzer & Botha, 2011; Kamola, 2016; Reddy, 2006). The present study has contributed to this
research gap through an empirical investigation conducted in 2002, to analyze the views and experiences of students who participated in ICT-based distance education at selected institutions of higher education in South Africa. The literature review and findings of this research add to the existing body of knowledge in the field of distance education within and beyond the country.

This chapter first positions the current study within the broader research literature that describes higher education from a global and comparative perspective, in order to understand aspects that shape its growth and modes of content delivery. It then reviews some strategies that have been employed by the Government of South Africa, educational institutions, and other interested stakeholders, to provide distance and higher education in the country. The chapter concludes with a presentation of the problem statement and research questions, overall aim, objectives, significance, limitations and delimitations, and structure of the study.

1.2 Global Trends in Higher Education

Higher education expanded significantly in many parts of the world during the latter half of the 20th century. A key reason that stimulated its growth was the emergence of mass and universal access education. Universities, which are the central training institutions in higher education, continue to grow according to societal demands such as the need for more professionals and the individual student’s wishes for further education. Due to these demands, many universities have chosen to use different models to meet their mission (Altbach, 2016). For instance, because of decreased public funding, higher education institutions “see distance education as a means of enrolling more students, broadening their student base, generating fee revenues, offering courses in niche markets and meeting their regional commitments cost effectively” (Calvert, 2005, p. 229).

Distance education is defined by Moore (2003) as “all forms of education in which all or most of the teaching is conducted in a different space than the learning, with the effect that all or most of the communication between teachers and learners is through a communication technology” (p. xiv). The field has become prominent among policymakers, academics, higher education leaders, students and professionals of various categories, who wish to further their skills. The increased enthusiasm for distance education is attributed to the emergence of new ICT tools such as the Internet. However, distance education is not based on technology alone, but on the principle of equal opportunity for all learners to enjoy higher education (Moore, 2003).
According to Altbach (2016), massification (the rapid expansion of student enrollments) has had huge implications in higher education systems worldwide, including the emergence of “a private sector to serve growing enrollments, an overall deterioration in the quality of higher education, the strengthening of distance education, increased efforts to measure productivity, and attempts, not always successful, to assure quality” (p. 6). As such, Jongbloed and Vossensteyn (2016) question how higher education will deal with new private providers and emerging models of content delivery such as massive open online courses (MOOCs). Similarly, they wonder how national higher education systems will meet the growing demands of knowledge-based service industries that require technological expertise.

Altbach (2016) maintains that the concept of globalization that has resulted from the widening integration of the world economy, has influenced higher education in various ways. “The emergence of a global knowledge economy stems from broader globalization trends and has direct implications for universities” (p. 5). ICT, which is a powerful driver of globalization, has revolutionized the methodologies of teaching, learning and delivery of higher education content globally, through the Internet. “Rapid development of the technology and methods available for distance education delivery adds to the long-term role of the Internet for all aspects of higher education” (pp. 7-8). Technology is enabling research collaboration among researchers in different parts of the world, and the new ICT offers opportunities to reshape study environments by reaching people anytime, anywhere. Additionally, it creates, stores and promotes new forms of communication, and is potentially changing the conceptions of knowledge (Guri-Rosenblit, 2005a; Kanwar & Daniel, 2010; Ryan & Fraser, 2010).

Likewise, Cross and Fatima (2007) aver that ICT has the potential to scale up the provision of education by both public and private institutions through the Internet, in order to boost human skills within knowledge-based economies. “Clearly, ICTs impact significantly on higher education delivery both from the perspective of new knowledge conception and production as well as new ways of delivering knowledge. As a result many countries have increased their electronic learning offerings” (p. 81).

Since the emergence of the World Wide Web in the 1990s, virtual learning environments (VLEs) have provided learning tools for students and facilitated communication with tutors (Keller, 2005). The concept of VLEs means, “computer-based environments that are relatively open systems, allowing interactions and encounters with other participants and providing access
to a wide range of resources” (Wilson, 1996, p. 8). Through ICT, new higher education providers (non-traditional) such as for-profit virtual universities, corporate universities and organizations, have emerged to meet the growing demand for “open, flexible, lifelong learning” (O’Donoghue, Singh, & Dorward, 2001, p. 513). Meanwhile, the aspect of free and inexpensive education has also materialized through the open educational resources (OER) movement that facilitates the distribution of free courses on the Internet, from top-ranking universities in the United States and elsewhere (Matkin, 2012; Wright & Reju, 2012).

Conversely, as the economic potential of higher education continues to increase students’ demand for participation worldwide, governments face the burden of providing sufficient spaces at universities and colleges for students who wish to participate in this category of learning, especially if they are not qualified. Further, public resources are not adequate enough to accommodate the growing population of students, and the digital divide (the gap between those who have Internet access and those who do not) is also hindering participation, despite the ongoing paradigm shift from labor-oriented economies, to knowledge-based economies, driven by ICT. “In both the developed and developing world, this gap continues to widen, and technology-based solutions for providing greater access to knowledge, such as MOOCs, have little effectiveness if the proper infrastructure or connectivity are not readily available” (Johnson, Adams Becker, Estrada, & Freeman, 2014, p. 30). The next section includes some of the broad issues discussed in this section concerning ICT and higher education.

1.3 The Context of South Africa

While it is acknowledged that the European colonial domination of South Africa (particularly during the apartheid era) contributed to some of the worst racial inequalities in human history, this section contextualizes the issues discussed in sections 1.1. The details and effects of that colonial history on the country’s higher education landscape are addressed in Chapter 2 of this thesis.

In 1948 when the white-dominated National Party came to power in South Africa, it passed apartheid laws that institutionalized racial discrimination. Apartheid, which is an Afrikaans language word meaning *separateness* or *apartness*, was a segregated system of development for all races and ethnic groups in the country. Afrikaans is the language spoken by Afrikaners, who are the descendants of 17th century Dutch settlers from Holland. The apartheid system
categorized South African races as Whites (European descent), Blacks (Africans), Indians and Coloreds (racially mixed). They would remain separated in all the social, economic, political and cultural aspects of life (Behr, 1978; Johnson & Dickson, 2015).

The then Prime Minister Dr. D. F. Malan, said that higher education would still be provided to the natives (Africans) and the coloreds, “but in their own sphere; in other words in separate institutions” (United Nations Educational, Scientific and Cultural Organization [UNESCO], 1972, p. 100). However, there was a category called “Open Universities”, such as the University of Cape Town and University of the Witwatersrand, which accepted nonwhites. The University of Natal was also sometimes called an open university that accepted nonwhites in segregated classes, except for some postgraduate classes, while the University of South Africa (Unisa) had an open admission policy for all races (UNESCO, 1972).

Apartheid ended formally in 1994 when South Africans voted in a new democratic Government of National Unity under the leadership of the African National Congress (ANC), which is still the ruling party. Since then, the country’s higher education system has been dealing with the difficult task of rectifying past inequalities that still contribute to the distinct disparities in gender, staff and student representation (Reddy, 2006). The ANC was confident that ICT, and specifically the Internet, could be promoted to empower the historically disadvantaged groups. In this respect, investing in human capital and developing science and technology, were viewed as propelling factors for South Africa to participate in the global knowledge economy (Abrahams, 2003; Akinsola, Herselman, & Jacobs, 2005).

The 1994 government proposed drastic policies to transform the education system and stressed the importance of distance education as a means to promote “access, participation and redress, especially in higher education” (Glennie & Bialobrzeska, 2006, p. 3). In order to implement the changes, a number of documents were drafted and passed. The most important ones included the 1994 ANC’s Policy Framework for Education and Training; the 1997 White Paper 3: A Program for the Transformation of Higher Education and the Higher Education Act; the 2000 Council for Higher Education Report – Towards a New Higher Education Landscape; and the 2001 National Plan for Higher Education, which led to the merger of institutions that had been segregated during apartheid (Schwartzman, 2015).

The ANC’s 1994 policy framework for education and training envisioned open (equitable) learning as a measure to remove learning barriers, since its flexibility could attract as many
people as possible. Within it, lifelong learning could be realized to strengthen the country’s objective of a democratic society. In this respect, conditions would be established to enable learners to interact with teachers elsewhere, and not just within physical spaces. It also suggested that distance education could increase openness in learning through various media and support for learners. This approach would not only provide redress to so many South Africans who had been denied the privilege of getting education during apartheid, it would also increase access to education for the youth. Distance education was therefore seen as a means of improving quality and scope within the traditional schooling system (ANC, 1994).

Long before apartheid, distance education had already been established to provide higher education to students who would have otherwise not had the chance to study at this level. According to the country’s Department of Higher Education and Training [DHET] (2012a), “for decades, the provision of distance higher education programmes has afforded access to education to students in South Africa and the wider African region for whom full-time contact education has been either inappropriate, unaffordable, or inaccessible” (p. 7). The provision of distance education in South Africa is classified by CHE (2014) as follows:

Institutions may opt for a **single mode** of provision in which all provision is through distance (e.g. the University of South Africa – UNISA); a **dual mode** of provision in which a traditional contact institution also offers some or all courses in distance mode as well (and here the University of Pretoria and North-West University provide somewhat different approaches to dual mode provision – dual mode provision opens up the possibility for students to start their studies in one mode but to complete them in another); or a **mixed mode** in which courses and programmes involve a mix of methods associated traditionally with distance- and contact-based provision, with the blend of methods varying from context to context. (p. 3)

Glennie and Bialobrzeska (2006) state that the end of apartheid brought into focus the need to engage various solutions to promote public higher education. Technology-based education was one of them, though it also attracted opportunists who marketed specific technologies as a panacea for expanding student access. Consequently, doubts were raised concerning the proliferation of distance education when some private providers of learning content operated unethically in the 1990s, to “make money by offering low cost poor quality correspondence
courses; and to increase proportions of black students enrolled without changing the complexion of the campus” (p. 8). The authors note that this was common at some former all-white universities that still attracted white students within the contact section (on-campus/face-to-face), yet earned money by offering distance education mainly to black students.

As a result, the government of South Africa became worried that the growth of unregulated distance education programs could blur the role of dedicated distance education institutions and other well-recognized conventional providers (contact universities) of such programs. On the contrary, supporters of the public-private partnerships felt that the new institutions should not be restricted because they would increase student access and participation, especially through new technologies. Eventually, the government recommended that distance education programs at traditional institutions be strictly regulated, and to also ensure that they addressed regional and national needs, according to the quality assurance criteria of the Higher Education Quality Committee. Moreover, foreign private providers of learning content would be required to register in the country to operate (Glennie & Bialobrzeska, 2006).

While important changes have been implemented by the government of South Africa since the end of apartheid in 1994, Bozalek and Ng’ambi (2015) contend that the higher education terrain still grapples with the apartheid legacy and has not fully utilized the abundant opportunities offered by emerging technologies. They explain that since 1994, ICT has been mentioned in various policy papers as having the potential to advance equitable access to education through infrastructural support. Similarly, it could enhance a more inclusive learning landscape particularly in rural areas, through flexible ways of content delivery.

However, many South Africans have not been able to afford ICT components, and most higher education institutions have not had the capacity to use technologies to promote a more inclusive learning environment. The authors aver that with the advent of affordable mobile devices and cloud-based technology, academics and students are ahead of their institutions. As such, institutions should expend equal effort toward removing outdated modes of teaching and how to use new technologies, because they both have an impact on education policies and subsequent notions about learning with new technologies.

By the same token, Bagarukayo and Kalema (2015) acknowledge that whereas post-apartheid policy documents call for equal learning opportunities for all, there is a mismatch in their implementation. They maintain that South African learners still face challenges such as:
Diverse backgrounds, languages and race; they are divided between wealth, and have infrastructure shortages, access issues, shortage of skilled instructor, managers’ jobs loss misconceptions and instructor difficulty to create content. Teaching strategies are hard to employ and it is hard to gain insights into learner difficulties, especially in large classes. (pp. 170-171)

Madiope and Govender (2015) also assert that though ICT-based education offers more potential for learners, its execution faces numerous challenges. For instance, at Unisa, “the challenge of changing from paper-based to online teaching and learning currently poses some challenges at Unisa. The challenges are multifaceted and range from apathy among academics, technophobia among some academics, inconsistent infrastructural support, etc.” (p. 48). Unisa is currently exploring how to integrate MOOCs into its curriculum.

Finally, the White Paper for Post-School Education and Training published by the South African DHET (2013) has offered remedies that will increase ICT infrastructure to reach all post-school students in the country. It has also underscored the importance of ICT as a tool for delivering educational content, and for participation in a globalized world. Nevertheless, due to the highly uneven access to ICT in the country, it is currently not possible to fully utilize it, particularly for distance teaching and learning (Madiope & Govender, 2015). In the next section, the research statement and questions are formulated to understand the overarching aim and objectives of the present study.

1.4 Problem Statement and Research Questions

Apartheid caused extreme academic inequalities and administrative problems for nonwhite students and staff within the South African higher education system. When it ended in 1994, the new government formulated policies to transform higher education by redressing past disparities. During the early post-apartheid period, some public institutions enrolled more students after introducing a blended mode of distance education that included face-to-face meetings for students, and ICT for delivering learning content. Distance education availed opportunities for the public institutions to collaborate with private actors in order to augment enrollments and earn extra income from courses and programs. Consequently, the historically marginalized students (blacks, Indians and colored) had more chances of pursuing higher education. Despite these
developments, Internet coverage in the country was limited and the cost of accessing it was prohibitive. As a solution to those challenges, some public universities invited private companies to provide ICT and Internet services to students on campus. These developments needed to be interrogated and analyzed to understand their implications for students and distance education facilitators (guides/assistants). The following three main statements and three questions are presented to elucidate the research problem in the present study.

1. **Student profile:** The South African higher education system is gradually changing and many institutions now have students who work and study at the same time (earner-learner), or campus-based students who participate in ICT-enabled distance education. Further, there are students who are parents and take care of their families while studying. Some students also take distance courses because they are geographically far from institutions (remote students), while others meet periodically at learning centers to sit for examinations or to attend face-to-face lectures. These are significant matters that should be investigated and analyzed. Therefore, what were the views and experiences of selected students in this study about participating in ICT-based distance education?

2. **Course facilitators:** During the period of conducting the empirical part of the current study in 2002, there were facilitators employed to mainly guide or assist students in distance education courses and programs at various learning centers in South Africa. These facilitators were either qualified lecturers employed at institutions that offered distance education, or postgraduate students employed on a part-time basis. Some were also employed elsewhere but did the facilitation work to earn extra income. In this regard, what were the views and experiences of selected facilitators concerning how they carried out their work?

3. **Internet cafés:** Although mobile phones have become ubiquitous, and are the best means of accessing the Internet in South Africa, some students cannot afford the cost of using ICT-supported learning platforms and facilities like computers, printers, the Internet, and so forth. Therefore, they use Internet cafés (which are establishments that offer ICT-related services and Internet access to the public) to get these services at a fee. In this respect, what were the views
and experiences of selected students in the present study about using the services of an on-campus Internet café?

1.5 Aim and Objectives

The overall aim of this study was to investigate how the introduction of ICT into distance education in South Africa during the early post-apartheid period from 1994 to 2002, provided learning opportunities for students at higher education institutions, and facilitated the delivery of educational content. The specific objectives were:

1. To analyze the views and experiences of selected students at universities and technikons (universities of technology) in South Africa concerning the use of diverse ICT equipment for learning, and the delivery of content for distance education.
2. To analyze the views and experiences of selected course facilitators at a distance education institution in South Africa regarding how they carried out their work.
3. To analyze the views and experiences of selected students who used the services of an Internet café at a technikon in South Africa.

1.6 Significance of the Study

Rapid technological advancement can render some data gathered in ICT-based studies obsolete within a short period. However, more research is still required to understand various contexts in relation to the integration of ICT into education, Internet access and usage within educational institutions and society, and the impact of ICT on learning outcomes. The present study is a scientific contribution to the South African higher education system, and the global research community that investigates similar matters. The views and experiences of respondents in the empirical section depicted their challenges and opportunities in pursuit of distance education and ICT-related services. Their views called for improvement in the distribution of learning content and access to ICT.

 Having been trained in the field of International and Comparative Education, I appreciate the importance of studying local contexts that may relate to comparable patterns across the world. From the literature review applied in this study, I have found that barriers to the Internet and other ICT equipment still affect some distance learners just as they did when I conducted my
research in 2002. This indicates the need for more studies to investigate the ongoing development of ICT-based distance education, particularly the emergence of models such as mobile learning and cloud-based learning, which support eLearning or online learning in virtual environments.

1.7 Limitations and Delimitations of the Study

Although the empirical evidence in the present study is from 2002, the subject matter under consideration has been examined until recently (end of year 2016), by taking into account the subsequent developments of distance education and ICT in higher education, as set out in relevant research and policy debates in South Africa. The policies referred to in this dissertation show the significance of ICT in the process of transforming South Africa in general, and higher education in particular.

The non-probability sampling technique used in this study did not offer the general student population at the selected higher education institutions, an equal opportunity to participate in the email and web surveys. Accordingly, self-selection bias is likely to have contributed to the low response rates in the surveys. Low Internet coverage and the high cost of Internet access in South Africa during the period of this study might have also hindered potential respondents from participating. Item non-response within the questionnaires occurred because certain questions were redundant to the respondents if they did not apply to their programs. Furthermore, specific questions deemed irrelevant were removed from the questionnaires by the management of some case institutions.

It was not possible to conduct interviews with many students and course facilitators because they were only available for very short periods at the few learning centers that I visited during fieldwork in South Africa. More interviews would have provided deeper perspectives on distance education operations at the selected institutions.

1.8 Structure of the Study

This study is divided into eight chapters. Chapter 1 provides a comparable global overview of the expansion of higher education and the adoption of distance education as a model for meeting the increasing student demand for further learning. ICT is enabling the delivery of educational content driven by emerging models of learning such as open educational resources and massive open online courses. The chapter also discusses key strategies that the government of South
Africa, higher education institutions and other interested stakeholders undertook within the early post-apartheid era (1994 to 2002), to promote ICT-enabled distance education. It briefly touches upon recent developments in the field, and then presents the research statement and problems, overall aim and objectives, significance, limitations and delimitations of the study.

Chapter 2 begins with a background presentation of South Africa concerning some political and socioeconomic aspects during the apartheid era, which is important in recognizing the ongoing process of transformation, aimed to redress past inequalities. It then shortly describes the racially divided higher education system during apartheid. The chapter argues with reference to various data, that the effects of apartheid still exist today in the ratio of academic staff across the races, institutional funding, and in student participation and completion rates, regardless of increased enrollments among nonwhites. A key step taken during the early post-apartheid period was to dismantle the old racially segregated system by merging particular universities and technikons, to form a single unit of higher education. Distance education was emphasized upon by the government as a means of increasing access to learning, specifically among nonwhites. It is important to note that the chapter also looks at the current higher education landscape to reflect on what the 1994 government had envisioned.

Chapter 3 reviews relevant literature and key concepts in higher and distance education to comprehend the past and current issues and trends globally. These include the growth of distance and higher education, funding, relations with the economic market, the changing student profile (worker-learner), the role of non-higher education (for-profit) actors, and the integration of new technologies in distance education. The chapter has also selected and reviewed theoretical foundations for the theories of distance education from the standpoint of prominent contemporary distance educators, and ongoing debates within higher education.

Chapter 4 presents the research methodology that describes the methods of data collection (quantitative and qualitative) to understand how they were applied to meet the objectives of this study. It gives a detailed account of how fieldwork was conducted to put these methods into practice.

Chapter 5 illustrates the data analysis procedures that included cleaning up the raw data and analyzing them using the Statistical Package for the Social Sciences, which is a statistical software. It also explains how the interviews were transcribed and the format for reporting them in the results chapter.
Chapter 6 presents the case study findings through descriptive statistics, which are presented in tables, charts and graphs, using frequency and percentage distributions. Selected interviews are also cited using verbatim quotations to corroborate the quantitative findings.

Chapter 7 interprets the findings by linking them with the research questions and objectives. Other studies are cited for comparison and my personal reflections involving fieldwork observations and general knowledge are also presented.

Chapter 8 draws conclusions by referring to the evidence gathered and analyzed to justify the present study. The problem statement, research questions and the objectives are recapitulated and linked with the literature review and empirical investigation. Recommendations are then made for future studies in distance education within and beyond South Africa.
Chapter 2: Higher Education in South Africa

2.1 Introduction

This chapter provides background information regarding higher education in South Africa in order to expound on the issues raised in section 1.3 of Chapter 1. It begins by describing how apartheid caused socioeconomic disparities that continue to mainly affect nonwhites in post-1994 South Africa. It then briefly reviews the higher education landscape during apartheid and some significant measures that have been implemented in order to redress past inequities since 1994, within the framework of social transformation. Distance education is discussed as a means of increasing student access and participation in the post-apartheid higher education system, especially through ICT. Ongoing efforts by the country’s government and other stakeholders to increase access to ICT are thereafter presented. Additionally, diverse data are used to illuminate how racial disparities still affect student participation in higher education. Whereas the chapter refers to some policy directions that have been taken since 1994 to transform South Africa’s higher education system, it does not evaluate their successes or failures.

2.2 Some Socioeconomic Effects of Apartheid

The apartheid epoch is unfortunately the darkest part of South Africa’s history. During the international Round Table on Apartheid organized by UNESCO on March 21, 1978, various views were expressed to denounce it. The system had been in existence for many years before the South African National Party enforced it in 1948. In Southern Africa, apartheid was characterized “along a colour line (loosely referred to as race), since the skin pigmentation of peoples who have been militarily conquered is readily recognizable and conveniently facilitates their merciless and intense economic exploitation” (Naidoo, 1978, p. 85).

The white minority government imposed racist rules on black people (who were the majority), and other races. The apartheid system was economically exploitative, brutal and racist (Behr, 1978). During that era, information and communication was highly restricted among nonwhites and for many years (from the 1960s), there was a ban on all forms of media and public debates that were perceived as threatening to the political stability of the white government. For instance, films were heavily censored if they showed nonwhites elsewhere in the world on an equal footing with whites (UNESCO, 1972). The racist restrictions that emerged from the European colonial
domination in the country were due to increasing awareness among the educated and well-traveled members of these communities, who protested against European injustices. “Segregation and apartheid assumed their shape, in part, as a white response to blacks’ increasing participation in the country’s economic life and their assertion of political rights” (Government Information and Communication System, 2015, p. 18).

Racial exclusion meant imposing geographic restrictions upon the nonwhites, which included barring them entry into areas marked “Whites only”. Lefort (1979) states that whites, who were only 17 percent of the South African population, occupied 87 percent of the country, pushing the nonwhites into reserves with poor living conditions. The pass law (a form of internal passport system) was enforced to make sure that all nonwhites carried identification permits to show before they entered whites-only areas. They could therefore not practice their professions in any part of South Africa without permission. Geographic restrictions also denied them freedoms of association and expression. According to Lefort, the proponents of apartheid claimed it was an ideology of difference, while the opponents saw it as a system of inequality. Supporters of the National Party believed that its policies were the best way to uplift the poor Afrikaners so as to suppress the dominance of English-speaking whites in the professions and businesses. The Party’s program was coordinated by Afrikaners who ensured that all prominent jobs went to Afrikaners themselves. In reality, nepotism and favoritism became State-driven to entrench Afrikaner supremacy.

In order to understand some income differences between a black and white person during apartheid, Lefort (1979) presents the following figures:

A black has 900 times less chances of reaching a management post than a white; thirty-seven times less chances of being a skilled worker, but a twenty-five times greater chance of being a manual labourer. A black person has eighty times less chances of one day attending a university lecture than his white counterpart. And for good reason: the State spends on average sixteen times less on a black pupil than on a white. There is one doctor for every 400 whites as against one for 44,000 blacks. Finally, a white South African’s income, one of the highest in the world, is on average fourteen times greater than a black’s is. In 1974, the latter was approximately 200 American dollars a year. How, then, can the South African Government justify its system on the grounds that the standard of living of blacks there is higher than
anywhere else in Africa? The income of a black South African is on a par with the average income of the rest of the African continent, but no other African country can boast of resources even remotely comparable to the enormous developed wealth of South Africa. (p. 21)

More than two decades after the end of apartheid, racial classification still exits in South Africa. According to the Community Survey 2016 results released by Statistics South Africa at the end of June 2016, there were “55.7 million people in the country, a majority (44.9 million) are Black Africans, followed by coloureds (4.9 million), whites (4.5 million), and Indians/Asians (1.4 million)” (Statistics South Africa, 2016, para. 1). Further, a 2015 report by the South African Department of Higher Education and Training (DHET) maintains that:

The Department uses the racial descriptors: “African”, “Coloured”, “White” and “Indian/Asian” for planning, monitoring and funding purposes. The Department places on record that these racial descriptors, which characterised apartheid policies and practices in the past, are being used to provide historical context and comparisons as well as to describe and measure the effects of present policy and practice on redressing the inequities of the past as required by the Constitution of South Africa. (p. 2)

It is argued that the 1994 ANC-led Government of National Unity inherited the system of racial categorization from the apartheid era in its entirety (without alteration), in order to monitor the impact of redress processes concerning land compensation and equal employment opportunities (James, 2012).

2.2.1 Post-1994 socioeconomic inequalities

For many years, mass resistance to apartheid laws became popular among nonwhites. The largest resistance movement was led by the ANC with support from the international community. In addition, during the mid 1980s to 1991, diverse economic sanctions were imposed on the white minority rule by the European Economic Community, Japan and the USA. However, the country’s economy, which is immense and favored with minerals like gold and diamonds, continued to be controlled by the whites (ANC, 1994).
After attaining freedom, it was important for the ANC to establish a policy framework to help it in the process of resolving past socioeconomic, political and cultural inequalities. Therefore, it wrote a document titled, *Reconstruction and Development Program: A Sustainable Development Vision for South Africa*, which was expected to guide how all the South Africans and resources would be mobilized to eradicate apartheid, and to build a democratic future devoid of racism and sexism (ANC, 1994).

While enormous progress has been made on the ongoing process of transforming South Africa, socioeconomic inequalities remain visible in many sectors and among the races. For instance, earning differentials are still skewed in favor of whites, though some Indians and blacks are making good progress. Since 1994, these differences have shifted from “between races” to “within races”. As such, the State launched a program for redistributing wealth to the blacks within a framework known as Black Economic Empowerment (BEE). The main purpose of the program is to offer financial support to blacks in order to acquire public or private businesses, and to participate in key corporations and financial organizations. BEE is funded through the National Empowerment Fund Act 1998, established by the State for the historically disadvantaged groups (Ncube, Shimeles, & Verdier-Chouchane, 2012).

Over the years, the implementation of BEE has drawn praise and criticism alike. By way of illustration, when Archbishop Desmond Tutu (who was a central leader in the fight against apartheid) delivered the annual Nelson Mandela Foundation Lecture on November 23, 2004, he praised the progress made in the transition, yet also criticized BEE. He questioned the meaning of black empowerment when it appeared to profit only a small group of recycled elite. He wondered too whether it was justified for blacks to claim that since whites had practiced favoritism during apartheid, they should do the same. Besides, he challenged the government’s huge spending on weaponry whereas millions of South Africans lived in abject poverty. According to him, poverty was the biggest insecurity (Tutu, 2004).

Similarly, Tangri and Southall (2008) argue that for many years, the ANC government has been both cautious about implementing the BEE policy and unclear about how to fully transfer white businesses to blacks. It is apparent that transfers within the large business corporations have been piecemeal and more focused on getting white-owned businesses to achieve faster economic growth. “Although at times emphasising equity and redistribution of assets, the government has mainly advocated economic growth and business-friendly policies” (p. 2). The
authors assert that BEE has been limited in its scope to redress historical disparities, partly because the country’s corporate sector is still owned and managed by the minority whites.

Despite the increasing number of a highly educated black middle class, the government does not seem to support a drastic de-racialization of key businesses, which could affect economic growth and investment. An article in the Economist (2013) magazine puts it this way:

The lot of poorer blacks, however, has not improved much. Many are frozen out of the workplace altogether. The unemployment rate among blacks is 28.5%, compared with 5.6% for whites. If those who want work but have given up looking for it are included, the jobless rate is a whopping 41.6% for blacks compared with 7.5% for whites. Some believe the policy has been essential, if flawed. “The reality is that without BEE there would not have been the same level of black participation in the economy,” says Martin Kingston of Rothschild, which advises companies on BEE. But the gains must be weighed against the policy’s unintended consequences. (Not Going Anywhere section, para. 1-2)

James (2012) suggests that after a defined period of time, the BEE and affirmative action strategies should be phased out to allow South Africans to compete equally in the marketplace. According to him, although race might still matter privately, the government does not see it as a barrier publicly. Citing a study by the Institute for Justice and Reconciliation titled *South Africa Reconciliation Barometer 2010*, he found that many respondents across the racial divide wished for a more inclusive nation.

The issue of income differentials among South Africans has continued over the years. According to Seria (2005), income distribution in the country is skewed in favor of a few people, making South Africa one of the most unequal societies in the world. While earnings have improved because of government social grants and increased opportunities for blacks in the labor market, immense wealth has increased in the hands of a few within the races, furthering socioeconomic inequalities.

Seria maintains that between 1998 and 2004, there was a 368 percent increase in the number of black households (440,000) that had moved into the high-income group, which earned around South African Rand (ZAR) 153,000 annually. Conversely, white households still dominated the high-income bracket and increased during the same period by 16 percent to ZAR 642,000.
annually. However, at that time, blacks experienced poorer standards of living because of low earnings.

From a 2005 survey of five provinces in South Africa, Naidoo, Horner, and Philip (2005) reported that Indians had the highest levels of income attributed to their high employment numbers in the formal sector of the economy. Interestingly, apartheid had not been as harsh to Indians because they were allowed to become artisans, compared to blacks who had been relegated to non-skilled employment. The survey, which had been commissioned by the South African Institute of Race Relations (SAIRR), indicated that income levels in Indian households had improved by 79 percent to ZAR 148,822 per annum, compared to the average white income level of ZAR 196,000. It is observed that income levels among nonwhites rose remarkably from 1996 to 2003, when the government policies on trade liberalizations, BEE and affirmative action, began to take effect. Historically, South African Indians had the finest education available to nonwhites. In addition, they have possibly succeeded because of their entrepreneurial skills that help them to generate income and invest in education (Naidoo et al., 2005).

Findings from the *South Africa Survey 2013* published by the SAIRR show that income differentials between whites and blacks have continued to be greater, compared to the dawn of democracy in 1994. Furthermore, an analysis of the situation by Campbell (2014) indicates that racial inequality and black poverty have been persistent, notably because of racial prejudice and unsustainable family units. He professes that though hard to measure, the infamous apartheid labor practices that were responsible for destroying family structures in the past, have remained tenacious. During apartheid, migrant labor laws separated men and women from their families. Campbell also postulates that the current educational system has failed to train blacks to fit into the modern economy. Consequently, around 40 percent of black men in South African urban areas are unemployed.

Racial differences are equally visible among South Africa’s health sector professionals. For instance, in 2012/13, there were 16,936 whites, 8,354 blacks, 5,314 Indians, and 927 colored medical practitioners, including specialists. It seems that reforms in the health sector have not realized adequate change in the distribution of human resources for health. In particular, rural areas have insufficient and low quality health services. Besides, most women and children in these parts are too poor to afford the available but expensive private healthcare services (Van Rensburg, 2014).
Access to health care is, for example, still differentially allotted to the wealthy (privately insured, about 16% of the total population) and the poor (non-insured/state-dependent, 70% plus), while the main race groups are still disproportionally covered by medical insurance (8.9% African black, 20.3% coloured, 41.1% Indian and 69.7% whites. (p. 5)

Correspondingly, Bhorat (2015) suggests that though there are several reasons for the persistent socioeconomic disparities in South Africa, “some of the key factors include skewed initial endowments (or assets that people and households have) post-1994 in the form of, for example, human capital, access to financial capital, and ownership patterns” (Why is Inequality so Pronounced? section, para. 1). As a result, those households with more endowments continue to benefit from the available economic growth. Bhorat upholds that since South Africa’s growth trajectory is both skills and capital intensive, without an adequate production of low-income jobs, it would be difficult to reduce inequality and unemployment.

To conclude this subsection, I refer to Gon (2012) who argues that while the ANC-led government is quite aware of what should be done to improve economic performance (considering all the well-written policy documents that have been published since 1994 to transition from apartheid), it has not successfully implemented plans to reduce socioeconomic inequalities. She criticizes the government for not addressing youth unemployment, and for not finding solutions to improve the stagnating manufacturing and mining sectors. She suggests that the government of South Africa should collaborate with other stakeholders to use ICT to facilitate the service industry. A paradigm shift is also required in designing education to fit into the 21st century employment market needs.

2.3 Higher Education under Apartheid

When the South African Extension of University Education Act 45 was introduced in 1959, the government intended to replace the attendance of nonwhites at the open universities with ethnic group institutions. This Act enforced the ideology of apartheid on higher education by stating that the group consisting of Africans, Asians and Coloureds, was to have its own university. The Africans would further be grouped into institutions as per their tribes. Four more universities, namely, Durban-Westville, North, Western Cape and Zululand, were established for specific
racial and ethnic groups. The intention was that nonwhites would eventually be forbidden from joining white universities (Murray, 1997; Shear, 1996).

The Act made it criminal for whites to attend nonwhite institutions, though it did not make it impossible for the nonwhites to attend white institutions if they had permission from the Minister of Education (UNESCO, 1972). Accordingly, each race had separate administrative and academic units for funding, teaching, learning and even separate buildings. No race mixed with the other while acquiring education. Each race also had its own format of education shaped for its labor market needs. The blacks for example, could only obtain education aimed for low-skilled and poorly paid jobs. The whites on the other hand, received high-quality education for high-skilled and well-paying jobs in the labor market (Karlsson, 2003).

The impact of apartheid on higher education for nonwhites became devastating for many years. Education for these people expanded at the primary level but not much at the secondary and university levels. Although they had their own universities and technikons (universities/colleges of technology), very few had the opportunities for access, participation and graduation. Their institutions had very limited government funding, while the white institutions had abundant funding. Subsequently, higher education became expensive because of the high duplication of educational programs and administrative units. There were many units doing the same things in all the institutions. Moreover, because of the restricted number of nonwhites that joined higher education, there was an imbalance in the distribution of skilled workers entering the labor market. For instance, at the university level, training for the blacks was only aimed at making them teachers (in the Humanities) and social workers, but not research scientists (Murray, 1997; UNESCO, 1972).

2.4 Post-apartheid Higher Education

The Constitution of the Republic of South Africa was enacted in 1996 and Section 29 of its Bill of Rights stipulates that every South African has the right to receive education, which should be made available and accessible by the State. The country’s formal education system has three levels, namely, General Education and Training, Further Education and Training, and Higher Education (Badat, 2010).

Apartheid bequeathed to South Africa a highly disjointed and unequal higher education system. Therefore, by 1994, the system faced the difficult task of remedying past inequalities that
attributed to the glaring gaps in gender, staff and student representation. The biggest challenge in the restructuring process was to create a single academic and administrative unit of higher education. In this regard, according to Badat (2010), the Higher Education Act 1997 declared:

The desirability of creating “a single coordinated higher education system”, restructuring and transforming “programmes and institutions to respond better to the human resource, economic and development needs” South Africa, redressing “past discrimination”, ensuring “representivity and equal access” and contributing “to the advancement of all forms of knowledge and scholarship, in keeping with international standards of academic quality”. The Act also proclaimed that it was “desirable for higher education institutions to enjoy freedom and autonomy in their relationship with the State within the context of public accountability and the national need for advanced skills and scientific knowledge”. (p. 5)

In order to advise on the restructuring of higher educational institutions in South Africa, the Ministry of Education formed the National Working Group (NWG) in April 2001, and after broad investigations and consultations with various stakeholders, the NWG released a report in 2002 titled, The Restructuring of the Higher Education System in South Africa. Two central recommendations in the report were: (1) to deal with common issues within the country’s regions to foster collaboration between institutions, and (2) to establish new institutional and organizational forms, which would include reducing the number of higher education institutions from 36 to 21, through mergers (Department of Education [DoE], 2001).

The mergers were aimed at reorganizing and creating institutions that would promote equal access to students, and cope with prevailing labor market demands. Likewise, the NWG recommended that those institutions affected by the mergers should not abandon their unique missions. To illustrate, technikons would continue to offer vocational and career-oriented training even if they included academic training.

The goal of merging and reconfiguring the institutions was to eliminate the duplication of programs, to cut costs and improve efficiency of service delivery. The mergers would also reduce the number of campuses created during the apartheid era that did not allow nonwhites to mix with the whites. Some former nonwhite campuses had lost many students who shifted to the historically white institutions that were perceived to offer better quality education. This led to
acute funding problems because government subsidies are tied to the number of enrolled students (DoE, 2001).

The mergers took place from 2001 to 2007, and ultimately gave South Africa three categories of higher education institutions, namely, universities, technology universities and comprehensive institutions (academic and vocationally oriented). The South African Students Congress (2009) states that before the mergers, the country’s higher education system consisted of:

21 Universities (one distance education and five rurally-based universities, 15 urban or semi-urban institutions); 15 Technikons (one distance education, 14 urban or semi-urban institutions); 120 Teacher Education Colleges (large number in rural areas); 70 Colleges of Nursing; 12 Colleges of Agriculture. (p. 4)

The mergers produced 23 State-funded institutions of higher education consisting of 11 traditional universities, which specialize in theoretically-oriented university degrees, postgraduate and research; six comprehensive universities specializing in academic and vocationally-oriented education; and universities of technology that deal with vocationally-oriented qualifications, postgraduate and research (Maharajh, Motala, & Scerri, 2011).

The final merger was undertaken in 2007, and since then, three new public universities have been established, bringing the total to 26. However, “the extent to which merged universities have been able to develop shared academic projects and ensure institutional cultures that foster strong academic identities, so crucial to good teaching and learning, is debatable, and much work in this area continues to be needed” (CHE, 2016, p. 152). Apart from the merger of the University of Limpopo and Medunsa that was reversed in 2014, the rest have remained intact.

Finally, Lotriet, Matthee, and Alexander (2010) state that other key strategies that have been undertaken to streamline the system of education since the end of apartheid include:

(1) Replacing the eighteen racially divided education departments by a single department (ministry) of education; (2) Allocating an unusually high percentage (in 2008 this was 5.3% of GDP) of the annual state budget to education; (3) Special support programmes to increase the pass rate in Maths and Science at higher grade (required for entrance to engineering and computer science degree programmes by the majority of universities in South Africa); (4)
New national curricula for various stages and segments of education; (5) Policies and supporting authorities such as National Qualification Frameworks, regulated by the South African Qualifications Authority. (p. 40)

2.4.1 Student participation and success rates

Although huge investments have been put into South Africa’s education system since 1994, there have not been better outcomes with regard to academic and graduation rates at any level. At the same time, even if enrollment and achievement differences have lessened across the races, the quality of education remains poor at all levels. Specifically, “higher education, taken as a whole, is a low-participation, high-attrition system, with shortfalls in its capacity to produce medium- and high-level skills, especially in areas of identified shortages” (Cloete, 2014, p. 1358).

Daves, Goh, Malcolm, & Uhl (n.d.) profess that in the 1990s, there was a sharp decline in the number of students completing high school with the requisite qualifications to join higher education. Further, retention rates were lower, though factors were not provided to explain why. Subsequently, enrollment levels in higher education fell heavily, particularly in the historically disadvantaged institutions. In particular, student intake at some institutions dropped by around 30 percent between 1998 and 1999. In 1999, the enrollment numbers fell by 10 percent nationwide, which amounted to 40,000 fewer students than in 1998.

Years later, a report by the CHE (2013) shows that there are still persistent student dropout rates, mainly because the system of higher education has not been able to meet the learning needs of most students. “First, growth in enrolment has been accompanied by high failure and dropout rates, which undermines graduate output. Second, the gains made in equity of access have not been complemented by equity of outcomes” (p. 40).

The size and shape of South Africa’s higher education has changed since 1994 as shown in a report published by the CHE (2016) titled, *South African Higher Education Reviewed: Two Decades of Democracy*, which affirms that around one million students attended public institutions in 2013, while 90,000 were in private ones. Blacks are now the majority in most higher education institutions, yet their participation rates still differ remarkably, compared to white students. The student participation rate shows that in 2013, whites comprised 55 percent, and Africans formed 16 percent. “Student success rates likewise remain sharply skewed by race and prior education; higher education in South Africa was, and still is, as acknowledged in the
2013 White Paper, a low participation system with high attrition” (p. 7). Figure 2.1 illustrates, according to DHET (2015), that from 2009 to 2013, there were 581,048 students enrolled at the contact (traditional) public higher education institutions (HEIs) compared to 402,650 who were in distance education.

![Figure 2.1: Number of students enrolled in public HEIs, by attendance mode, 2009-2013.](image)

Source: DHET (2015, p. 6).

The CHE (2016) report also demonstrates that the representation of black academics at faculty and top leadership within universities continues to reflect past inequalities “with 17 753 black academic staff members in 2013 compared with 26 847 whites” (p. 7). This is notwithstanding the increased enrollments of African postgraduates from 64,396 to 97,294 during 2008 to 2013. Moreover, the number of Africans who were awarded postgraduate qualifications during the same period had increased from 14,242 to 27,030. In this regard, it is alarming that there is quite a small pool of black postgraduates who will become scholars and academics in the near future. The report suggests that while there are various reasons behind the situation, the lack of high-level skills in the country is a central factor.
Female underrepresentation in higher education is another challenging issue. Akala and Divala (2016) assert that due to the sexist apartheid policies, very few black women were enrolled in higher education both as students and members of faculty in the 1960s and 1970s. While the number of Black women (Africans, Coloreds and Indians) participating in higher education has increased since 1994, the new threat to participation is currently not apartheid, but race and class inequality. African women are especially affected since most of them come from socioeconomically disadvantaged households. The authors found that fewer women than men continue to enroll in Science, Engineering and Technology programs. “The poor representation of women at higher degree level confirms that a large number of women would become relegated to subordinate roles in the work place” (p. 8).

Likewise, Rarieya, Sanger and Moolman (2014) argue that a number of policies have been enacted to remedy gender issues in education within South Africa. For instance, they have referred to the 1997 Gender Equity Task Team that laid the groundwork for such policies by detailing the apartheid era gender disparities, which are still rife. The Task Team recommended the creation of a national policy focusing on gender and education. Nevertheless, such a policy is does not yet available and crucial gender issues have only been dealt with according to their occurrence.

Rarieya et al. (2014) maintain that societal challenges have a direct impact upon learners at school and shape their performance as they pursue higher education. As such, “gender inequities in everyday South African life filter into the classroom in multiple and interrelated ways: through teachers’ attitudes about gender; the curricula in general and specifically; gender and sexual violence against girls; and learner vulnerability to unplanned parenthood” (p. 2).

Akala and Divala (2016) have proposed that to reach gender parity in higher education, resources and competent staff should be increased within the lower levels of the education system, particularly in the rural areas and townships. In addition, “an undertaking towards shifting current race based equity enterprise to include social class and gender disadvantages will be a right move towards addressing gender equity in the higher education sector” (p. 8).

Student participation rates in South African higher education are still considerably low in comparison to other middle-income countries. By 2012, the participation rates of Africans and coloedrs were 17 percent and 15 percent correspondingly, while that of Indians and whites were 47 percent and 55 percent, respectively. The gross national participation rate was 19 percent.
“With a real growth of only 2% between 1994 and 2011, South Africa still lags considerably behind OECD participation rates in most OECD countries, and is some way behind the projected target of 25% set by the National Development Plan (NDP) for 2020” (DHET, 2015, p. 9).

The total number of students who enrolled in higher education institutions for the first time reduced from approximately 165,000 to 158,000 in 2013. While the enrollments had reached over 179,000 students in 2011, they dropped significantly in 2012. “The University of South Africa (UNISA) had the most significant decline in first-time entrants over the past two years, from 52 000 students in 2012, to almost 34 000 in 2013” (p. 7).

Figure 2.2 illuminates the overall male and female student enrollment rates at the public higher education institutions in 2013. It also includes the percentage of females and males enrolled in contact and distance programs (DHET, 2015).

![Figure 2.2: Percentage distribution of student enrolment in public HEIs, by attendance mode and gender, in 2013.](image)

2.5 Financing Higher Education

Financing education was a central component in the early post-apartheid higher education transformation agenda, which aimed at eradicating the racially biased allocation of resources and replacing it with “a common and uniform funding formula in which race was officially no longer a criterion or allocation” (Badat & Sayed, 2014, p. 137). The current public higher education funding system has been operational since 2007, and it ensures that through the DHET, money is allocated to state universities using a standard set of rules except for research outputs, compared to the previous one that ended in 2004, which distinguished between universities and technikons (CHE, 2016).

The universities rely on public funding and diverse private income that includes student tuition and fees. Revenue from tuition is around 32 percent, while third stream income, which involves research, consultancies and business activities, comprised 23 percent and 27 percent of overall income in 2004 and 2007, respectively. Despite the fact that there was a nominal increase in public spending on higher education from four percent to 14.5 percent between 1996 and 2008, there was similarly a decline in spending both as a share of gross domestic product, and general government expenditure. Furthermore, there is an ongoing substantial reduction in student per capita expenditure (Pillay, 2010).

Cloete, Sheppard, and Van Schalkwyk (2016) affirm that within the new funding framework, the government’s endowment to university revenue in relation to the overall budget has dropped from 49 percent to 40 percent. At certain universities, it has fallen by 30 percent, while third stream income has maintained the same budget share of 27 percent. Meanwhile, student fees make up for the decreased government funding.

During the period 2010 to 2014, fees increased by nine percent annually. However, the government supported students to pay their fees through the National Student Financial Aid Scheme (NSFAS), which increased from ZAR 3.4 billion to ZAR 9.8 billion, between 2011 and 2015 (National Treasury, 2015). NSFAS was legally constituted in 1999 to provide study loans to students who are financially needy, yet are academically capable and desire to join public higher education institutions. “The NSFAS receives allocations from the state but also donations from local and international donors and then provides assistance to disadvantaged students by means of bursaries and/or loans” (De Villiers, van Wyk, & van der Berg, 2013, p. 6). In 2012, bursaries constituted 53 percent of the money transferred to NSFAS (CHE, 2016). In 2013, 33 percent of
university budgets consisted of student fees, compared to 24 percent in 2000, as shown in Figure 2.3.

![Figure 2.3: Streams of university income (South African Rand [ZAR] billion), 2000 and 2013. Source: Cloete, Sheppard, and Van Schalkwyk (2016, p. 13).]

It is feared that the diminishing government subsidies to public universities may reproduce apartheid-like unequal participation in higher education among the socioeconomically unable students. Some of the negative outcomes of increased fees, reduced subsidies and unexpanded third stream income, include dissatisfaction among students whose families have to pay higher fees and suffer high failure and dropout rates, because they cannot consistently participate in academic programs. At the moment, universities are not able to get enough fees from students who are not “poor enough” to be qualified for NSFAS. “Non-payment of ANY fees by these students, and the racking up of substantial debts, has resulted, leaving Universities with an insoluble problem. They need the fees because subsidies have declined, but many students cannot pay them” (Bozzoli, 2015, para. 14).

The number of financially needy students and the costs of a study program per institution are measures used to ascertain an equitable distribution of the NSFAS funds. Tuition and residential fees comprise the general full cost of study at each institution. Eventually, a formula that weights the number of disadvantaged students and the full cost of study is used to determine the total
annual allocation of NSFAS among the institutions of higher learning countrywide. “The amount that each HEI will receive is thus solely determined by the racial composition of the students at that institution, especially the number of black students” (De Villiers et al., 2013, p. 8). However, at the institutional level, the poorest students who meet the means test requirements are awarded support through the NSFAS, regardless of their race.

To resolve the funding crisis, Badat and Sayed (2014) propose that the South African government should commit more resources to implement equity interventions in education. Means-tested solutions are insufficiently funded, and can therefore not the address deep-rooted historical imbalances that need workable redistribution programs. “The shortage of funds for financial aid and academic development, and limited funding for institutional redress, have compromised attempts both to increase access and to expand equality of opportunity and outcomes for disadvantaged social classes and groups” (p. 138).

Attempts to achieve equity through financing seem to be based on a narrow conception of social justice that does not take into account the need for wide-ranging institutional transformation of historically black institutions, in order to offer equal opportunity and outcomes. To exemplify, Badat and Sayed (2014) state that the rich and middle class citizens still spend so much financial resources on their children’s education unlike the poor, yet the public funding method is equal for all students. As a result, the historically white institutions perform better, yet “when fees are added to the state per capita expenditure per learner, enormous disparities along race and class emerge” (p. 138).

As reported by Cloete (2016), persons who are financially capable look upon higher education as a way of upholding privilege, whereas those who are underprivileged view it as a means of moving out of poverty. In a socially stratified society such as South Africa, social mobility will continue to decline as long as income determines who participates in higher education. “The South African problem is exacerbated by a low participation rate, low undergraduate completion rates, and the absence of a college sector that can serve as an absorber for poor students, who are also academically and socially underprepared for graduate study” (p. 8).

Cloete (2016) further argues that the country’s undergraduate system is very expensive because it is underfunded and inefficient. Subsequently, it cannot produce highly skilled graduates or gain from the large number of students who have approximately a 30 percent chance of completing studies in five years. For those poor students who do not graduate and
consequently do not pay back their study loans, the NSFAS could be a social support system through which they join higher education, but because they are not able to complete, will return to a life of poverty with the extra load “of a student loan debt they are unable to repay because they lack the qualifications to secure formal employment. So, rather than higher education being an empowering mechanism, it instead disempowers poor students and puts them deeper into debt” (p. 8).

Finally, Kirlidog and Zeeman (2011) underscore the fact that although a lot has been done to counter past educational inequalities attributed to apartheid, economic disparities remain persistent among the racial groups. They reveal that academic success rates among the races appear to match their income rates. In this regard, “lower-income students are more inclined to stop out or drop out due to financial difficulties during higher education” (p. 54).

2.5.1 Tuition-free public higher education

This subsection reviews selected arguments in favor of or against the ongoing call for tuition-free public higher education in South Africa, which began as a movement with violent protests in 2015. The overview is based on the need for attaining social equality by participating in higher education, and avoids the political and ideological dimensions of the debate. On March 5, 2010 the South African Students Congress (SASCO) drafted a Memorandum on Free Education, which demanded that, “the call for free education is also a call for the transformation of the class, race and sexist tendencies of our curriculum” (p. 2). The organization felt that institutional autonomy was being used as a smokescreen to leave out students from the working class who were not cushioned against increased tuition and other fees. SASCO was mainly concerned that the historically disadvantaged institutions would not be able to admit poor students since they had the independence of imposing higher fees, yet they were not sufficiently supported by public funds. In order to provide free higher education, SASCO asked the government of South Africa to increase corporate tax on monopoly industries and high-earning employees, and to stop fee increments immediately, at universities and colleges of further education and training.

With respect to SASCO’s 2010 memorandum, Badat (2011) notes that it was a strange call because it demanded free education for all, instead of targeting those who were in need. If implemented as such, free higher education would largely benefit the wealthy and middle classes. On the other hand, if the poor were to benefit, then “a policy of free higher education for those
who are in need would require a fundamental rethinking of and changes in social goals, priorities, and policies” (p. 2). Badat avows that since the block grants allocated to universities do not cover all their operations, they depend on tuition, other fees, and third stream income. Beyond the $2.5 billion allocated to universities annually, free education would require another $1.1 billion for public subsidy, and $186 million for accommodation. If subsistence for all were to be publicly funded, then another $3 billion would be needed. Nonetheless, “these funds could be at the expense of addressing poverty, job creation, health, housing, and other significant social needs” (p. 2). Consequently, the university system would collapse if the government does not compensate for the deficit funding (Badat, 2011).

The Report of the Working Group on Fee Free University Education for the Poor in South Africa, published by the Department of Higher Education and Training (DHET, 2012a), points out that “free university education for the poor in South Africa is feasible, but will require significant additional funding of both NSFAS and the university system” (p. xii). It also clarifies that university education in this context refers to the undergraduate, diploma and certificate levels, excluding postgraduate education. Furthermore, for education to be free, it should “include not only tuition fees but the full cost of study necessary for success at university, including: registration and tuition fees; meals and accommodation; books; and travel” (p. vi).

A document published by Universities South Africa (USAf, 2016), which is a non-profit membership association that influences and contributes to policy positions regarding higher education in South Africa, argues that a cost-sharing would be an appropriate model of funding public higher education. “It is logical to expect that the funding required for higher education will derive partly from the public fiscus and partly from private investment in the form of student fees or some other mechanism that may be agreed upon over time” (p. 1).

USAf maintains that if tuition-free higher education were to be introduced, then the government should consider increasing funds allocated for teaching and research at universities, and to the NSFAS. It also emphasizes the need to understand the differentiated system of higher education in South Africa, which regards some institutions as undergraduate, with a teaching/learning mandate (traditional institutions), while others are regarded as research-intensive institutions. There is also the category of comprehensive institutions that have mixed mandates. It is therefore imperative that each institution is funded sufficiently to execute its mandate.
Cloete (2016) supports the need for differentiating higher education institutions according to what they are mandated to offer. For instance, a radical restructuring of the undergraduate level would show the importance of vocational and technical training, and would be a positive move towards an equal system of higher education. He argues that the current structure of higher education generates high personal benefits through degree qualifications, or unemployment especially for the majority of black students, who cannot participate in postgraduate studies due to limited funding. Cloete concludes that the deliberation on fees should not only include diverse “models of direct or deferred fee payments, instead the structure of the undergraduate system needs to be rethought within a framework of empirical evidence about the features, and contradictory demands, of the system” (p. 5).

In order to address the fee-free higher education crisis, the government of South Africa established the Commission of Inquiry into Higher Education and Training (the Fees Commission) in January 2016, and it has since then been holding oral hearings with identified stakeholders on issues arising from the Commission’s terms of reference. An interim report by the Commission acknowledges that participation in higher education is a constitutional right for all South Africans, even though the poor ones are excluded. In this case, those who are very poor as per their annual income, should be assisted. It proposes that higher education participants ought to be seen as loan recipients and effective mechanisms should consequently be put in place, to recover study loans when they get employed. More funding is required for both the NSFAS and colleges that offer vocational training. The Commission’s final submissions are expected in June 2017 (Heher, Ally, & Khumalo, 2016).

2.6 Distance Education

With a history dating back to the 19th century, distance education in South Africa was first provided by the University of South Africa (Unisa), which was later converted into a fully dedicated correspondence institution by the Higher Education Amendment Act of 1946. Although Unisa made no racial distinction among students in terms of registration, administrative services or teaching during apartheid, its graduation ceremonies were racially segregated for many years (Ngengebule, 2003). The institution was historically categorized as a white Afrikaans-medium institution rather than a white English-medium university. Since its students were mainly off-campus, Unisa was hardly embroiled in anti-apartheid conflicts that had spilled
into other universities during the 1980s. However, it supported Afrikaans-medium universities during that period. Unisa had highly qualified academic staff although it kept very little contact with the international community (Bunting, 2006).

In accordance with global trends, distance education in South Africa caters to a diverse body of students who are employed and study part-time, and those that cannot attend full-time studies at higher education institutions. It also provides continuous education, which is important in advancing skills and further knowledge among learners who can be more competitive in the labor market (McKay & Makhanya, 2008).

Distance education at the technikons (universities of technology) developed during the 1980s with the establishment of Technikon South Africa (TSA) in 1980, followed by Vista University in 1981, which was created by the apartheid government to make sure that urban blacks could only pursue higher education in the townships, without mixing with other races. Vista University was a contact (face-to-face) institution with a unit called the Vista University Distance Education Campus (VUDEC) that provided distance learning (Mabokela & King, 2001; Ngengebule, 2003). Technikons were created to provide undergraduate and postgraduate career-oriented or technology-related programs.

Key policy proposals to change the apartheid system of education recognized distance education as an important means of enabling access and participation, especially in higher education. Moreover, it would assist in redressing past racial barriers that prevented many nonwhites from joining higher education (Glennie, 2007). Historically, distance education in South Africa has been provided almost exclusively by public universities and technikons. By 2001, 29 percent of all full-time equivalent students in public institutions or 43 percent of all head-count were registered in recognized distance education programs. During that period, distance education facilitated student participation from over 379,000 to above 665,000 head-count enrollments (Badat, 2005).

2.6.1 Diversified provision of higher education

As the South African higher education market opened for local and international private providers in the 1990s, distance education programs spread into contact institutions. This was experienced from 1993 as a response to the 1992 Educational Renewal Strategy created by the apartheid state, which underscored that there should not be any separation between distance and
on-campus education, because both offered a range of opportunities for students. It also proposed that the provision of distance education should not be restricted to particular institutions (DoE, 1992).

Similarly, the 1996 report by the National Commission on Higher Education titled, *A Framework for Transformation*, provided policy proposals to guide the process of transforming higher education. It stated that the differences between face-to-face and distance education institutions were disappearing since both modes were focused upon designing learning environments, which applied different technologies and programs to meet specific educational needs for students and contexts. The dawn of the “dual mode” that blended traditional and distance students, and the “mixed mode” that targeted individual students who mixed distance and face-to-face learning, blurred the distinction. Additionally, these models were indicative of the possibilities of open and lifelong learning (National Commission on Higher Education, 1996).

However, Badat (2005) avers that it is conceptually faulty to say that there is no significant distinction between traditional and distance education because they both depend on ICT for content delivery. He suggests that during the first decade of post-apartheid, there was a convergence of the two modes through existing and emergent technologies, which supported teaching and learning within the South African higher education. Badat argues that distance education was still chiefly delivered through correspondence, and only a few contact institutions used ICT. Likewise, only a small number of students had Internet access, while computers and other ICT tools were applied by some institutions to support teaching and learning.

According to Daves et al. (n.d.), the International Center for Distance Learning asserted that there were more than 65 institutions of distance learning in the early post-1994 South Africa that delivered learning content through a variety of technologies such as the Internet, interactive audio and video teleconferencing, audio and video tape, radio and television. The authors argue that consequently, the DoE became concerned that the mushrooming institutions could interfere with the provision of distance education at the dedicated institutions. Additionally, there were doubts about the quality and effectiveness of these programs, yet abolishing them would bar those students who were in need of participating in higher education.

Between 1993 and 1999, there were 14,000 to 69,000 students enrolled in distance education at face-to-face institutions in South Africa. Nonetheless, retention and graduation rates were lower. In 1999 for instance, only 10 percent of students at Unisa graduated. Eventually, the DoE
acknowledged that the correspondence method was obsolete and recommended that content delivery for distance education should include technological modes, in order to address the expanding needs of the South African higher education (Daves et al., n.d.). Four factors that drove the changes within South Africa’s distance education landscape were:

(i) developments in IT which allow for different modes of delivery; (ii) the need for greater cost-efficiency to deal with increased enrollments without having to increase staff or build infrastructure; (iii) competition from private higher education providers, and (iv) the government’s public stance that distance education has a crucial role to play in expanding access, diversifying the body of learners in South Africa, and enhancing the quality of instruction within economic constraints. (p. 4)

Badat (2005) cautioned that the expanding diversity in the provision of higher education would have ramifications for equity of access, quality of content delivery, and prospects for the historically disadvantaged races, and its receptiveness to the socioeconomic challenges in the early post-apartheid period.

This increasing diversity is characterized by a variety of modes of delivery and learning/teaching methods, and the use of various terms to depict these: “contact education”, “face-to-face education”, “distance learning/education”, “correspondence education”, “open learning”, “flexible learning”, “mixed-mode”, “telematic learning”, “online learning” and “e-learning.” (pp. 183-184)

On the issue of educational diversification, the DoE (1995) maintained that whereas the fundamentals of open learning are geared towards eradicating learning access barriers, promoting learner-centeredness, learner support, and acknowledging prior learning experience in South Africa, quality assurance had to be sustained while designing learning materials and support systems. The Commonwealth of Learning (2015) describes the differentiated distance education model as:
A mode of teaching and learning characterized by separation of teacher and learner in time and/or place for most part of the educational transaction, mediated by technology for delivery of learning content with possibility of face-to-face interaction for learner-teacher and learner-learner interaction, provision of two-way didactic communication, and acceptance of industrial process for division of labour, and economies of scale. (p. 2)

Just as in other parts of the world, quality control in South Africa’s distance education institutions faced the challenge of students being lured to take programs that were not recognized in the marketplace after completion. They ultimately lost a lot of money yet could not be compensated because many distance students were isolated and came from marginalized communities with little or no support at all. For this reason, the then South African Minister of Education commissioned the CHE in 2003 to advice on the regulation, funding and coordination of distance education. The CHE recommended that distance education programs at traditional institutions needed to be approved within the set criteria of the National Plan and Higher Education Quality Council (Glennie & Bialobrzeska, 2006).

2.6.2 Institutional mergers

During the 1990s, the government of South Africa realized that many technikons had a poor history of research and graduation outcomes inherited from the apartheid era. As a result, they were targeted for institutional mergers with other universities in order to establish a single and differentiated higher education system (Humphrey, 2003).

Most of the Vista University campuses for example, faced reduced student enrollments due to their mobility to other institutions, which eventually made it a target for the merger program. The aim of the merger was to turn Unisa, TSA and Vista, into one large institution of distance education. In January 2004, the three were merged to form one institution known as Unisa. By 2004, there were over 265,000 students undertaking studies through distance education, accounting for 36 percent of all higher education students countrywide. They were mostly part-time students with approximately “80 per cent above 23 years old, more than half were women, and 76 per cent were black” (Glennie & Bialobrzeska, 2006, p. 3).

Since the mergers, Unisa has been the main provider of public distance education, although other universities are authorized to offer some distance programs generally for teacher upgrading.
Furthermore, a blended model of distance education provision through affordable technology within postgraduate and continuing education at public institutions has emerged. A case in point is the Stellenbosch University that has used satellite technology to support its distance programs for many years. North West University is also collaborating with the Open Learning Group, which is a private higher education institution that provides contact centers for its distance students. In addition, North West University uses an interactive whiteboard system that has increased contact between lecturers and students. The private higher education sector has also continued to expand the provision of distance education (Madiope & Govender, 2015).

By September 2016, Unisa had registered more than 400,000 students who participated in wide-ranging programs and courses leading to certificate and degree qualifications. Most of them originated from South Africa, across Africa and from the rest of the world (Unisa, 2016a). The institution is categorized as one of the world’s mega universities. The terminology of “mega universities” is used to define distance-teaching universities that enroll more than 100,000 students (Daniel, 2003). Besides Unisa, there were around 7,000 to 60,000 students in each of the then 23 public higher education institutions by 2011. Nine of the institutions provided distance education, although Unisa had over 85 percent of all the enrolled distance education students. North West University was the only exception with over 40 percent of its students enrolled in distance education (Makhanya, 2014).

Letseka and Pitsoe (2013) state that Unisa markets itself as an open and distance learning (ODL) institution, which exemplifies an open learning approach that is flexible, accessible, supportive and affordable to prospective students. ODL attracts adult learners who are expected to learn from diverse materials that include electronic media. The ODL mode requires students to learn in groups, at their own pace, be active and interact with other learners, while having infrequent face-to-face meetings with their teachers. “Open learning is all encompassing and includes distance education, resource-based learning, correspondence learning, flexi-study and self-paced study” (p. 197).

To understand the situation of students enrolled in ODL, Letseka and Karel (2015) note that most of them come from underprivileged households and less-resourced schools within South Africa. Moreover, a vast number are first generation university entrants without family or social networks to share academic experience. However, such students who are mostly academically underprepared, contribute to poor success rates in higher education because “they do not have the
necessary study skills to engage with the concepts in a guided contact university, let alone study in the ODL environment where they are expected to take responsibility for their studies” (p. 6). In order to limit poor pass rates, Latseka and Karel (2015) suggest that stringent selection measures be undertaken among other selection criteria for students joining ODL. Equally, they advocate for an improvement in the quality of teaching and learning, so that schools can prepare students more adequately to join higher education.

In recognition of the role of distance higher education, the country’s DHET published a draft policy framework in May 2012, to relax earlier restrictions on the provision of distance education by other public universities apart from Unisa. At the same time, it acknowledged that though ICT presents new opportunities within distance education for students and institutions, it requires huge capital investments to purchase equipment and design digital content.

The DHET (2012b) faces the challenge of enabling access to learning technologies and affordable Internet access to universities and students. “Currently, access to learning technologies in South Africa is uneven, making it impossible for distance education and other providers to harness their potential to the full” (p. 28). The need for integrating ICT into education arose in early post-1994 when the new ANC government saw it as an opportunity to increase student participation, and to enhance South Africa’s possibilities to join the global knowledge economy. As such, section 2.7 discusses some key strategies undertaken in the process.

**2.7 ICT Strategies in Education**

The need to increase skills among the historically disadvantaged people immediately after apartheid was a key priority for the government of South Africa. However, there was a shortage of teachers while the student population was rapidly expanding. For these reasons, technology was identified as one of the potential ways of delivering curriculum. Educational technology development in the country was influenced by both internal and external factors. The then President Nelson Mandela and Vice President Thabo Mbeki advocated for the application of ICT for socioeconomic development. Donor agencies and development partners such as the World Bank, the United Nations Development Program, and the United States Agency for International Development, also made a similar call. Overall, three groups of actors that have influenced the development of South Africa’s ICT in education policy are the government, corporate/market and civil society/community (Evoh, 2011).
The first step taken by the South African DoE was to establish a national ICT policy framework to oversee the application of new technologies in education. In November 1995, it held a conference focusing upon the enhancement of new technologies in education within the country. It was agreed at the conference that a committee would be formed to present views about creating a policy and strategic direction for implementing new technologies. As a result, the Ministerial Committee for the Development Work on the Role of Technology that will Support and Enhance Learning, wrote a report titled *Technology-Enhanced Learning Investigation [TELI] in South Africa: A Discussion Document*, which was presented to the Ministry of Education on July 31, 1996 (Butcher, 1999). However, the report lacked a comprehensive strategic plan to implement the proposed initiatives. Moreover, it did not propose how technology would be systematically applied in higher education (Thomas, 1998).

Therefore, the TELI Strategic Committee was formed to develop a framework for implementing the use of new technologies in teaching and learning. The TELI report was ready in 1998 and the DoE noted that “technology-enhanced learning” included the use of technologies in any teaching and learning environment, for any educationally related purpose. This strategic plan was used to introduce technologies at all levels and in all sectors of the South African education and training system (Blignaut & Howie, 2009; James, 2001).

The TELI report focused on four key areas, namely: a) technologies for the provision of study materials to students; b) support for other teaching and learning processes; c) support for management; and, d) administration and payment of costs for integrating new technologies into distance education. TELI also investigated implications that could arise from integrating new technologies into the teaching and learning environment (student and support systems). The TELI report was implemented until a framework for partnership between the government of South Africa and the private sector in the provision of ICT in education was adopted, through the publication of the *White Paper on e-Education* in 2004. “The concept of e-Education revolves around the use of ICTs to accelerate the achievement of national education goals. e-Education is about connecting learners and teachers to each other and to professional support services, and providing platforms for learning” (DoE, 2003, p. 14).
2.7.1 ICT in higher education

South Africa does not have a specific ICT policy in higher education, though the public and private institutions have individual programs, appropriate structures to support online learning, strategies or policies that deal with, or are supported by ICT. Institutional policy approaches “range from formal explicit policies on ICTs to the incorporation of ICT in existing policies to no policy frameworks to those who have structures in place but which are not supported by policy frameworks” (Isaacs, 2007, p. 19). The E-Campus Strategy by the University of Stellenbosch and the Telematic Learning and Education Innovation Strategic Plan 2002-2005 by the University of Pretoria, are examples of individual institutional formal policy approaches to applying ICT.

A study by Czerniewicz, Ravjee, and Mlitwa (2006) that mapped South Africa’s ICT landscape found that higher education institutions began showing increased interest in using ICT for teaching and learning as a response to similar global trends. Interestingly, the goal was more focused on joining the emerging globalized knowledge economy rather than being part of the national response to address historical inequities. Further, these institutions were spending a lot of money on ICT infrastructure, yet the country and the higher education system had a poor infrastructure. They also found that references to ICT in higher education were disjointed in many policy documents and yet there were no critical voices raised on the matter.

Currently, the provision of distance education at South Africa’s public institutions allows for very little direct contact between students and their teachers. However, ICT can enable this, though consideration should be given to the huge costs and design of such programs (Glennie & Mays, 2013). Even so, Madiope and Govender (2015) underscore the necessity of understanding the context of student access to technology in South Africa, if distance education is to be offered through an online means only. Shifting from paper to online delivery is more demanding “as the skills needed to write study guides are not those needed to design online sites or to facilitate online; furthermore, the production and storage infrastructure of distance education is different from the technology infrastructure required by online delivery” (p. 46).

Unisa has embraced a number of technologies to facilitate learning, online teaching and assessment and in particular, it employs a learning management system (LMS) known as myUnisa, which is an open-source software driven by SAKAI, an international partnership of higher education institutions, private colleges and commercial training stakeholders. The LMS supports both online and print-based modules for registered students (Madiope & Govender,
Even though the South African government and institutions of higher education have charted strategies to use ICT in education, there are persistent challenges in training a sufficient number of people to acquire ICT skills, as discussed in the next section.

2.7.2 ICT skills gap

In the ANC’s *Communications Policy Discussion Document* prepared for the 2012 Policy Conference and the 53rd National Conference, the party maintains that while ICT enhances information and knowledge, the inequalities of access still prevail among individuals within nations and regions worldwide. It also recognizes the ICT skills gap among the historically marginalized South Africans and aims to ensure more equality (ANC, 2012). Many underprivileged youths “come out of the Basic Education system never having been exposed to ICTs. This impacts their performance in institutions of higher learning, as well as their ability to adapt and become competent in the use of ICTs” (p. 7).

From a policy level, the South Africa government seems to have failed in its effort to deliver ICT, according to the managing director of South Africa’s World Wide Worx, a technology research company. Van Zyl (2015) puts it this way:

> The South African government, regulator and parastatals have put the brakes on ICT development, particularly through their failure to license spectrum that is required for high-speed mobile broadband, inability to finalise digital TV migration, and unwillingness to open up fixed-line broadband. The South African government's ability to deliver in ICT has been examined, and has been given a ‘fail’ mark. Only the continued investment by private enterprise has prevented it from falling even further down the rankings. (Local Experts' Views section, para. 3-4)

Workers with ICT skills are not adequate in South Africa according to the 2011 Joburg [Johannesburg] Centre for Software Engineering (JCSE) Skills Survey, which found there was a demand for 20,000 to 30,000 ICT-skilled workers amounting to 10-15 percent of the total ICT workforce (JCSE, 2012). Nevertheless, there are not enough young graduates with technological skills to replace the more experienced workers who demand high remuneration. Moreover, younger ICT professionals contribute to a shortage of personnel in companies because of job-
hopping and demand for higher salaries (Hackney, 2013). The demand for ICT professionals in South Africa is pegged on specific types of specialization. “According to recruiters and employers, application development, mobility, high-end infrastructure and analytics are just a few of the areas where the industry has a dearth of skills” (Harris, 2012, para. 6).

A key reason for the lack of skilled ICT personnel is that “universities are not producing sufficient numbers of graduates with the right levels of technical expertise to enable, grow and competitively position businesses in the African markets” (Fripp, 2012, para. 2). Multinational companies in South Africa have also questioned whether the country’s higher education institutions had the capacity for sufficient computer training since most university graduates lacked the requisite skills when recruited for work (Abrahams, 2003). Likewise, Lotriet, Matthee, and Alexander (2010) advance the argument that it is not easy to train enough people to keep up with the vibrant nature of ICT. “The expectation gap, that is, the mismatch or perceived lag between what is taught and what skills are needed, is in part as a result of this quite complex interaction” (p. 41).

South African high schools are also not producing enough students with Mathematics and Science qualifications to pursue ICT-related degrees. There were 1,700 university graduates in computer science, electrical and electronic engineering per year between 2005 and 2010, and 3,130 technikon diploma graduates annually, for the same period. However, they did not meet the increasing demand for ICT skills. Additionally, there are very few women in this industry, which is male-dominated (Harris, 2012).

Mzekandaba (2016) maintains that though South Africa lacks sufficiently skilled ICT workers, at least one person within 53 percent of households has Internet access possibly at home, work and place of study, or at Internet cafés, according to the 2016 General Household Survey results published by Statistics South Africa. A similar report in 2015 indicated that 48.7 percent of the population was connected to the Internet. Smartphones, which are the main source of Internet connection, had a 40 percent penetration, while fixed broadband had a mere five percent coverage. This shows the importance of mobile phones for enabling Internet access. However, rural households had the least access to the Internet, according to Mzekandaba.
2.8 ICT Strategies in South Africa

In the 1990s, the government of South Africa developed a national ICT strategy and also implemented frameworks for policies, infrastructure, task forces and partnerships to increase ICT access. It then liberalized the telecommunications sector to allow for competition in the provision of cable and satellite communications, mobile phones and Internet services. Moreover, the government freed its monopoly on fixed-line telephony, so that a second national operator could compete with the then state-owned telecommunications firm, Telkom SA (South Africa). The new operator was launched on August 31, 2006 after winning a 25-year operating license in December 2005. Neotel was supposed to compete with Telkom SA to reduce the high cost of telephone services in South Africa. The government expected that competition would speed up the expansion of telecommunications infrastructure in rural areas (The Economist, 2006).

The Department of Communications [DoC] (2014) states that since 1994, various policy frameworks have been formulated in South Africa to promote equal access to communication services for all, and to use ICT to advance development goals. Three White Papers (official policy documents), namely, the White Paper on Telecommunications (1996); White Paper on Postal Policy (1998); White Paper on Broadcasting Policy (1998); and one Green Paper (first-draft document on a particular policy) were produced in the 1990s, to regulate the telecommunications industry. Furthermore, the 2005 Electronic Communications Act 36 that repealed and replaced the 1996 Telecommunications Act was introduced to regulate the growing electronic communications environment.

In 2010, South Africa adopted the African Union Declaration on Information and Communication Technologies in Africa: Challenges and Prospects for Development, Doc. Assembly/AU/11(XIV) with other Member States, to prioritize ICT as an instrument for sustainable development. The country would work with regional members to build and improve the ICT infrastructure (African Union, 2010). To show commitment, the DoC appointed the ICT Policy Review Panel in 2012 to review existing ICT policy with an aim of developing a National Integrated ICT Policy by 2013. It was also committed to reducing the cost of fixed and mobile communication to make it affordable and accessible to South Africans (DoC, 2010).

In spite of the positive developments in the ICT sector, the government has been faulted for allowing policy processes that have hindered its citizens from participating fully in the much-
lauded benefits of new technologies such as job creation and economic growth, since acquiring freedom from the apartheid rule (Gillwald, 2012).

For too long the sector has been stifled by policies that have not been evidence-based and have resulted in a series of unintended policy outcomes. Specifically, the high price of all telecommunications services together with the poor penetration of broadband services, have meant that the majority of South Africans do not have access to the full range of services and information required for effective participation by all in the economy and polity. (p. 24)

The government of South Africa has also not been successful in privatizing the telecommunications sector and has retained its interest in the provision of such services, thereby choking competition (Gillwald, 2012). In addition, it has not prioritized the promotion of ICT skills in order to improve socioeconomic inequities at the national level. “It is self-evident that whatever effort South Africa has applied thus far has not prepared its society for a socio-economic reality dominated by new forms of ICT applications and powerful mobile ICT devices” (DoC, 2013, p. 3).

The annual *Global Information Technology Report* published by the World Economic Forum, indicates that South Africa had dropped five places in 2015 and was ranked 75 out of 143 countries in the Network Readiness Index, which measures how selected countries utilize ICT to promote their economies (Dutta, Geiger, & Lanvin, 2015). “The report also shows that SA was ranked 126 for prepaid mobile cellular tariffs, 103 for government success in ICT promotion, 117 for internet access in schools, 112 for ICT use and government efficiency, and 123 for competition in the telephony and internet market” (Czernowalow, 2015, Poor Ranking section, para. 3). The ANC (2012) had also earlier mentioned that:

In recent years South Africa has lagged behind in a number of key global ICT indicators, especially on universal access to the internet, broadcasting and e-governance. This as a consequence of fragmented and uncoordinated policy and institutional arrangements. As a result, we have not fully exploited the opportunities presented by our technological advances. Even on the continent, South Africa has lost its position as a leader in the rollout of ICT
services. Senegal and Egypt are emerging as leaders. Our country also lags behind other BRICS countries in almost all aspects of the ICT value chain. (p. 4)

Similarly, McLeod (2013) laments that “South Africa could be losing its status as the preferred investment destination on the continent for international technology companies” (para. 1). When apartheid ended in 1994, leading international technology companies such as Microsoft, International Business Machines, Xerox, Motorola and Hewlett-Packard, invested heavily in the country since they viewed it as the gateway to Africa. Nevertheless, this has changed and Kenya seems to be the current destination since her government and other stakeholders, have invested heavily in the technology sector and is destined to be Africa’s future “serious tech hub”. McLeod states that:

In South Africa, economic growth has flat-lined. In the technology space, a weak policy making and regulatory environment where fast and smart decision making just doesn’t happen, coupled with a disastrous education system that appears incapable of giving youngsters a solid grounding in foundational subjects such as mathematics and science, are undermining prospects. (para. 4)

Though South Africa has a more advanced telecommunications infrastructure than other African countries, most of her rural areas have very poor ICT infrastructure (Marais, 2009; Odero, 2001). Many people living in these parts are poor, illiterate, unemployed, and lack computer skills. Moreover, the high cost of services also hinders them from accessing various types of ICT (Fourie, 2008). The poor infrastructure is blamed on apartheid that neglected the development of ICT in most parts of the country, and only favored the installation of fixed-line telephony infrastructure in the rich residential areas. However, mobile technology has grown significantly and most South Africans own and use mobile phones (Beger & Sinha, 2012).

2.9 ICT Access for Distance Education Students

Whereas the Internet was intended to support students who participated in distance education during the 1990s, very few could afford its high cost of access and use. Moreover, many that lived in remote (rural) areas had very poor or lacked ICT infrastructure. In order to mitigate the
challenges of ICT access, the government of South Africa established the Universal Service Agency as a statutory body under the 1996 Telecommunications Act, to enhance universal access to telecommunications, which included creating multipurpose community centers or telecenters in underprivileged areas countrywide, to provide affordable access to ICT. Private franchises were also involved to promote access to learning technologies and distance education (Daves et al., n.d.).

Hudson (2001) avers that the term *telecenter* denotes diverse ways of facilitating access to ICT within public buildings such as libraries, post offices and other public access centers. Telecenters emanated in Scandinavia during the 1980s in order to broaden rural economies by engaging rural residents in ICT-based projects for urban clients, which included telemarketing, interviews, data entry and word processing. Nevertheless, with the arrival of the Internet, telecenters developed into public facilities that provided access to email and web services. In South Africa, the Ga-Seleka Telecenter, located in the rural Northern Province, was established in 1998 by Universal Service Agency. It was equipped with six phone lines - four for telephones, one fax line and one for the Internet. It also had eight desktop computers connected to a color printer and the Internet. The ICT facilities at the telecenter enabled 34 people to follow distance education courses at Unisa and TSA (Jensen & Esterhuysen, 2001).

During the period of carrying out this current study in 2002, some South African public higher education institutions had invited private companies to establish on-campus Internet cafés to provide affordable ICT services to their students. Internet cafés are “commercial venues that offer Internet access to the general public on a pay-per-use basis” (Wahid, Furuholt, & Kristiansen, 2006, p. 278). A private South African company known as the Dynamic Cyber Education Limited operated on-campus Internet cafés across the country, which offered ICT-related services like email and the Internet, printing and scanning facilities, photocopying, fax and CD-writing. According to information that was then available on its website at www.icentre.co.za, although many institutions had on-campus computer laboratories, their opening hours were restricted and not all students could access them, depending upon their academic programs. Some students did not require computers for their fields of study but for private use, or to train and gain skills. The company met those extra demands.

Since the government had allowed distance education institutions to use ICT for content delivery as already mentioned in Section 2.5.1 of this chapter, Unisa established a virtual portal
called StudentOnline (SOL) before the institutional mergers, to enable students register online to access administrative information about their courses, examinations, and to interact with other students. Equally, TSA established the first integrated and fully functional virtual campus system in Africa known as TSA CoOperative Online Learning (COOL), which had three interfaces for students, academic and administrative staff. Students were able to register online, have email addresses, access to examination timetables, and other administrative information. The outcome of a survey conducted in 2002 among 942 students registered at TSA COOL showed that seven percent accessed the Internet through Internet cafés, while 78 percent did so from work; 43 percent from home; and nine percent from other locations (van der Merwe & Möller, 2004).

2.10 Distance Education Activities and Modes of Content Delivery

This section has borrowed heavily from the results of a study undertaken by the South African Institute of Distance Education (SAIDE) in 1999, to investigate distance education practices at contact (face-to-face) public higher education institutions in South Africa. The purpose of the section is to list various terms used for distance education activities at selected institutions, the modes of content delivery, and learner support during the early post-apartheid period.

The SAIDE study found that even though the institutions had adopted diverse strategies for teaching and learning, the main reasons were: to increase student enrollments and to generate extra income; to offer further education among professionals who were fulltime workers; and to use ICT for innovative teaching and learning. The most common feature among the institutions that offered distance education was their need to bridge the temporal (relating to time) and/or spatial (relating to space) division between students and teachers. The research realized that some institutions did not want to be recognized as distance education providers since such programs received lower government subsidies than the traditional ones (SAIDE, 2000a).

The SAIDE study stated that off-campus activities was the terminology used by most distance education managers and practitioners at Technikon Northern Gauteng to describe programs carried out away from the main campus. These programs were designed to provide educational opportunities at locations that did not have infrastructure. Telematic education was the terminology used at the University of Pretoria to describe “a comprehensive system of flexible learning which emphasizes the use of technology to enhance the teaching and learning environment, mostly over a distance” (SAIDE, 2000a, p. 4). Technikon Pretoria on the other
hand, used the term *telematic learning* to describe its broad range of distance education programs. The Potchefstroom University (now North-West University) referred to telematic learning as a specific kind of distance education program, while other programs were mentioned as *distance education programs*. Telematic learning included technology and print-based modes of content delivery. The research also found that though there were various content delivery models at the institutions, the four most prevalent were:

(a) Paper-based distance education
Large-scale distance education programs such as education and nursing were categorized as paper or print-based, even though there were other support mechanisms for delivering their contents. The print-based model was mainly used to deliver programs provided by public higher education institutions in partnership with private providers.

(b) Web-based distance education
Programs in this category were generally tailor-made for professionals and were offered at the postgraduate level through the Internet, synchronously or asynchronously. Synchronous delivery was based on real-time virtual learning environments (VLEs), and allowed students to interact among themselves and with their teachers, through instant messaging while taking courses. Asynchronous delivery on the other hand, was conducted offline through email and message boards. Technology was sometimes only used to download paper-based content to facilitate a faster delivery, compared to the correspondence mode. Most programs in this category offered learner support and administrative services through web-based software packages. Admission to such programs was conditioned on the students having Internet access.

(c) Off-campus tuition through learning centers and satellite broadcasts
Various modes of technology were used to close the spatial divide between teachers and learners, and included satellite broadcasting (videoconferencing, interactive television and radio), blended with face-to-face lectures at learning centers. Programs delivered this way were principally traditional contact programs that applied interactive methods for wider accessibility among learners who worked fulltime, or those that were spatially away from the institutions. Learning centers or study centers were venues created or rented by institutions across the country as
meeting places for contact sessions by students during selected periods. Classrooms rented from other institutions were also used as learning centers. Facilities varied from each center but some were equipped with computer laboratories, Internet connection, a satellite connection with the main campus, and VCR (video cassette recorder) players. Some were also used to view television lecture broadcasts, and for assignment submissions.

(d) Mixed-mode provision
Mixed-mode programs employed face-to-face and distance education strategies, while independent study with instructional support for students was integral in such programs.

2.10.1 Learner support
Learner support activities are fundamental in the successful operations of a distance education system, and are aimed to meet the special needs of individual students or groups of students. A study by SAIDE (2000b) revealed that while South Africa had a policy commitment to learner support, quite a little had been documented on how it was implemented during the early post-apartheid era. The following three interconnected aspects of learner support were identified by the SAIDE research.

1. *Learning and teaching:* Students enrolled in distance education experienced varied academic problems that included inadequate requisite skills or subject knowledge, and lacked fluency in the English language, which is the most common language of instruction.

2. *Personal and social problems:* Students that had not been in the formal education system for many years due to lack of funding, or had been working and had not studied for many years, lacked confidence and would not perform well academically.

3. *Access to resources and information:* Students from poor socioeconomic backgrounds could also perform poorly if they did not have sufficient learning resources. Distance education participants tended to be isolated and if not focused, could not perform well as independent learners.
According to SAIDE (2000a) the following were the main forms of learner support:

**Contact sessions:** These formed the core of learner support to students since all programs investigated by the research used diverse types of face-to-face sessions that were also the main channel of communication. Additionally, these sessions facilitated interaction between students and teachers in order to discuss courses. Interactive television broadcast and video-conferencing were also forms of contact used, especially in programs offered by the Universities of Potchefstroom, Stellenbosch and Pretoria, and Technikon Witwatersrand. Support came in the form of discussing matters in the reading materials provided to students. Television broadcasts supported students with additional materials, particularly in programs that were mainly paper-based or web-based. Applying these technologies was found to be expensive and the SAIDE (2000a) study mentioned that the investigated institutions had planned to reduce the broadcasting hours to cut costs.

**Individual support:** Many programs had designed individualized administrative and academic support strategies that could be accessed and used by students. The following were identified by SAIDE (2000a):

**Telephone support:** This type of support differed at the investigated institutions, but included telephone help desk services 24 hours a day, which allowed students to leave messages for their lecturers on answering machines. At the Potchefstroom University, a help desk service was available from 8:00 to 20:00 with an operator who took calls from students and transmitted them to the appropriate persons. The operator would then provide feedback to the students. The types of support from the help desk to students included delivery of materials, submission of assignments, and logistics. Email messages were also sent by students to the relevant staff who were required to reply them within 24 hours, according to the university’s service commitment.

**Facilitators:** At the Potchefstroom University, facilitators were persons employed to assist *study center students* with learning-related issues excluding lectures. Such students worked and lived within 30-kilometres of the study center. There were 84 facilitators employed on contract for the Master of Business Administration (MBA) at the Potchefstroom Business School and Telematic
Learning Systems. Most of them had MBA and doctoral qualifications and were recruited via newspaper advertisements. Facilitators maintained frequent contact with the Course Unit Manager and received prior guidelines on how to facilitate each session.

Rumble, Hope, Thelkeld, Kirkwood, and Lubisi (2001) emphasized the importance of program facilitators in a review that they carried out concerning programs at the Telematic Learning Systems that belonged to Potchefstroom University. However, they found that some first year students they met did not understand the duties of facilitators whom they expected to lecture them. Rumble et al. (2001) also revealed that some academic staff at the Potchefstroom campus also acted as facilitators, which they suggested was good in order to keep in touch with the requirements of students. They recommended that facilitators should be part of the academic environment through groupings, training, networking, and sharing of good practice. However, their roles should be clearly spelt out to the students.

2.11 Summary

This chapter has reviewed how some socioeconomic disparities experienced during apartheid continue to prevail among the nonwhites in post-apartheid South Africa, after more than 20 years of freedom. These inequalities are being redressed within the broad social transformation agenda, which has been embarked upon by various governments since 1994. The Black Economic Empowerment (BEE) program is one of the key strategies for including blacks into the corporate economy that is still mainly controlled by the minority whites. However, BEE has been criticized for reproducing apartheid-like inequalities because it exclusively benefits a small group of wealthy blacks, and not the majority that it was established for.

The chapter has revealed that socioeconomic disparities created by apartheid continue to affect participation in higher education, particularly for students who cannot meet the rising costs of tuition and other fees. Moreover, increased enrollment rates specifically among blacks, has not been equal to graduation rates across the educational system. Additionally, the country’s higher education system comprises high attrition rates, low quality, and lacks the capacity to produce enough medium and high level skills. The chapter has found that there are still fewer blacks in academic positions and within the field of science and technology, compared to whites. Lack of sufficiently qualified academics could affect future research outputs. It is argued that the inadequate number of highly skilled personnel is the reason behind this shortage.
Females are inadequately represented in the fields of science, engineering and technology. Moreover, the current threat to participation in higher education among the African, Colored and Indian women is due to household earning differentials, compared to the earlier sexist apartheid policies that affected them in the 1970s and 1980s. While a number of policy recommendations have pointed towards establishing a national policy on gender and education, this does not exist at all, and gender matters are only handled as they emerge.

Distance education practices by contact institutions in the early post-apartheid period were principally for increasing student enrollments and earning extra income. In the 1990s, the Department of Education recommended that distance learning content be delivered using ICT, so as to enhance efficiency and to meet the rising student demand for higher education. At the same time, private providers had entered the higher education market and some attracted students with learning content that was not accredited. Subsequently, these students lost a lot of money after paying for bogus training. The government then enacted laws to regulate distance education at traditional institutions, for the sake of quality assurance. Eventually, from the institutional mergers, Unisa became the only dedicated institution for distance education in South Africa.

Recent literature shows that many students enrolled at Unisa have come from underprivileged households and poorly resourced schools. As such, they are often underprepared because they lack the required learning skills for self-guided studies within a distance education environment. A study has recommended that the quality of teaching and learning at schools be improved to prepare students adequately for higher education. Though the integration of ICT into education has been a rallying call by the ruling government since 1994, many poor students cannot afford access to ICT equipment for learning. Over the years, Internet cafés were the point of accessing ICT services for such students because of the low Internet coverage in the country. In order to provide interaction through ICT, Unisa and the then Technikon South Africa developed virtual portals for students to access the Internet, examination schedules, and administrative information.

The chapter has also discussed that South African public higher education institutions depend on State funding and various sources of private funding, mainly from tuition and other fees paid by students. Third stream income from consultancies, business and research activities also form part of university funding. Nevertheless, there has been a decrease in public spending on higher education within the national budget has decreased since the 1990s. Whereas students are awarded study loans through the National Student Financial Aid Scheme (NSFAS), high dropout
rates and subsequent lack of formal employment are factors that deny the public universities government subsidies because such students cannot repay the loans. The call for tuition-free public higher education led to violent riots across South African universities from 2015 to 2016, and consequently, the government constituted the Fees Commission to investigate and present workable solutions to the crisis. A preliminary report from the Commission has recommended that very poor students should be assisted financially. The next chapter reviews comparative issues in higher education worldwide, and then discusses theories of distance education from the perspective of various experts in the field.
Chapter 3: Literature Review and Theoretical Discussion

3.1 Introduction

The main purpose of this chapter is to review selected literature on higher and distance education in order to understand the past, current and emerging global patterns of financing, relations with the economic market (the role of non-higher education actors), and the changing student profile (worker-learner). It also describes the key concepts used in this study in relation to the opportunities offered by ICT, and concludes with a discussion on the theories of distance education.

3.2 Higher Education: Changing Patterns

During the latter half of the 20th century, higher education experienced exponential growth worldwide due to demographic factors, massification of education, employers’ demand for skilled workers, nations’ interest in research and development, and increased social demand for higher education (Altbach, 1999; Carnoy, 1999). According UNESCO (1998), higher education includes “all types of studies, training or training for research at the post-secondary level, provided by universities or other educational establishments that are approved as institutions of higher education by the competent State authorities” (Preamble section, para. 1). Student enrollments in higher education expanded globally from around 32.6 million in 1970 to 182.2 in 2011, with 46 percent of that taking place in East and Southeast Asia (UNESCO Institute for Statistics [UIS], 2014a).

Sadlak (1998) asserts that student enrollments increased in most parts of the world from about 51 million students (12.2 percent) in 1980, to 82 million (16.2 percent) in 1995, while the average level of participation was 51 percent in the Organization for Economic Cooperation and Development (OECD) countries, and 21 percent in the developing countries. Future estimates show that by 2025, global enrollment rates will reach 262 million (Bjarnason, Cheng, Fielden, Lemaitre, Levy, & Varghese, 2009; Davis & Mackintosh, 2011). As stated by The International Council for Open and Distance Education (2009), “in many countries, youth and young adults have driven this increase but in others, such as Canada, New Zealand, and the United Kingdom, a
significant number of older adults have also been entering the system” (p. 11). The highest growth has been within developing countries.

According to Fiske (2012), women have been the main beneficiaries of the global expansion in higher education over the past 40 years, regardless of the prevailing access and participation gaps. Societal changes, family attitudes towards educating girls, and personal expectations from the girls themselves, are some of the attributing factors. However, more women than men are attending higher education in North America and Western Europe, compared to those in sub-Saharan Africa, who are still underrepresented. During the same period mentioned by Fiske, female enrollment rates have also been nearly double that of men because of increased prospects for personal income, social mobility, and global pressure to reduce the gender gap. “Nevertheless, enhanced access to higher education by women has not always translated into enhanced career opportunities, including the opportunity to use their doctorates in the field of research” (p. 74).

Hinton-Smith (2012) maintains that apart from women, many ethnic minority groups, the disabled, refugees and other disadvantaged persons worldwide, face unequal access to higher education due to various socioeconomic, cultural and political impediments. In the United Kingdom for instance, efforts to widen participation are hampered by “the frequent inadequacies of a system designed for educating a privileged minority of young, white, western men without disabilities or without the constraints of employment or dependents to meeting the needs of an increasingly heterogeneous university population” (p. 4).

While higher education was expanding rapidly in Western Europe during the 1960s, (Dias, 1998; Eicher & Chevaillier, 2002; Mackintosh, 2005), it had already transited to mass higher education in the USA and Canada (Tremblay, Lalancette, & Roseveare, 2012). Moreover, investment in education was viewed as important for the overall economic growth of a country (Bowman, 1966; Carnoy, 1995). A vast body of literature supports the fact that increased levels of education within the workforce can contribute to economic growth, although it is still not easy to identify and measure the exact contribution of education to the growth, relative to other factors (Psacharopoulos, 1994; Tilak, 1989). However, economic growth is not only achieved by accumulating physical and human capital, but also through other intangible factors such as economic organization, innovation and absorption of technology.

Having been convinced by economists in the 1960s that education yielded higher private rates of return to public investment than other sectors, Western governments used the “Rate of Return”
method or analysis, to estimate and justify its public funding. Tilak (2007) argues that the internal rate of return to education “is that rate of discount that equates the net present value of life-time earnings of the individual, taken as the benefits of education, to the net present value of costs of education” (p. 83). Nevertheless, the notion of viewing education as a commodity instead of a public good, has been criticized because “the reality of limits to both HE participation and graduate employment opportunities causes inevitable stress as individuals feel frustrated in finding their attempts to realise their potential through HE participation thwarted by the limitations of available opportunities and support” (Hinton-Smith, 2012, p. 9).

The rate of return method of estimation spread to a number of developing countries with the assumption that it would spur rapid economic growth. Moreover, the developed countries were keen to help them achieve similar levels of modernization and development. However, most Western-based development theories experimented in developing countries have yielded different outcomes, which have probably only benefited a section of the people. The fact that these countries have complex political and socioeconomic structures, no single economic theory has determined their overall growth (Salmi, 1992).

The rate of return model was used to justify that if public higher education generated more private benefits, then the participants (students) had to pay for it (Bloom, Canning, & Chan, 2006; Tilak, 2004). Further, empirical evidence produced from an extensive survey by Psacharopoulos (1994) indicated that there were higher private returns to educational investment at the primary education level, than at the tertiary level, particularly in developing countries. Therefore, during the 1990s, multilateral organizations such as the World Bank and the International Monetary Fund (IMF) used the argument to recommend substantial cuts in subsidies to public higher education in favor of basic education within those countries. Samoff and Carrol (2004) state that the rate of return analysis in favor of basic education “fits well with global commitments to education for all, which emphasized basic (in practice, primary) education” (p. 1).

Heyneman (2009) avers that in the 1990s, the World Bank published and distributed some policy papers to support arguments for more investment in basic education. However, it was later realized that the idea was a costly mistake that had affected other priority areas in the education sector. Critics claim the World Bank’s misuse of the economic rates of return to education technique led it to create an ideology that supported basic education while shunning other
educational priorities. “Their lemming-like behaviour illustrates why the level of education assistance has stagnated” (p. 4).

By the mid-1970s, there was a decrease in public subsidies for higher education especially in the USA (Eicher & Chevaillier, 2002). However, according to Sanyal and Martin (2006), not all countries reduced their share of public expenditure in higher education; some either increased, decreased or remained stationary during the period of 1990-1 and 2001-2. Sweden, for instance, spent 7.4 percent of her national budget on higher education, while the Republic of South Korea spent 2.3 percent only. The authors affirm that “while the annual average cost per student varied from US$220 in Madagascar to US$13,224 in Sweden, public expenditure per student, according to UNESCO, fell from US$6300 in 1980 to US$1241 in 1995 in Africa” (p. 6).

Towards the end of the 20th century, higher education faced many challenges worldwide due to varied reasons. In some developing countries for instance, political crises such as civil wars and financial mismanagement had caused a lot of decline in the expansion of public higher education experienced earlier, during the 1960s and 1970s. Subsequently, inequality of access to higher education increased in a number of countries, and in parts of sub-Saharan Africa, the youth had 17 times lower opportunities to pursue higher education compared to those in the North, and four times lower in all the developing countries (Sadlak, 1998). UNESCO (1998) reports that:

Without adequate higher education and research institutions providing a critical mass of skilled and educated people, no country can ensure genuine endogenous and sustainable development and, in particular, developing countries and least developed countries cannot reduce the gap separating them from the industrially developed ones. Sharing knowledge, international co-operation and new technologies can offer new opportunities to reduce this gap. (Preamble section, p. 19)

The world economic recession of the 1980s saw a shift in funding for higher education from public subsidies to cost-sharing (user-fee charges, service charges and so forth), which was implemented in the 1990s, especially in developing countries. Cost-sharing in higher education “refers to the shift of at least some of the higher educational cost burden from government, or taxpayers, to parents and students” (Johnstone, 2004, p. 405). One thing was clear: higher
education had to compete with other sectors for public financing. During the 1980s to 1990s, the World Bank and IMF recommended economic reforms commonly referred to as structural adjustment programs (SAPs) within the public sector of many developing countries (Babb, 2005; Bhutta, 2001; Easterly, 2001; Gera, 2007).

Accordingly, the reforms would allow for more transparency, efficiency of service delivery, equitable access and student participation in higher education (Altbach, 1999). On the contrary, SAPs came with heavy borrowing from these financial institutions, leading to major financial crises. Loans were pegged on conditionality, which included Western prescriptions of good governance, yet without consideration for the existing sociocultural and political conditions in each country. Assié-Lumumba (2006) affirms that both the IMF and the World Bank were central in mollifying poor countries to effectively surrender their sovereignty. These organizations have the financial power to influence and the World Bank in particular, was able to “design and impose education policies through the conditions attached to its loans, which basically aim to (i) facilitate the structural reforms imposed by the structural adjustment and stabilisation programme; and (ii) ensure the repayment of the debt contracted” (p. 63).

Within the SAPs framework, debates on public financing revolved around the user-payer concept. Thus, countries that implemented them also introduced controversial service and tuition payments in higher education that either worked successfully, or increased academic stagnation. Consequently, public expenditure per higher education student in sub-Saharan Africa fell from US$6,300 to 1,500 in the 1980s, and further declined by 30 percent in the 1990s. From 1985 to 1989, the World Bank’s expenditure on higher education was 17 per cent of its global education sector budget. However, from 1995 to 1999, it declined to seven per cent since the focus had shifted to basic education following the Jomtien World Education Conference in 1990 (Saint, 2000).

Bloom et al. (2006) support the fact that the international development community was behind the African governments’ virtual abandonment of higher education. They maintain that the World Bank’s assumption that primary and secondary educational levels were more important for poverty reduction than higher education was grounded on two concerns. “First, repeated studies appeared to show that the returns to investments in primary and secondary education were higher than those to higher education, and second, that equity considerations favored a strong emphasis on widespread access to basic education” (p. 4). Assié-Lumumba (2006) criticizes SAPs for not
supporting social programs such as education and health. Moreover, even basic education faced policies that imposed school fees, yet it was supposed to be the most beneficial level of education. “Throughout Africa, the funding of higher education suffered further austerity which deprived it of basic funding for faculty and institutional development and expansion to respond to the steadily increasing demand” (pp. 63-64). As the free market ideology increases, many governments worldwide are responding to the challenges of financing public higher education “by corporatizing and privatizing public universities, implementing new public management tools for public university budgets and financing and encouraging private colleges and universities” (Altbach, Reisberg, & Rumbley, 2009, p. 69).

3.3 Distance Education: Definitions, Trends and Emerging Technologies

During the first decade of the 21st century, higher education continued to face funding challenges that varied from country to country. According to Altbach et al. (2009), a key reason was that public income could not keep up with the increasing costs of public education in most countries. “This is a critical trend, given that public revenue has traditionally accounted for some, if not all, of the higher education expenses in a majority of the world's countries” (p. 67). Distance education could therefore absorb the growing demand for higher education and assist in reducing institutional costs, while broadening the resource base. “Distance education and open learning programs can be effective in increasing access, at modest cost, for underprivileged groups that are usually poorly represented in university enrollments” (World Bank, 1994, p. 33).

For many developing countries, the challenges of institutional and financial diversification led to the introduction of private and distance higher education. Altbach et al. (2009) state that distance education has been an imperative alternative for the growth and delivery of higher education, especially with the new modes of ICT that emerged in the 1990s. “Distance education represents an area of enormous potential for higher education systems around the world struggling to meet the needs of growing and changing student populations, as well as ambitious national development agendas” (pp. 123-124).

By reviewing an assortment of distance education definitions, Salvatore (2002) found that a common theme is the relationship between education and the concepts of time and space. Distance education therefore means education that takes place at a distance. He asserts that there are four levels of distance education, namely:
Distance learning program (this is a program within a university that offers traditional classroom instruction); distance learning unit (this is a separate unit within a system that focuses on distance education); distance learning institution (this is an institution whose sole purpose is to offer distance education); and distance learning consortia (this is when two or more institutions or units share in either the design or delivery of programs, or both). (p. 110)

Stevens (2001) on the other hand, argues that since the 1970s, the terminology and definitions of distance education have grown and diversified from correspondence to distance education or distance learning. Other variations that have emerged are flexible learning, open learning and virtual learning. These changes have been partly due to a rebranding of the concept and the inclusion of interactive delivery strategies. Traditional universities are currently not only for residential students but also for students who work part-time and study, or distance students who might not necessarily be on campus, though they are registered there. Similarly, university students’ age profiles now comprise both the younger ones who are straight from high school, and adult (non-traditional) learners who work and pursue further education (earner-learner) to improve their qualifications (Pena, 2012; Pyper & Belanger, 2004).

Keller (2005) argues that the term distance education was established to mean a variety of educational practices that have evolved around correspondence education. Additionally, she defines three generations of distance education as, “(1) the single/medium correspondence model; (2) the multimedia model (print, broadcasting, cassettes); and (3) the information technology/telelearning model” (pp. 9-10). These levels have evolved according to the advancement of technologies and the third model provides a much higher level of interactivity between the tutor and the student. Furthermore, the strict definitions of education such as teaching and training are changing to learning and development, because of the emerging shift from teacher-centered processes, to student-centered ones. In this case, new technologies are deemed enablers of open or flexible learning experiences (Brown, 1997). However, “it should be noted that none of these generations has been eliminated over time; rather, the repertoire of options available to DE designers and learners has increased” (Anderson & Dron, 2011, p. 81).

Arguing that the distinctions between distance and face-to-face education are disappearing, Glennie and Bialobrzeska (2006) mention that the distance education institutions in South Africa “offer tutorials, practicals and remedial support in F2F [face-to-face] sessions, and F2F
institutions encourage more independent study, often with the assistance of well-structured study material” (p. 9). Additionally, ICT has blurred this distinction further, since through distance education methods, many traditional institutions also provide part-time courses and programs to students who are not able to participate in daytime classroom sessions. Higher and distance education institutions around the world currently apply more ICT products to intensify their positions by organizing, producing and delivering study materials to their students in geographically distant areas (Dias, 1998). Furthermore, lifelong learning opportunities are increasing because many traditional institutions are adopting distance learning models. Haughey, Evans and Murphy (2008) emphasize the formal nature of distance education, which is supported by an educational organization as opposed to informal education. They note that while some theorists have emphasized the nexus between teacher and student instead of separation, they “have ignored the formal organization aspect, have been concerned with learner autonomy and prescribed materials, have defined it as an industrialized form of education, and have placed emphasis on the technology mediation rather than the guidance and tuition” (p. 2).

To conclude this section, five challenges and issues in distance education identified by Stevens (2001), are presented here.

Content and curriculum: due to the high costs of transforming traditional content into distance learning format, there is a shortage of well-designed instructional content.

Appropriateness and efficacy: the misconception that distance education is not a suitable model for teaching vocational and technical skills still exists, yet it is viewed as the most befitting for technical training at the tertiary level, instead of manual skills at the vocational level. Stevens argues that technical training involves more cognitive and theoretical elements that lean towards distance education. Moreover, technical level students seem to possess higher educational achievement that can enable self-study. “The challenge of providing manual/psychomotor skills can be overcome through blended program models that incorporate practical workshop-based components” (p. 6).

Quality and branding: the notion that distance education is a “second best” choice remains worrisome among many prospective participants. Likewise, quality issues regarding the field
have been raised due to the increasing provision of content by the private sector and online actors. “Branding by well established, accredited institutions, along with recognized qualifications, are important for winning learner confidence” (p. 6).

Stakeholder resistance: quite a number of academic staff within the traditional education setting, see distance education as a threat because the introduction of technology may render them jobless. Therefore, “professional development of faculty, instructors, and support staff to enable them to support new models of delivery is critical” (p. 6).

Digital divide: there still exists vast differences in accessing ICT between the developing and developed countries. Thus, “the potential of distance education to expand access to training will be increasingly predicated upon finding ways to democratize access to technology” (p. 6). According to the OECD (2001):

The term “digital divide” refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities. The digital divide reflects various differences among and within countries. (p. 5)

There have been major global developments in ICT-based distance education since Stevens (2001) made those five observations. For instance, online learning has become ubiquitous in higher education and is being implemented variously. However, Smith and Mitry (2008) found that a large portion of online learning is based on computerized correspondence courses, while very few programs involve credentialed academic staff. Furthermore, many VLEs with chat rooms and live presentations are substandard replacements of high-quality cognitive interaction. With regard to Africa, Wright and Reju (2012) assert that there are not enough teachers to meet the increasing demand for participation by students at all levels of education. As a result, they suggest that diverse approaches such as the use of ICT and open educational resources (OER) in traditional and distance educational environments can improve student access and the quality of content. Access to free educational materials can reduce the costs of developing learning
resources and paying for copyright-protected resources. The authors refer to students at the University of Nairobi in Kenya and the Open University of Tanzania, who have cut the costs of purchasing textbooks by using the freely available OER at the African Virtual University (AVU).

With respect to the digital divide, even though digital technologies and devices are now pervasive and are used to enhance service delivery, their effect is unequal because almost 60 percent of the world’s population (over four billion people) according to the World Bank (2016), still lacks Internet access. Additionally, approximately half a billion people especially in rural areas, do not have a mobile phone signal (reception), while about two billion others do not use mobile phones. Within the developed countries, the digital divide affects persons with lower skills who are replaced in the labor market by the more educated people. These differences are reversing the benefits of the digital revolution. Therefore, all countries should prioritize the accessibility and affordability of the Internet (World Bank, 2016).

The unfinished task of connecting everyone to the internet—one of the targets in the recently approved Sustainable Development Goals (SDGs)—can be achieved through a judicious mix of market competition, public-private partnerships, and effective regulation of the internet and telecom sector. (p. 4)

Within the developing countries, it is not only the less advanced ICT infrastructure in rural areas compared to urban ones that is worrisome. These countries also lack adequately skilled personnel that are required to develop ICT-based educational content, in addition to having limited capacity to implement strategies for integrating ICT into education (Chinapah & Odero, 2016). The disabled and minority groups also face physical and economic hindrances that can be overcome through inclusive ICT strategies, in order for them to flourish in higher education. To resolve the digital divide, some countries are developing national online learning strategies. For instance, the “nonprofit Generation Rwanda is currently developing a university based entirely on teaching assistant-facilitated MOOCs with starter courses from Harvard University and the University of Edinburgh” (Johnson et al., p. 10).
3.3.1 Technology in education

Technology in education can be traced back to the early 20th century when commercial providers were cited as the first groups that “commodified” knowledge and were ready to use new modes and technologies that were not accommodated by conventional universities, to expand access to distance education. Large-scale single-mode distance education systems were mainly created for mass education (Mackintosh, 2005). “By applying the principles of mass standardization, rationalization and division of labor, these systems are able to provide mass education to large numbers of students in a cost-effective way” (p. 232). Mackintosh notes that this type of distance education developed as a result of the industrialization of society, and the ubiquitous industrial technologies of that period, namely, print and postal services. Table 3.1 highlights the educational opportunities and benefits linked with ICT in education.
Table 3.1: Educational opportunities and benefits associated with the development of ICT

<table>
<thead>
<tr>
<th><strong>Opportunity</strong></th>
<th><strong>Possible Benefits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to high quality learning material and remote sites.</td>
<td>Learning material developed anywhere can be made accessible to learners anywhere</td>
</tr>
<tr>
<td>Open connectivity between learners independent of location.</td>
<td>Free flow of information within and across learner groups.</td>
</tr>
<tr>
<td>Interactive learning transcends limitations of simple access to information.</td>
<td>Networked ICTs allow interaction between learners, with teachers, and the development of quasi-intelligent learning programs.</td>
</tr>
<tr>
<td>Flexible learning activity at times convenient for the learner.</td>
<td>Removal of time constraints on access to learning activity to allow different rates progression and access to non-traditional learners.</td>
</tr>
<tr>
<td>Removal of special constraints on the learning environment.</td>
<td>Reduces physical constraints on access to learning, travel and subsistence costs minimized, and distance no longer a determinant of marginalization.</td>
</tr>
<tr>
<td>Development of intermediary services to support learning.</td>
<td>Use of networks of teachers and advisors to collate, process and distribute ideas and materials to wider audiences.</td>
</tr>
<tr>
<td>Management of learning can use rich data on learners’ progress and performance.</td>
<td>Interactive systems can generate formative data on learning progress and link to adaptive learning matched to learners’ needs and actions.</td>
</tr>
<tr>
<td>Assessment and certification can be administered using ICT.</td>
<td>Assessment and certification can be organized online with possibilities to reduce costs, improve security and standardize assessment tasks.</td>
</tr>
<tr>
<td>Educational service providers can use ICT to increase efficiency, improve service, and reduce costs.</td>
<td>Financial, administrative and resource management systems can use ICT generated data at different levels of analysis to improve service delivery.</td>
</tr>
</tbody>
</table>

Source: Adapted from Lewin (2000, p. 3).

A number of countries have developed ICT strategies and policies to integrate ICT into education. Moreover, new providers (non-traditional) of education such as for-profit virtual universities, corporate universities and organizations, have emerged to meet the growing demand for open, flexible, lifelong learning, through ICT. ICT in education has a multiplier effect in the whole education system since it improves learning and offers new skills to students. Besides, it reaches students who lack access (predominantly those in rural and far-flung regions); enables and advances the training of teachers; and reduces expenses incurred from the delivery of
traditional instruction (Kozma, 2011; UIS, 2014b). ICT in education includes distance learning, eLearning (electronic or online learning), open source, social networking, and mobile learning using handheld or mobile devices, among others (Kruger & Roodt, 2011). There is evidence that ICT empowers learners to think critically and to interact with others, thereby increasing their pedagogical skills and general knowledge (McGuinness, 1999). However, according to Bates (2014), “it is fair to describe the impact of the Internet on education as a paradigm shift, at least in terms of educational technology. We are still in the process of absorbing and applying the implications” (A Paradigm Shift section, para. 2).

Guri-Rosenblit (2005a) contests the simplistic manner in which the terms eLearning and distance education are used interchangeably, as if they are similar. The lack of a clear distinction in their definitions “accounts for much of the misunderstanding of the ICT roles in higher education, and for the wide gap between the rhetoric in the literature describing the sweeping future effects of the ICT on educational environments and their actual implementation” (p. 469). The author argues that distance education at the university level has traditionally aimed at mature students, overcome geographical barriers, and allowed studies for those who could not enter a conventional campus. However, its modules have not been revolutionized by the Internet and are still designed like the F2F ones. ELearning on the other hand, is not for distance learners only, since it enables campus-based students to facilitate academic activities such as projects and assignments. “Unlike distance education, e-learning is used by all types of students on all educational levels, from kindergarten to doctoral studies. E-learning offers attractive uses for learners of all ages and of various interests and needs” (p. 473).

As stated by Bates (2008), eLearning encompasses technological tools for teaching and learning activities both on campus and at a distance (F2F or online). Teachers should therefore consider how much learning support their students (campus-based or non-traditional) need, and whether the subject matter will require online or face-to-face facilitation. He cautions that attempts to fully apply online teaching in parts of the world where Internet cost is still exorbitant, will not work. Table 3.2 summarizes some models of distance teaching universities.
Table 3.2: Diverse models of distance teaching universities

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consortia-Type Distance Teaching Venture</td>
<td>A collaborating venture between several universities or between universities and other partners, joining forces to offer together distance teaching programs.</td>
</tr>
<tr>
<td>Distance Teaching Universities</td>
<td>Universities that teach students via a wide range of distance education methods and technologies.</td>
</tr>
<tr>
<td>Dual-Mode Distance Teaching Universities</td>
<td>Universities that teach concurrently on-campus and off-campus students. Usually, the same admission requirements and the same study materials apply to both categories of students.</td>
</tr>
<tr>
<td>Extensions</td>
<td>Extramural departments or divisions which operate within universities and offer mainly continuing education and professional upgrade courses. Extensions are typical mainly to American universities.</td>
</tr>
<tr>
<td>Mixed-Mode Distance Teaching Universities</td>
<td>Universities that provide both traditional face-to-face study frameworks and online courses for their on-campus students, and teach as well distant students.</td>
</tr>
<tr>
<td>Single-Mode Distance Teaching Universities</td>
<td>Universities that were founded for teaching solely distant students. Most of these universities were established since the early 1970s, and have followed the model of the British Open University.</td>
</tr>
<tr>
<td>Virtual Technology-Based Universities</td>
<td>Universities that teach students mainly through the new information and communication technologies.</td>
</tr>
</tbody>
</table>

Source: Adapted from Guri-Rosenblit (2005b, p. 680).

3.3.2 Emerging trends

As the economic potential of higher education continues to increase students’ demand for participation worldwide, governments face the burden of providing sufficient spaces at universities and colleges for students who wish to participate in this category of learning, chiefly if they are not qualified. Public resources are also not sufficient enough to accommodate the growing population of students, while the digital divide is hindering participation, despite the ongoing paradigm shift from labor-oriented economies, to knowledge-based economies driven by ICT (Johnson et al., 2014). The authors have identified and described the following two emerging technologies that are likely to influence learning, teaching and creative inquiry over the next one to five years.

(a) Low digital fluency of faculty

Digital media literacy is generally not part of faculty training in many parts of the world. As a consequence, lecturers and professors are not able to assist students in developing such skills. Although many of them later improve through professional development or informal learning, it
is not yet a common practice. A solution is to have “a shift in mindset from the deployment of individual trainings to a continuous process of exploration and definition especially because of how rapidly technologies evolve” (Johnson et al., p. 22). Institutional support from the university’s leadership level to the departmental level is therefore required for this to succeed. For instance, teaming up digitally savvy students with professors could provide opportunities for understanding how students use technology. Social media also offer platforms to support informal interaction outside the formal university setting, while grants from various sources can assist institutions or libraries to develop and expand digital studies targeting faculty and students.

(b) Competition from new models of education

Emerging models of education such as the massive open online courses (MOOCs) are bringing unknown competition to the traditional models of higher education, while at the same time offering extra free learning materials to students. However, as these new platforms come into use, it is necessary to candidly “evaluate the models and determine how to best support collaboration, interaction, and assessment at scale. Simply capitalizing on new technology is not enough; the new models must use these tools and services to engage students on a deeper level” (Johnson et al., p. 26). Many experts are worried about the low completion rates within MOOCs in the USA, and are “skeptical about how engaging these learning environments actually were. Critics warn that there is a need to examine these new approaches through a critical lens to ensure they are effective and evolve past the traditional lecture-style pedagogies” (Johnson et al., p. 26). Only 14 percent of the 160,000 students enrolled for in Udacity’s Introduction to Programming MOOC passed the course. Since MOOCs are free of charge, they offer students a cheaper alternative to the high cost of tuition and accommodation in traditional universities. At the policy level, institutions would have to think of how to “design for-credit MOOCs that are both cost effective for students and transcend traditional teaching practices. Many instructors who facilitate online courses are discovering that using rich media and incorporating plentiful opportunities for interaction are key” (p. 27). Udacity is a for-profit educational organization offering MOOCs, and is the product of free computer science classes offered in 2011, through Stanford University.
3.3.3 Market forces and higher education

The huge economic gains made mainly by the developed countries due to the rapid share price growth in technology via Internet stocks during the late 1990s, diminished with the “dot-com bubble burst” in 2000. However, soon afterwards, some renowned universities such as the Oxford in UK and Stanford in the USA began showing a lot of interest and yet doubt, in using new technologies (especially the Internet) to deliver courses and educational programs. According to Zemsky and Massy (2004), two reasons that made eLearning appealing to institutions in the USA are: (1) It had attracted businesspeople and innovators into an industry that had yet to mature, and they had positioned themselves before others could compete and take over. The then successful ICT market was a clear signal that tapping into it would help to commercialize education. (2) Computer usage in faculty had been experimented for a decade before this, and commercial products such as Maple and Mathematica (mathematical software packages) had been applied in designing learning materials and teaching students. The dot-com success had painted a rosy picture on Internet-based services, and large amounts of effort, time and money had been invested by actors inside and outside the higher education system.

The Internet provided many promises such as increasing and broadening higher education access and participation for students, reducing educational costs for governments, and even creating a knowledge society. Countries in the South were encouraged to embrace ICT to “leapfrog” the Western models of economic development in order to succeed. The World Bank was one of the key drivers of this thinking and even launched the AVU in 1997, to promote higher education and training. For many universities in the South (especially sub-Saharan Africa), new technologies were seen as a blessing, since traditional universities had not been able to deliver courses successfully for many years, due to lack of resources like money, materials and human resources (Juma, 2006).

1. Competition

During the dot-com era, new companies were formed principally in the USA, to provide content and software to deliver higher education courses and programs globally. It was projected that the Internet would revolutionize the delivery system of higher education yet by 2002, most of the companies had either altered their goals, or quit the market. It had been realized that “distance education companies do not grow as fast as other technology companies and represent a small
percentage of overall postsecondary returns” (National Education Association, 2002, p. 1). According to Bates (2001), certain factors hindered the highly hyped rapid expansion of ICT-based higher education. For instance, the growth of ICT varied between countries, regions and within countries due to socioeconomic disparities. Additionally, the lack of technical capacity within educational organizations and governments could not enable the full application of Internet-driven higher education. Furthermore, apart from the lack of commitment by policymakers and educators, “there are significant structural and cultural barriers or restrictions that have slowed the potential for change in education compared with other sectors” (p. 30).

As the “scramble” for the higher education market intensified in USA, traditional universities feared being overtaken by newcomers while they still debated on whom to co-operate with and how to protect their existing values. Katz (1999) suggests that higher education had to compete with other private firms that were venturing into the provision of its services. The private sector in the country was getting impatient about the slow production of graduates from the traditional higher education system. At the same time, public universities needed alternative ways to meet the rising student demand for participation, considering the limited budgetary support from the federal government. The Internet was therefore seen as a solution to provide access to those who could not join traditional universities. It was anticipated that eLearning would be the future trend of learning worldwide, with all the world’s information and knowledge being accessed via electronic media. For instance, Pearson (a large British media group) hoped to take over the market for electronically delivered teaching materials. It was also projected that two million people were likely to pursue an online degree program in 2001. The lucrative education market in the USA had an overall expenditure of US$800 billion in 2000 (The Economist, February 15, 2001).

The perceived competition for survival pitted traditional universities against non-traditional higher education providers. There was a feeling that traditional universities could perish if they did not embrace the Internet. According to Baer (1999), eLearning and other sectors of e-commerce would benefit if they became early adopters of the opportunities offered by the Internet. On the other hand, Katz (1999) argued that since traditional university leaders did not understand the complexities of distributed learning and virtual campuses, they were reluctant to approve information technology budgets. He noted that traditional institutions needed to accept the presence of market forces and work on a system that could protect them and the participants.
In the UK, the government was encouraging universities to offer more coursework online. Universities saw online content delivery as a means of meeting the growing student demand, and filling the public funding gap that had dropped by 36 percent per student between 1989 and 1997. At the University of Oxford, three final year students created the concept of “Boxmind”, which became a private and cheap online company that guided students to Internet sites with relevant learning materials. In the summer of 2000, they hired 30 people, mainly students, who identified and compiled 17,000 academic websites that they referenced across 27 key subject areas (Dodson, 2001). Though Boxmind was supported by some academic staff, it was not formally linked with the university. Some skeptics felt that even if it was easy to download materials from the Internet, it would not be that easy to effectively teach from a distance. Dodson notes that this raised doubt at reputable universities that thought linking with low-cost Internet services could jeopardize their core missions.

2. Public and private partnerships

Since it was expensive for most public universities (both in the North and the South) to raise the initial capital to invest in ICT infrastructure, they formed partnerships or networks with private providers. In the 1990s, some media companies began teaming up with universities in the North to promote “webucation” (learning via the Internet). The media company, Thomson, established a partnership with Universitas 21 - a network of colleges like Nottingham and Melbourne, and wanted to establish an “e-university” (Bates, 2001). Thomson and other media companies expected to profit financially from collaborating with such institutions. The Internet would offer opportunities for access to areas of probable growth such as Latin America. British universities and colleges in the USA had two advantages: (1) the available high demand for courses in the English language; and (2) their leading universities are highly rated abroad, so their degrees were in demand. Institutions that could not do it alone teamed up with others, though institutional diversity made it harder to develop quickly. Those that could afford it, worked independently. For instance, Oxford linked with Stanford, Yale and Princeton to start an online college for alumni. Cambridge tested virtual learning with the Massachusetts Institute of Technology at £83 million. Bates (2001) argues that such partnerships were aimed at promoting commercial spin-offs (by-products) from university research.
Garrett (2004) reports that in the year 2000, the United Kingdom electronic University (UKeU) was launched as a private company through public funding at the cost of £62 million (US$113 million) to promote online education. The Higher Education Funding Council for England had been assigned the task of developing it with a budget of £400 million (US$600 million). Half of this was public money and the other half was from shares held by UK universities. The goal of the UKeU was to use technology to rethink deeply what a higher education program could be, and the only human contact would be “navigators” (advisers) who would help students to select courses. F2F tuition would be left to students who attended summer schools or paid extra for tutorial support (Bates, 2001). The UKeU was designed to attract foreign students interested in online studies and the private sector – for instance, businesses that wanted tailored degree-level training for employees (Garrett, 2004).

However, there were doubts about the success of the UKeU when it attracted only 900 students. A report released on March 3, 2005 by the UK’s House of Commons Education and Skills Committee, mentioned that the UKeU was shut down in 2004 because it had failed to attract the projected number of 5,600 students (Harrison, 2004). Its initial goal of establishing the institution must have been partly inspired by the success of the dot-com era. Moreover, the report criticized the company’s marketing strategy that focused more on technology instead of marketing the project by first investigating and knowing the demand of students who wished to join online education (Sparrow, 2005). The House of Commons Education and Skills Committee (2005) report on the UKeU noted that it was assumed once the technological was in place, “the original projections of very high student numbers would be easy to realize. Unfortunately, this assumption was not based on research evidence, but on an over-confident presumption about the scale of the demand for wholly Internet based e-learning” (p. 3).

Other factors blamed for the failure of UKeU included: (a) timing (just before the Internet bubble burst); (b) focus on eLearning instead of blended learning; (c) branding of the business model; (d) developing a new eLearning platform instead of selecting a cheaper one available for other UK universities; and (e) the impatience of the government, which demanded quick outcomes (Bacsich, 2010; Garrett, 2004). The experience of UKeU depicts the challenges faced in collaborative ventures between the public and private sectors, and of placing too much focus on technology.
3.3.4 Globalization, ICT and the knowledge economy

**Globalization**

The ongoing process of globalization that has featured since the 1990s, is heavily promoted and maintained by ICT products such as the Internet and mobile phones. This process has created global networks connected by financial flows and information that link vast areas within a short period (Gill, 1996). Binsbergen (2004) argues that globalization is the process under which local contexts “are more and more dissolving into a worldwide network of interaction under the influence of technological innovations that have reduced to virtually zero the costs (in terms of time and money of communication and information)” (p. 118).

Mittleman (1996) views globalization as a market-induced and not a policy-led process that is shared by almost all societies. However, it is also evident that economic and cultural interdependence is increasing, yet inequalities are deepening in and among societies. Urry (2000) uses the metaphor of “the network”, “the web” or “the flow”, and not the structure, to analyze the increasing complexity of people and objects. He refers to “the Net and the Self” that involves complex linkages between people, technologies and things, but without social structures. The growth of different global flows changes the scope and limitations facing human beings and objects, thereby positioning them in fictitious networks. These would then shift from “national societies” based on a certain social structure, to globalizing flows or networks of signs, money, information, technologies, machines, waste products and people.

According to Urry (2000), examples of new machines and technologies that diminish time and space beyond the control of society and regulation are “fibre-optic cables, jet planes, audio-visual transmissions, digital TV, computer networks (Internet), satellites, credit cards, faxes, electronic point-of-sale terminals, portable phones, electronic stock exchanges, high speed trains and virtual reality” (p. 64). Appadurai (1990) uses the term “scapes” to explain the flows of machines, technologies, people and texts. The author suggests that although individuals and corporations may be unwilling or are becoming powerless in controlling these flows, they are eventually forced to join them. These networked scapes produce inequalities of access/non-access within particular societies. In a summary that looks at different types of societies, Giddens (1998) asserts that “increasing globalization is not matched either by political integration or by a reduction of international inequalities of wealth and power” (p. 64). Moreover, Cheru (1996) declares that the
The concept of globalization also includes cultural dimensions of media. Binsbergen (2004) suggests that ICT is not only a North Atlantic phenomenon, but an African one too. Different forms of technologies like video, the Internet, radio, television, and the printing press, have been adapted to fit into local African needs. Although Africans do not have universal access to these facilities, they watch television, use the Internet and even capture cultural events on video films, produced locally. Nonetheless, the digital divide between Africa and other continents is still deep.

**ICT**

The connection between technology and economic growth is an acknowledged fact. For instance, developed countries have over the years invested heavily in science and technology, to improve their industries and societies. King and McGrath (2004) argue that “post-Fordism, globalization and the ICT revolution combine to bring about the argument for a knowledge economy: Together they lead to a massive increase in information flows and a new economic emphasis on turning information into knowledge” (p. 34). Likewise, Castells (2001) maintains that the network society is about “social networks which process and manage information and are using micro-electronic based technologies” (p. 4).

The outcome of these social interactions is the global economy, which is based on the activities within production systems, capital markets, management systems and information, all operating as a unit in real time, in a global capacity. Monetary transfers now occur in billions and in different currencies, values, and markets. This also explains the fragile nature of financial markets depending upon events in a country. Almost all countries are today conscious of global financial trends that may affect them instantly. Specifically, the fluctuation of the US dollar often affects world imports and exports of various products. However, Castells cautions that technology in itself cannot provide economic growth if it is not used innovatively.
The concept of knowledge became a main theme in the development discourse in the mid-1990s, and its striking features have been “knowledge as (co-)constructed; knowledge sharing; knowledge for development; the agency as a learning organization; poverty due to lack of appropriate knowledge; and so on” (Daun, 2005, p. 175). However, Stehr (1994) suggests that “the emergence of the knowledge economy is not, in other words, part of “intellectual history” as it is normally conceived. It is part of the “history of technology”, which recounts how man puts tools to work” (p. 96). Stehr’s citation assumes that the knowledge economy is a creation of new technologies and is dependent on them. It could thus be argued that through new technologies, information can be turned into knowledge when it is understood by the receiver, who ultimately shares it with others. The author asserts that knowledge is a public good which should be available to all, and be shared once it is available in the public domain. It is not a scarce commodity, though it could be outdated if not improved or renewed. ICT increases this knowledge and may even break the “ownership barriers” (like the protection of intellectual property) to reach everyone.

Nevertheless, is everybody able to access knowledge without restriction? Inasmuch as ICT acts as a tool for knowledge dissemination, it also concentrates knowledge in specific geographical areas. Since not everyone has access to ICT products, especially the Internet, knowledge is more concentrated in the North and remains scarce in many parts of the South. For illustration, many higher education institutions worldwide cannot even afford to subscribe online scientific literature. In this case, knowledge is equated with power and those who own it are able to quickly use it for their benefit. “The increased social importance of knowledge, and not so much its distinctiveness, may in fact undermine the exclusiveness of knowledge” (Stehr, 1994, p. 95). According to Castells (2001), knowledge has become a precious commodity that distinguishes successful regions from the unsuccessful ones, developed from developing countries, and stable from “decomposing” societies.

Schiller (1999) contends that the Internet mainly enhances the social and cultural networking of the capitalist economy. He calls it “digital capitalism”, which is a process promoted by multinational companies for their own interest, and asserts that “knowledge carried through the Internet is no less shaped by social forces than it is elsewhere. Far from delivering us into a high-tech Eden, in fact, cyberspace itself is being rapidly colonized by the familiar workings of the
market system” (p. xiv). Schiller further argues that the Internet is a key production and control device for multinational companies that use computer networks to broaden their links in the global marketplace. His contention could be interpreted to mean that the Internet perpetuates the spread of capitalism (in the interest of a few), which only deepens social inequality. This may be true of the digital divide concept that depicts how economically rich societies are more advanced technologically than the poor ones. Further, the liberalized information spaces worldwide still favor the multinationals and the wealthy. Carr-Chellman (2005) argues that, “in general, the restructuring of world telecommunications reflects the resurgence of the North and particularly the United States. Its domestic and international structure mirrors the increasing disparity between the rich and poor” (p. 6). The author decries the false “preaching” by the North that cheaper technologies can promote wider democracy and equality in the South, yet liberalization and privatization have only immensely benefited multinational companies and Northern trading countries.

### 3.4 Distance Education Theories

Although distance education has for many years evolved the process of teaching and learning for the most part through new technologies, Western scholars have questioned the basis or justification for theories in this field. The available literature shows that various theories have been integrated into distance education to explain its importance in the broader system of education. This section has selected and reviewed theoretical foundations for the theories of distance education from the standpoint of prominent contemporary distance educators, and ongoing debates within higher education.

While ICT-based distance education shares similar modes of instruction and delivery of learning materials globally, I find it problematic to apply Western-based experimental theories into the context of a country such as South Africa, which is still grappling with numerous challenges, including non-existent indigenous educational theories. Nsamenang (2011) suggests that educational planners should consider indigenous African values and philosophies during education reform processes, in order to establish relevant theoretical underpinnings to interpret global phenomena. Equally, Kandlbinder (2014) maintains that the theoretical ideas used to elaborate on research project findings “need to be compatible with the culture they address” (p. 2).
Nsamenang and Tchombe (2011) caution against dominant narratives that hinder African-generated educational knowledge and practices from contributing to the emerging global knowledge base. They note that “Africa’s educational theories and social capital can be leveraged to strengthen the continent’s education systems and boost its capacity to own, generate, and share knowledge, albeit within the framework of global trends in educative sciences” (p. 5). While they do not wish to replace Euro-American school curricula and practices in Africa, Nsamenang and Tchombe would like the continent’s international partners to move beyond rhetoric and support transformational education. Africa has experienced increased participation and student throughput rates in formal education, yet there has been little reform in educational content and curriculum. “Although there is worldwide apprehension about educational relevance, Africa’s education, compared to that of the West which it copies unreflectively, does not match curricular contents with the learners’ local realities” (p. 5). The authors foresee a future where African education will not continue its obedience to Eurocentric curricular principles, but will design generative curricula compatible with the global trends of quality education. “The aim of generative education is to secure African cultural identity and to teach African knowledge bases, complementing them with productive techno-cognitive contents and responsible values” (p. 12).

3.4.1 Situating theory in distance education

The ongoing international discourse on distance education features specific country or regional patterns of practice, which have been influenced by political ideologies that steer the institutions of delivery. Therefore, contradictions may emerge in the practice of distance education or in the definition and usage of its terminology within various contexts. In most developing countries where the discipline is still in the embryonic stage, this mode of delivery may be deemed substandard to the traditional mode, especially where students require more learner support than is available. “It is in such situations that a lively debate is likely to ensue which may develop the theoretical bases of the current situation, not necessarily to support, but rather to explain, the status quo” (Harry, John, & Keegan, 2013, p. 233).

Holmberg (1985) contends that the concept of theory is problematical, since it signifies diverse concepts applied commonly to any methodical arrangement of thoughts concerning a phenomenon in a field of inquiry, such as the theory of distance education. For Tight (2014), “the idea of theory, or the ability to explain and understand the findings of research within a
conceptual framework that makes ‘sense’ of the data, is the mark of a mature discipline whose aim is the systematic study of particular phenomena” (p. 250). He maintains that earlier higher education research publications had little or no involvement with theory, though this has changed from his assessment of more recent articles published in the higher quality journals.

Keegan (1993) affirms that the first methodical efforts to deal with a theory of distance education were in the 1960s, even though some scholars in Europe and in the USA had earlier published on distance education. Whereas Europeans, Australians and Canadians are principally credited for conceptualizing and developing theories of distance education, USA scholars initially applied a non-theoretical and practical approach to the field (Saba, 2003). Keegan has identified the distinguished American scholar, Michael G. Moore, as a frontrunner in conceptualizing a theory of distance education. Moore (1973) expressed the need to define this field of education and to agree on what it entails, since scholars were already using non-traditional ways to reach the increasing number of people who could not or chose not to study at conventional institutions. Moore saw the necessity of “describing and defining the field; discriminating between the various components of the field; identifying the critical elements of the various forms of teaching and learning; [and] building a theoretical framework which will embrace this whole area of education” (Keegan, 1993, p. 3).

The 1970s were used by experts to explore diverse terminology, descriptions and definitions, which eventually led to the name, “distance education”. During the 1980s, scholars moved assertively to differentiate and identify the assorted constituents of teaching and learning as they became apparent in distance education. By the beginning of the 1990s, universities were awarding credits for degree programs conducted through distance education, yet “one was faced with the problem of lecturing in a field of study whose theoretical underpinnings were unacceptably shaky” (Keegan, 1993, p. 4).

Garrison (2000) avers that the study of distance education in the 20th century was mainly based on finding solutions for geographical constraints, and establishing organizational approaches to meet the mass production and delivery of learning materials. It was therefore recognized as the industrial epoch of distance education, while the 21st century “represents the postindustrial era where transactional issues (i.e., teaching and learning) will predominate over structural constraints (i.e., geographical distance)” (p. 3). Currently, distance education has to deal with emerging technologies and the shifting educational needs of learning. Nevertheless, has
distance education theory coped with these developments? Does it “possess a synthesis of the principles and concepts capable of explaining and predicting developments in distance education in the 21st century?” (p. 2).

Moore (2003) questions the notion that new knowledge can be generated by persons who do not know what already exists. Thus far, research in distance education largely comprises data without links to previous knowledge. The fervor for new technologies is challenging since the organization, philosophies and issues in distance education are not technologically explicit. “People whose starting point is the technology of the Internet cut themselves off from knowing what is known about distance education, for obviously the Internet is so new a communications channel that what is known in that context is minimal” (p. X). Additionally, Moore finds it futile to focus on technology as a starting point without understanding the wider context of its previous existence in distance education. Hence, he insists that researchers should “base their inquiries and the data they gather and report on a solid foundation of knowledge and exposition of what is already known!” (p. X).

A study by Lee, Driscoll, and Nelson (2004) found that quite a lot of research and practical work attributed to distance education did not seem to be grounded in any specific distance education theory. The study, which was based on a content analysis of four prestigious journals, revealed that distance education hardly echoes educational and psychological theory. Furthermore, the field has a dearth of theory-based studies and researchers seem unconcerned with validity and reliability, especially within quantitative studies. The authors recommend that new research methodology and paradigms are required to propel research in distance education. According to Moore (2003), the atheoretical nature of distance education could lead to technology overriding pedagogy. According to him, theory is central in facilitating the exploration of more complex matters that can result in predictable generalizations.

From the perspectives of Garrison (2000) and Saba (2003), while there are similarities and differences in the theoretical framework for distance education, Moore’s Transactional Distance Theory seems to have gained prominence and acceptance among other theorists. Similarly, Gokool-Ramdoo (2008) laments on the confusion surrounding the search for a “global theory” of distance education, and questions which concepts and constructs can be used to elaborate the activities of distance education. In her opinion, in order to go beyond the theoretical impasse:
It is proposed that the Transactional Distance Theory be taken as a global theory for the following reasons: the current need for a global theory is still recognised thereby suggesting a vacuum that has to be filled; it carries elements that are inherent in all the other theories developed so far while the converse cannot be asserted; most earlier theorists are now recognising the transactional nature of distance education and are modifying their own earlier propositions in terms that reflect aspects of the TDT. (p. 3)

Apart from exploring the significance of separating learners from their instructors, Moore’s theory of transactional distance offers “a comprehensive framework for considering distance learning, a framework that is open enough to accommodate new parts but robust enough to provide practical solutions” (Starr-Glass, 2013, p. 116). The framework seems relevant for Web 2.0, which is loosely seen as the second generation development of the World Wide Web that includes the sharing of user-generated content, and social media interactions on wikis, blogs, Twitter, Facebook, and so forth, according to Starr-Glass.

3.4.2 Interpreting Moore’s theory of transactional distance

This subsection attempts to interpret Moore’s transactional distance theory within the current framework of ICT-supported distance education. According to Stein, Wanstreet and Calvin (2009), Moore’s (1993) “transactional distance theory holds that the physical separation of the learner and instructor can lead to psychological and communication gaps that create misunderstandings and feelings of isolation” (p. 306). The theory is not based on the notion of geographic or spatial distance between the learner and instructor, but on the psychological and communication gaps that separate them, leading to disruption in the learning process (Albion, 2009; Saba, 2016).

Moore (1989) states that while interaction in distance education was initially between the learner and instructor (who facilitates learning), the learner’s interaction with content has always been a fundamental component of education. Learner to learner interaction became a new concept in distance education when face-to-face classes were added. However, with the introduction of ICT (particularly the Internet) into the field of distance education, learner to learner and instructor to learner interactions have increased, regardless of geographical distance. “Technology-mediated learning contexts offer high potential to narrow some of these
communication gaps by closing this space between learners and the learner and instructor” (Huang, Chandra, DePaolo, & Simmons, 2016, p. 734).

Amundsen (1993) has interpreted some key perspectives of distance education, which emphasize that the centrality of learning should be above the idea of learner and distance. She argues that although distance is a key factor, it is construed in relation to its effect in achieving the anticipated learning. “The traditional educational relationship of teacher, learner and content is held intact, but the teacher-learner relationship is notably altered by distance or separation in place and time” (p.65). In Table 3.3, Amundsen (1993) presents diverse theoretical perspectives from selected distance education theorists that compare their main focus and impact upon the educational process.

Table 3.3: Comparison of theoretical perspectives

<table>
<thead>
<tr>
<th>Framework</th>
<th>Central concepts</th>
<th>Primary focus</th>
<th>Apparent influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peters</td>
<td>Industrial Postindustrial</td>
<td>Match between societal principles and values</td>
<td>Cultural sociology</td>
</tr>
<tr>
<td>Moore</td>
<td>Transactional distance (dialogue, structure) Learner autonomy</td>
<td>Perceived needs and desires of the adult learner</td>
<td>Independent study</td>
</tr>
<tr>
<td>Holmberg</td>
<td>Learner autonomy</td>
<td>Promotion of learning through personal and conversational methods</td>
<td>Humanist approach to education</td>
</tr>
<tr>
<td></td>
<td>Non-contiguous communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guided didactic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conversation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keegan</td>
<td>Reintegration of teaching and learning acts</td>
<td>Recreation of interpersonal components of face-to-face teaching</td>
<td>Framework of traditional pedagogy</td>
</tr>
<tr>
<td>Garrison (Shale, Baynton)</td>
<td>Educational transaction Learner control Communication</td>
<td>Facilitation of the educational transaction</td>
<td>Communication Theory Principles of adult education</td>
</tr>
<tr>
<td>Verduin and Clark</td>
<td>Dialogue/Support Structure/ Specialized competence/ General competence/Selfdirectedness</td>
<td>Requirements of both the learning task and learner</td>
<td>Principles of adult education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Structures of knowledge</td>
</tr>
</tbody>
</table>

Source: Amundsen (1993, pp. 63-64).
Three constructs in Moore’s theory, namely, *dialogue, structure* and *autonomy*, are used to measure the quality and quantity of communication between the learner and instructor. They are important in reducing the level of miscommunication and misunderstanding between the instructor and learner, in terms of course content (Stein et al., 2009). Saba (2016) explains that *dialogue* represents the degree of response between the learner and educator, and is determined by their personalities, philosophy of education and environmental factors, such as the medium of communication. *Structure* measures the receptiveness of an educational program to a learner’s personal requirements. “It expresses the extent to which educational objectives, teaching strategies, and evaluation methods are prepared for, or can be adapted to the objectives, strategies, and evaluation methods of the learner” (p. 23). *Autonomy*, on the other hand, indicates the decision by learners on what to learn, how, and to what extent they should learn.

In order for distance education courses and programs to benefit learners, they should be structured with flexibility. Moreover, dialogue should be encouraged between instructors and learners, despite the spatial distance between them. Finally, the capacity for learners to self-direct their participation in the educational process should also exist (Chawinga & Zozie, 2016). Moore’s three constructs can also be used in the context of South Africa.

An experimental study by Saba and Shearer (1994) found that an increase in dialogue results in decreased structure and transactional distance. However, as structure increases, so does transactional distance, while dialogue decreases. On the other hand, high autonomy and low dialogue can still lead to low transactional distance, because the autonomous learner may not necessarily require higher degrees of dialogue. Though there is an inverse relationship between the three constructs, the one between structure and transactional distance is not well defined, partly because it is questionable whether a high occurrence of structure can result in decreased dialogue, and eventually, increased transactional distance (Saba, 2016).

Whereas Moore’s transactional distance theory is hailed as a well-rounded pedagogical or cognitive theory in distance education that emphasizes the centrality of learners in the educational process, its three constructs of dialogue, structure and autonomy, lack empirical verification (Goel, Zhang, & Templeton, 2012; Gorsky & Caspi, 2005; Huang et al., 2016; Starr-Glass, 2013). In this regard, Huang et al. (2016) suggest that the theory:
May need reconsideration in light of the advancement of distance education from limited communication channels to richer, more interactive modes of communication. Moore (1993) indicated an inverse relationship between structure and dialogue in the context of interactive video or audio used primarily as a one-way lecture presentation mode. (pp. 736-737)

In conclusion, Starr-Glass (2013) contends that the emergence of advanced distance learning practices and initiatives such as massive open online courses (MOOCs), which are enhanced by ICT, “raise questions about the way in which learning occurs, how it is measured, and how learning accomplishment will be recognized institutionally. To be productive, these possibilities have to permit learners to connect with subject matter and with co-learners” (p. 137). The author suggests that for these opportunities to be effective, it behooves the field of distance to apply more captivating theories of action, which will shape the experience of learners and their personal engagement with learning.

3.5 Summary

This chapter has reviewed comparative global patterns in higher education experienced during the second half of the 20th century, which included increased demand by students, employers, national governments, and so forth. However, socioeconomically disadvantaged persons, women, people with disabilities, and ethnic minority groups worldwide, still face barriers in participation due to diverse factors. It has been shown that the decline in state subsidies for financing public higher education led to cost-sharing largely in the developing countries during the 1990s. The concept was introduced based on the economic rate of return model, which argued that there were more private benefits than social benefits for public higher education graduates. As such, they needed to pay for tuition and other service fees on their own. Recommendations from the World Bank and the IMF that economic reforms were required to make higher education more efficient in delivery and output, led to the unpopular structural adjustment programs (SAPs), which have been highly criticized for reversing the earlier participation gains in public higher education within developing countries (see section 3.2).

The chapter has found that as public funding declined, distance education was adopted as a means of meeting the increasing student demand for higher education, and generating revenue. The underprivileged students would be offered cheaper education through the model, since
traditional learning had more institutional costs. It is argued that ICT has blurred the conventional way of providing distance education because traditional universities use its components (now mainly the Internet) to deliver courses. Efforts to provide cost-free online courses have brought forth new models such as open educational resources (OER) and massive open online courses (MOOCs), which have increased access to learning materials. However, it is not yet clear how higher education systems will handle these developments, given that they are informal contributions to learning, which are being applied in formal settings.

Though the Internet is currently more accessible through mobile telephones particularly in most developing countries, almost four billion people remain without access. Similarly, poor technological infrastructure, insufficient ICT-skilled personnel and lack of strategies to implement ICT into education, are matters that still need resolving in these countries (see section 3.3).

With regard to distance education theories, the chapter has argued that Moore’s transactional distance theory is the closest in understanding the needs of distance education participants, since it maintains that psychological and communication barriers are more likely to isolate them, than physical (geographical) ones, leading to disruption in the learning process. However, ICT enables instructor-learner and learner-learner interactions, and also bridges some spatial hindrances that were more prevalent in the print mode of distance education. Moore’s three constructs; namely, dialogue, structure and autonomy, are important in measuring the quality and quantity of interaction between learners and instructors. Educational content should therefore be structured flexibly, and dialogue should be promoted between instructors and learners. Finally, learners should be offered the chance to account for their participation (see subsection 3.4.2). The next chapter presents the methods of data collection used in the present study.
Chapter 4: Research Methodology

4.1 Introduction

This chapter presents the research design and methods of data collection used to achieve the objectives of the present study. It also discusses the strengths and weaknesses of the electronic surveys that were used to gather data. Details of the data collection procedures are contextual and explain the challenges I encountered during fieldwork in South Africa.

4.2 Research Design

A case study research design was applied to achieve the objectives of this study. Patton (1987) affirms that “a case can be a person, an event, a program, a time period, a critical incident, or a community” (p. 19). Though case studies embrace both quantitative and qualitative methods and various data collection techniques, Yin (1993) states that:

A point of confusion has been the unfortunate linking between the case study method and certain types of data collection - for example those focusing on qualitative methods, ethnography, or participant observation. People have thought that the case study method required them to embrace these data collection methods. On the contrary, the method does not imply any particular form of data collection - which can be qualitative or quantitative. (p. 32)

In the present study, quantitative data involved the administration of email and web questionnaires to selected students, while qualitative data included interviews with selected students, course facilitators and an Internet café manager. Observations were also made at the case institutions and at the Internet café.

Quantitative methods employ standardized measures that accommodate various opinions and experiences from a large group of respondents, into predetermined response categories (Patton, 1987). Although quantitative measures often depend on a limited set of questions, the generated data can be statistically aggregated, while the findings can be compared and generalized. On the other hand, qualitative methods allow the researcher to study selected cases, events or issues, without predetermined response categories. They provide deeper meaning from a smaller group of people that one interacts with. Patton clarifies that in the case study design, there are no strict
rules in data collection and choice of methods, since everything depends upon “an interplay of resources, practicalities, methodological choices, creativity, and personal judgments by the people involved” (p. 9).

Gillham (2000) maintains that a case study investigates issues to answer specific research questions while searching for a variety of evidence within the case. These have to be abstracted to find the most likely answer to the research question. No single evidence is enough and multiple sources of verification, therefore, form the main feature of a case study research. Case studies are useful for an in-depth understanding of particular problems or situations. Additionally, a case study design makes it possible to get explanations and interrelations between patterns within a system, and not just within a single loose variable. Although case study techniques can be deemed subjective, a researcher’s personal judgment is an important part of scientific inquiry, and should be neither subjective nor objective. Evidence produced must be open to scrutiny in an acceptable scientific way, to provide credibility (Sturman, 1997).

To meet the objectives of this research, five distance higher education institutions in South Africa were selected for case studies. The first four (Cases 1-4) were chosen in order to answer the first two objectives, which were: (1) to analyze the views and experiences of selected higher education students in South Africa concerning the use of diverse ICT equipment and the delivery of learning content for distance education. (2) To analyze the views and experiences of selected course facilitators (assistants) on how they carried out their work at a distance education institution in South Africa. The fifth one (Case 5) was selected to fulfill the third objective, namely, (3) To analyze the views and experiences of selected students who used the services of an Internet café at a technikon (university of technology) in South Africa.

Table 4.1 provides a brief description of the five cases according to information that was available on the institutions’ websites in 2002. I chose not to reveal the names of the institutions as explained in section 4.3 of this chapter, which discusses confidentiality and anonymity in research ethics. The rationale behind choosing Cases 1-4 was based on their provision of distance education, whereas the Internet café was selected to understand how a private company provided ICT services at a public distance education institution. Section 4.5.3 presents a detailed account of how the cases were selected, while section 6.2 in Chapter 6 describes their profiles further.
Table 4.1: A brief description of the five case institutions

| Case 1: Pharmacology and Master of Business Administration (MBA) | This was a distance education institution based at a former whites-only contact (traditional) university. It applied “appropriate technologies” to teach and deliver distance learning materials that included study guides (printed course materials), video tapes, Compact Disc Read-Only Memory (CD-ROM) devices and examination schedules, which were sent by post to registered students in the beginning of each semester. Case 1 also offered scheduled face-to-face (F2F) meetings with distance education students at various learning/study centers in South Africa. The Pharmacology program was web-based and enrolled postgraduate students that were required to have basic computer and Internet skills before admission, since they could only reach their program manager and advisors by email or telephone. The MBA students met F2F for classroom sessions and examinations. Case 1 was an example of institutions that had introduced distance education as a means of attracting nonwhite students in order to generate extra income. The academic programs manager informed me that in 2002, there were 32 students registered in the postgraduate Pharmacology program, and 567 students in the MBA program. |
| Case 2: Virtual Campus | This was a distance education technikon that had developed a virtual learning environment (VLE) called Virtual Campus. The institution offered both undergraduate and postgraduate studies and had enrolled 12,000 students to use the Virtual Campus in 2002, according to information given to me by the web developer (software expert). |
| Case 3: E-University | This was an electronic university that offered teaching and learning services to traditional South African universities that wished to put their programs on the Internet. Students were registered at those universities but studied through the E-University’s VLE, which was available at the institution’s website. It enrolled both undergraduate and postgraduate students who also attended F2F lectures, and sat their examinations at designated learning centers. There were 4,000 students registered at the E-University in 2002, according to website information. |
| Case 4: Distance Education University | This was a distance education university that had integrated ICT into some of its programs. It registered both undergraduate and postgraduate students and used email and an online student portal (Internet site) to interact with them, and to provide information about examinations and other services. In 2002, there were 120,000 students registered at the university to use the online services. |
| Case 5: Internet Café | This was an initiative by a private company that collaborated with some institutions of higher education in South Africa to offer them ICT-related services. Its main aim was to improve the quality of education offered to students through services such as email and Internet, printing and scanning facilities, photocopying, fax and CD-writing. These services were provided at particular on-campus Internet centers, especially to students who did not have Internet access at home or at work. Though many institutions had on-campus computer laboratories, their opening hours were restricted and not all students accessed them. In 2002, there were 2,000 students registered in the café’s database, according to the manager. |
4.3 Ethical Considerations

Research ethics involves matters related to a researcher’s ethical conduct within the process of executing research. The Swedish Research Council (2011) avers that research ethics is a broad area and includes various laws, guiding principles, codes of ethics and professional standards, all of which “the researcher should be familiar with and follow in his or her work so that it can be conducted in both a legally and ethically sound way” (p. 14). The following measures were taken as required in research ethics, in order to conduct the empirical part of the current study.

At my former institution, the Institute of International Education (IIE) at Stockholm University, we held mandatory public seminars every Thursday, which involved all the students and academic staff who presented and discussed their research before and after fieldwork, findings, project proposals, ongoing projects, and so on. The sessions exposed one’s work to a critical audience that provided diverse opinions for improvement. Likewise, supervisors used the occasions to encourage students to revise their work, offer them methodological inputs and instructions on expected procedures, and personal conduct during fieldwork. Besides, the seminars enabled colleagues to familiarize themselves with ongoing research projects at IIE. The Swedish Research Council (2011) asserts that creating a transparent research environment at an institution enhances good research practice and prevents misconduct. Working in isolation may lead to acts of plagiarism, whereas exchanging ideas or texts can help to detect (early enough) what is not accredited to a colleague, before his or her work goes public.

Thus, active work with seminars at a department can be a way to strengthen research ethics. If I know my colleagues want to know something about my research, material, texts – i.e., how the work on my research project is going – this in itself will be an inhibiting factor if I am ever tempted to cheat. (p. 113)

In order to meet the pre-fieldwork requirements at IIE, I held a seminar in January 2002 to discuss the structure of my study and anticipated field challenges. Since I had planned to use email and web surveys for data collection, the seminar participants wondered how I would reach an adequate sample size, considering the limited Internet coverage in South Africa at that time. All the same, I maintained that electronic survey methods needed to be tested because they were relatively new then within educational research. It was also important to test the strengths and
weaknesses of such methods, which required a dense population of Internet users for optimum response rates. The seminar provided me with a wealth of experience from those who had conducted field research in the past.

(i) Informed consent

Informed consent exists specifically when subjects have been made fully aware of the goal of a study and its probable risks and advantages, so that they can pull out at any time. As such, the decision by subjects to participate in a study must be totally unrestricted (Comstock, 2013). “If subjects have for any reason not made careful and deliberative choices, then their informed consent is lacking even if all policies and procedures have been fulfilled” (p. 171).

It was important for me to get official permission to support my fieldwork in South Africa. In this respect, I was provided with a letter of consent by my institution. Similarly, my host university in South Africa offered me a letter to assist in getting approval from potential universities to participate in the research. “When getting written permission, it is also important that the person you talk with has the authority to give that permission and that your activities are organized well in advance” (Polonsky & Waller, 2010, p. 80). The letter of consent from my host institution requested course facilitators and lecturers to permit my entry into classrooms or learning centers, in order to make observations. An overt observation approach was applied, which was important because according to Patton (1987), the staff and participants should know that they are being observed.

(ii) Email and web surveys

I found the questionnaire for Cases 1-4 on the Internet, having been used earlier in a study at the New Jersey Institute of Technology, USA (see section 4.4 on the research instruments used). I communicated by email with the project leader, Professor Roxanne Hiltz, and got her permission to use the questionnaire as long as I acknowledged her in the dissertation, as required in research ethics. I sincerely acknowledge Professor Hiltz for allowing me to use her questionnaire. The second questionnaire for Case 5 was adapted from an Internet café survey that was posted online under the title, FREE Online Survey Questionnaire Research by my3q. However, the questionnaire did not have any contact to request for its use. Bryman (2012) suggests that, “you
would be advised to contact the researchers concerned regarding the use of questions they have devised” (p. 264).

With regard to online surveys, Buchanan (2011) suggests that as the method expands, boards of ethics and researchers should contemplate its methodological and ethical implications.

The choice of an online survey should be made with reason and attention to integrity and responsibility, not only with an eye to convenience and possible research outcomes, including possible benefits of such research for both the researcher and others. (p. 102)

(iii) Confidentiality and anonymity

It is important to protect the identity of prospective participants by declaring in an accompanying letter, the purpose of one’s study. The University of Leicester (2007) recommends that:

Organisations, units, and groups may also need their anonymity protected. Geographical information, combined with the type of organisation, can give away identity quite quickly. Take as many precautions as you can to protect anonymity, and only promise the level of anonymity that you can realistically provide. (Maintain Anonymity and Confidentiality section, para. 2)

In order to meet the requirements of anonymity and confidentiality, I attached cover letters (see Appendices A1 and A2) to both questionnaires requesting students in South Africa to complete all the questionnaire items voluntarily and anonymously. They were also assured that their responses would only be used within the context of my study. When I later received responses from the email survey, they contained respondents’ names and email addresses, while the web survey had respondents’ Internet Protocol addresses or computer identifiers. It was therefore clear that the process had not been entirely anonymous. Consequently, I deleted all the identifiers before conducting analysis. Bryman (2012) contends that though challenges still abound in the ethics of Internet research, basic ethical principles should be followed.

Complete protection anonymity is almost impossible in Internet research, since, in computer-mediated communication, information about the origin of a computer-generated message,
revealed for instance in the header, is very difficult to remove. It is more difficult to guarantee confidentiality, because the data are often accessible to other participants. (p. 680)

As required in research ethics, case numbers (Case 1, Case 2, Case 3, Case 4 and Case 5) were assigned to the institutions that participated in my study, to conceal their identities. Yu (2008) maintains that, “the importance of confidentiality as one of the most important ethical principles in academia dictates that researchers often promise confidentiality and anonymity to all participants as default condition” (p. 162). Additionally, Rosier (1997) recommends that survey findings ought to be presented in a way that would “prevent the identification of individual respondents” (p. 159). Correspondingly, Polonsky and Waller (2010) state that if a researcher does not know the identity of who has participated in his or her study, then “individual confidentiality and anonymity are usually protected” (p. 75).

4.4 Research Instruments for Data Collection

**Documents.** Literature was selected from books on higher and distance education, Internet sources, scholarly journal articles, newspapers, official documents from the government of South Africa, and other written materials. In cautioning about the use of Internet documents, Bryman (2012) recommends three things: the authenticity, credibility and representativeness of websites on required topics. For this study, Internet documents were verified by checking that their web addresses and contents were linked with higher education matters and relevant institutions. In particular, Google Scholar, which is a web resource for academic literature, was quite important for citing sources. Likewise, the online Stockholm University Library provided access to numerous research databases. Data gathered from personal observations, past readings, seminars and conferences, were equally important. Relevant materials were thereafter referred to while writing the literature review in Chapter 3. A literature review is important for bringing out ideas and arguments from similar research in order to support a researcher’s interest (Bryman, 2012).

Coffey and Atkinson (1996) state that documentary data are vital in any scientific inquiry and should be given appropriate attention. However, they should not be treated by a researcher as the “ultimate answers” to research questions, even if they mirror the thinking of an organization. In order to describe and analyze distance higher education in South Africa, official reports and publications were gathered from the websites of the case institutions, the government of South
Africa, and relevant web portals for South African higher education institutions. Print materials gathered during fieldwork such as books, research papers, and newspaper articles, were also important for referencing.

**Questionnaires.** Two existing questionnaires were used to conduct the email and web surveys. Existing questionnaires mean those that are already available, taken from other researchers. Bryman (2012) advises that existing questionnaires can be used because they have already been piloted. If they have also been tested for reliability and validity, then it is possible to measure and compare one’s research outcomes with those of others. Nevertheless, similarity in culture and other contexts need to be considered. “At the very least, examining questions used by others might give you some ideas about how best to approach your own questions, even if you decide not to make use of them as they stand” (p. 264). A weakness with existing instruments is that their concepts may not be fully applicable in another study (Rosier, 1997).

Details of how I found the electronic questionnaires have already been mentioned in section 4.3 under (ii) email and web surveys. Besides, as a follow-up to my pre-fieldwork seminar, I distributed samples of the proposed questionnaires by email to my colleagues and academic staff at IIE for a “tryout” process. The purpose was to solicit views to improve the wording and structure of the questionnaires. Feedback was received via email and face-to-face meetings with some colleagues. Consequently, corrections and modifications were made on the layout, and open-ended spaces with “Other, please specify”, were created for additional information. Wolf (1997) affirms that an attractive questionnaire gives the respondent an easy time in reading and responding within a short time. “Consideration needs to be given to the size of type, sequencing of items, provision of adequate space to answer unstructured items, and other details of presentation” (p. 424). The final version of the questionnaire for Cases 1-4 (see Appendix A1) has a closed-ended and open-ended design with 47 questions found in the following eight sections:

A. Background Information  
B. Experience with Computers  
C. Equipment Access  
D. Video and Material Ratings
E. Asynchronous Learning
F. Access to Online/Virtual Lectures
G. Program Delivery/Learning Support Technologies
H. Comparison Between ICT-based Learning and Traditional Learning Modes

The questionnaire for the Internet café study (see Appendix A2) comprises 24 closed and open-ended questions found in three sections; namely:

A. Background Information
B. Experience with Computers
C. Accessing and Using Facilities at the Internet Café
D. Overall Comments and Suggestions for Improvement

**Interviews.** Unstructured interviews were held with selected students and course facilitators at Case 1 only. This type of interview requires an interview guide or *aide mémoire* that consists of various topics of interest for the interviewer (Bryman, 2012). Unstructured interviews are conversational and flexible, and encourage open-ended responses from the interviewees (Zhang & Wildemuth, 2009). Subsection 4.5.3 of this chapter describes how the interviews were conducted. The interview questions are available in Appendices A3 and A4.

**Informal interviews.** Informal talks on various matters were held with staff members, the Internet café manager, and students at the participating institutions.

**Non-participant observations.** Observing activities and facilities at the learning centers provided a hands-on experience with ICT-based learning environments. I made observations but did not participate in the activities carried out by students at various learning centers that I visited in South Africa. Patton (1987) posits that this method of observation is important because it enables one to understand the context within which the activities being observed do occur. Details of the observations are reported in subsection 4.5.3 of this chapter.
4.5 Data Collection

Fieldwork. According to Patton (1987), “fieldwork involves getting one’s hands dirty, participating where possible in actual program activities, and getting to know program staff and participants on a personal level” (p. 16). Conducting fieldwork in South Africa was very important because it enabled me to gather primary data. Fieldwork activities have been reported on a case-by-case basis under in subsections 4.5.2 and 4.5.3 of this chapter. Table 4.2 illustrates these activities and the total number of respondents in the surveys. Details of the data analysis procedures are available in Chapter 5 of this thesis. Fieldwork was conducted in South Africa from February 2002 to May 2002.

I was hosted by the management of Case 1 that offered me a room with a desk to use during my field trip. Since they had willingly agreed to join the survey, I gave the questionnaire to the academic programs manager who reviewed it and then advised that questions regarding videoconferencing, teleconferencing and virtual learning, were not relevant since they did not offer such services. However, I did not remove them because I wanted to have a standardized format for all the case institutions.

Efforts to include other universities in the surveys were frustrated by the fact that it was not easy to get institutions, given the technological challenges faced by those who were contacted. Most institutions had only one web support person, so they could not carry out extra tasks. Some institutions did not even have on-campus Internet access to students, so they could not participate in the study. Nevertheless, they were willing to join if the questionnaire was hosted online elsewhere. At my institution in Sweden, technological competence in designing a web-based survey was not available then, so the most workable solution was to find an institution that could do this in South Africa. I therefore turned to some staff members at Case 1 to get me the contact persons at other universities with ICT-supported distance education. They recommended some, whom I contacted by email and telephone. This was the beginning of a snowball sampling process to fetch institutions and participants to take part in the study. Patton (1987) describes snowball sampling as “an approach for locating information-rich key informants or critical cases” (p. 56). Opportunities to involve more participants were increased when my host institution conducted an international conference on ICT in April 2002, where I met some people who were willing to have their institutions in the ICT-based distance education survey.
Table 4.2: Fieldwork activities

<table>
<thead>
<tr>
<th>Institution</th>
<th>Email survey</th>
<th>Web surveys</th>
<th>Observations &amp; informal interviews</th>
<th>Unstructured interviews</th>
<th>Total of survey respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1: Pharmacology and MBA</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>74</td>
</tr>
<tr>
<td>Case 2: Virtual Campus</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>503</td>
</tr>
<tr>
<td>Case 3: E-University</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Case 4: Distance Education University</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>Case 5: Internet Café</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>274</td>
</tr>
<tr>
<td>Total number of respondents</td>
<td>-</td>
<td>_</td>
<td>-</td>
<td>-</td>
<td>879</td>
</tr>
</tbody>
</table>

4.5.1 Electronic surveys

Questionnaires were administered by email to the Pharmacology and MBA students at Case 1 and on the Web, for Cases 2, 3, 4 and 5. According to Pocknee and Robbie (2002), “web-based surveying is becoming widely used in social science and educational research. The web offers significant advantages over more traditional survey techniques however, there are still serious methodological challenges with using this approach” (p. 2). Walsh, Kiesler, Sproull, and Hesse (1992), and Dillman and Bowker (2001), are among those who have extensively investigated the scientific challenges and benefits of this method since the 1990s. They found that the most common mode is the self-administered/selected questionnaire, which means that the respondent chooses/selects to participate in the web survey. The authors postulate that posting questionnaires online is less expensive than using conventional post, and the time spent to send questionnaires electronically is also less, compared to using print services. However, the validity and reliability of web survey results are often doubted because of the self-administered or self-selection style (Pocknee & Robbie, 2002). In what Dillman (2000) describes as the foundations for carrying out a quality survey, he identifies the following four types of error, namely:
**Sampling error:** this occurs when only a section of the population is surveyed; such as, only those with Internet access, and not a whole group. This could also mean that the outcome of the survey cannot be generalized to the whole population.

**Coverage error:** when a list used in the selection of a survey sample does not contain all the subjects within a target population, then a sampling bias occurs. For instance, since the Internet is not yet accessed by everybody, a large part of the population may be left out of a survey.

**Measurement error:** this results from wrong answers due to poor wording in the survey instrument. It may also cause invalid and unreliable survey results.

**Nonresponse error:** this occurs when respondents do not provide usable responses. (p. 9)

Balestrino (1998) advances the argument that potential respondents require technological know-how to participate in electronic surveys. Additionally, valid sampling methods are still problematic even if the target groups are Internet users. Targeting groups with high Internet concentration and designing better sampling methods could resolve the matter. Subsequently, the only problem to deal with would be non-response errors. While increased usage of the Internet will slowly solve the non-coverage problem, non-serious respondents may enter fake data when participating in Internet surveys. Balestrino argues that unit non-response, multiple or duplicate responses from the same respondents, correspondingly affect the self-selection method of data collection. Although the author suggests that there are various strategies that can be applied to stem such errors, they were beyond the scope of the present study.

Although electronic surveys still have a number of limitations, they can be improved to become as good as any other survey method, according to the findings of a study by Gosling, Vazire, Srivastava, and John (2004), which evaluated six preconceptions about self-selected Internet (questionnaire) samples (N = 361,703) and compared them to traditional (pen and paper) samples (N = 501 published samples). The results challenge the view that traditional data collection methods are better than Internet-based methods. They conclude that, “our analyses show that many objections against Internet data are unfounded and that the Internet methods provide many advantages over traditional methods” (p. 102). From the study, Gosling et al. (2004) became confident that Internet data collection methods could produce valid results just like traditional methods.
4.5.2 Conducting the electronic surveys

Case 1

The Pharmacology and MBA module advisors distributed the questionnaire by email to all their students. These students were selected because they were available in the institution’s email database (mailing list). The email survey ran for two weeks in February and an email follow-up was sent by the program advisors urging students to participate. The respondents sent their responses by email to the advisors who copied and saved them on a writable compact disc (CD) that was handed over to me. I then stored the material on the hard drive of my laptop computer for safety.

Case 2

In March 2002, I contacted a member of staff at the Virtual Campus who was eager to know more about the survey. An email attachment with the questionnaire was then sent to the person with overall responsibility for managing the Virtual Campus. After a few days, I received an email from him confirming that they would participate. The official also emailed documents that summarized the institution’s activities. In order to participate in the electronic survey, they would delete some questions that were not relevant to their VLE, then post the questionnaire on their website with a real-time feedback interface. The questions to be deleted, which could have been regarded as personal, asked students to state their (2) Faculty; (3) Learning center; and (9) How many online learning courses they had taken previously (see Appendix 1). I accepted their deletion since they would not significantly affect the results.

In order to design the online interface and feedback section of the web survey, Case 2 would charge me ZAR 4,500 (1 Rand = $0.075 in May 2017) including taxes. The official also suggested that an incentive in the form of a lucky draw for a small prize like a Walkman or a portable CD player be offered to the survey participants. He mentioned that such incentives had proven very successful in the past, and had motivated students to participate in their surveys. Normally, they charged around ZAR 8000 plus taxes for such a project, but they requested if they could use the questionnaire feedback for their own purposes later, in return for a discount, which I agreed to. The provision of cash or other incentives in web surveys is an issue for discussion. Research shows that since most users pay for Internet access, it is logical to offer them either
cash or material prizes to appreciate for their time (Manfreda, Batagelj, & Vehovar, 2002; Walsh, Kiesler, Sproull, & Hesse, 1992). Offering incentives also enhances the rate of response (Bryman, 2012).

The web developer at Case 2 communicated with me via telephone and email, and after he had designed and posted the questionnaire online, he sent me some Internet addresses so as to test the questionnaire. The questions had clickable checkboxes with spaces for open-ended comments and sections that were placed on single pages with a clickable button below to submit each page after answering. This design was user-friendly and it was easy to turn to the next page. After testing the questionnaire, it was ready for posting at the end of March on the Virtual Campus website. Students would thereafter login and participate in the survey, which ran from April to the end of May 2002. During that period, I used a password they had given me, to access and monitor the survey’s progress through the Uniform Resource Locator (URL), which is the technical term for a location or address where documents are identified on the Internet.

I returned to Sweden in May and continued to monitor the survey feedback section, which automatically provided participation level estimates by percentages. The survey was terminated at the end of May, and the results were sent to me electronically by the web developer.

**Case 3**

During the ICT conference in April, I met with the manager of a private corporate learning institution that offered online degree programs through their E-University (electronic university). He mentioned that they had an Internet portal, which offered services to traditional South African universities that wished to put their programs on the Internet. Though their students were registered at various traditional universities, they studied through VLEs available on the E-University website. While it was fully online, the university also had campuses in other African countries where students would meet to sit examinations and participate in other activities.

The manager took a sample of my questionnaire in order to decide whether they would participate in the survey. When I returned to Sweden, I communicated with him and he eventually agreed that they would develop a web page for the questionnaire and request their students to participate. The questionnaire was posted online in early June 2002, and a URL for the trial version was sent to me, which I tested and found working. Case 3 promised to run the
survey within a week from that time. Thereafter, a female staff member dealt with the survey process. The survey was conducted for one month and in September, she emailed me a URL to access the results.

**Case 4**

A trip to the Distance Education University during fieldwork enabled me to meet the person responsible for its ICT operations. He agreed that they would join the survey if a URL was availed to their students to access. I later discussed with the head of my institution in Sweden the possibility of creating a virtual space on our homepage to conduct the survey. However, since we did not have technological expertise internally, we received assistance from an external web developer who created the space and posted the questionnaire. He then sent me a trial version that was workable. The questionnaire was designed on a single page format with clickable checkbox buttons and open-ended sections. At the bottom was a button to submit the responses, which would be stored as raw data on my computer’s hard drive. A URL was subsequently sent to Case 4, and the survey ran from August 2002 to February 2003.

**Case 5**

Case 5 was selected when I attended a day’s seminar at a technikon on May 8, 2002 and found that it had a private Internet café. I met the manager who welcomed the idea of administering the web survey because he also wanted to know what the students thought about their services. He agreed to upload the questionnaire on the Internet café’s website once it was ready to be accessed by the students who used their services. He proposed a cash incentive to motivate them to participate. The incentive was to offer each willing student free access to the Internet for the first 30 minutes. I later paid the manager ZAR 400 to compensate for the free access time he had given the survey participants. The Internet café survey was conducted after my return to Sweden. On July 28, 2002, I received an email from the manager stating that he had finally uploaded the questionnaire onto their website. He also gave me a URL to test if it was working. The questionnaire was designed on a single page with clickable buttons and the responses, once submitted, would automatically be fed onto a spreadsheet on their café’s server (a device that
manages network resources). After confirming to him that the questionnaire was accessible, the manager advertised the survey on their campus weekly online bulletin to urge the café users to participate. The survey ran for one month in August, and on September 2, 2002, he sent me an email with an attached file containing the responses.

4.5.3 Observations and interviews

This section lists the qualitative field activities that I undertook. Observations were made at Cases 1, 2 and 5 only, while unstructured interviews were held with students and course facilitators at Case 1.

Case 1: Classroom observations. I made four visits to three learning centers linked with Case 1, where I met different undergraduate student groups and course facilitators. The groups comprised a maximum of ten students each. The facilitators introduced me and I would either sit in front (next to them), or a few meters away among the students. They were always informed in advance about my visit.

Learning centers were physical places (rooms/halls) owned or rented by distance learning institutions for use by their students. They were situated within the institutions’ buildings or on campuses located elsewhere, and enabled distance education students in geographically remote areas to meet their colleagues and course facilitators, especially if they could not travel to the main institution situated far away. Students met once or twice a month (depending upon their program schedules), to interact with their colleagues and course facilitators by asking questions, watching video tapes and attending lectures. Facilitators guided them by clarifying key issues that they had come across during their earlier readings, but did not offer them full-time lectures. The facilitators, who worked on a part-time basis, were either qualified university lecturers or postgraduate students. Other facilitators were also hired independently (from outside the institution), depending upon their expertise. Students sat their examinations at the centers.

During one of the visits, I had the opportunity to interview a male facilitator who could not hold his session because only one student had attended, though he had expected eight students for the MBA class. The sessions were normally held in the evening (after 16:00) because most of the students were workers who could only study part-time. I walked into two other classrooms that evening and learnt that the participants were on-campus undergraduate students who took
distance courses. I also noticed that the facilitators asked questions on assigned tasks and then brought up topics to encourage contributions from students. Although the lessons were conducted in the English language, it was observed that the facilitators translated certain sentences from English to Afrikaans (code-switching), in order for the Afrikaans-speaking students to understand words that were difficult in English. During another session, two students spoke Afrikaans and the facilitator used English for the non-Afrikaans speakers to understand. Case 1 was categorized as an Afrikaans-medium university during apartheid. I observed too that students often rushed to their cars and drove away after the classes, which ended around 20:00. It was therefore not easy to conduct interviews with them.

The web-based Pharmacology students were assigned a technology-support person who was on standby via a mobile telephone every day, from 07:00 to 22:00. The support was important because they used a virtual learning platform to do their assignments, and to communicate with the module manager and advisors asynchronously. The support person’s operations included responding to students’ problems via email and telephone communication. The students usually encountered problems on the institution’s website while logging in, accessing the Internet, or other related matters. On a few occasions, I managed to listen when the technology support person advised students to reconfigure their computers, download software or contact their Internet Service Provider, depending upon the type of problems they faced. He was often very busy between 18:00 and 21:00, when most of the students had ended long days of work, and had time to sit by their computers to begin studying. Sometimes students visited him at the institution for F2F support.

**Interviews.** A total of 13 unstructured interviews were held with selected informants at Case 1, which comprised two module managers (one male and one female); two students (female and male); two module advisors (females); six course facilitators (two females and four males), and the technology-support person for the web-based students (one male). Apart from the male student that I met on campus at Case 1 and later agreed to be interviewed, the other informants were selected by the program manager of Case 1. Interviews with students were aimed at complementing key questions on the questionnaire for ICT-based education, while those with the facilitators were conducted to understand their roles with regard to f2F sessions, and the delivery
of study materials to students. Some of their responses have been used to complement the observations made during fieldwork (see Chapter 6).

**Case 2: Informal interviews.** I made two trips to the technikon within April to meet the people who managed the Virtual Campus and to observe their activities. Informal interviews were held with them to understand their concept of integrating ICT. I learnt that they were the first to develop a homegrown virtual campus in South Africa. I also observed that the beautiful buildings of Case 2 were almost empty of students - a true sign that it was a distance learning institution. In spite of this, I was informed that students visited the library and the campus for other activities though they normally met at the university’s diverse learning centers located all over South Africa. I visited the multimedia center and talked with two men who managed it. They mentioned that it was used for the production of audio and video materials, and writable CDs for users within and outside the technikon. I was shown inside the video conferencing room for a demonstration on how they beamed their lectures to the learning centers. However, since video conferencing was not yet popular at the centers, the electronic devices were often outsourced to other interested parties outside the university. The business unit of Case 2 charged for services at the learning centers, which included accessing the Internet, photocopying materials, and basic computer literacy classes. I did not visit or conduct interviews at the learning centers belonging to Case 2.

**Case 5: Direct observations and informal interviews.** I spent six hours during a weekday in May 2002, to make direct observations to understand the setting and activities at the Internet Café (Case 5). I noticed that it was composed of a medium-sized room overcrowded with a group of around 50 young males and some female students, who sat or stood in front of computer monitors mounted on tables. Others chatted aloud or listened to music on the Internet, while the rest socialized. During the period of observation, there was a continuous flow of students in and out of the café.

To comprehend the operations of the Internet café, an informal interview was held with a female attendant who was also a student. She explained that users booked and paid in advance for the time they wanted to spend on the Internet, which cost one (1) South African Rand (ZAR) per hour. The attendant logged into her computer using their student identity numbers and then
directed them to free computers. They were then automatically logged off once their time elapsed and would pay another fee to continue.

A similar interview was held with the Internet café manager who said that every day, around 600 students used their 70 desktop computers installed with Internet connection. A new database with user identities was set up at the café each year so they did not have a clear record of the gender distribution of users. According to him, the students were very good learners and did not experience problems surfing the Internet once they had grasped the basics from their colleagues.

### 4.6 Validity and Reliability of the Study

Various techniques were used to increase validity in the present study. For instance, the research instruments included email and web questionnaires, selected documents for literature review, unstructured interviews, direct observations and informal interviews during fieldwork. Furthermore, in Chapter 6, which reports the results of this study, I have used verbatim quotations from transcribed interviews to corroborate the quantitative data. These measures are important in strengthening construct validity (Flick, 1992). One specific measure taken for internal validity (Miles & Huberman, 1994) is the use of frequency and percentage distributions in tables, charts and graphs, to explain the generated data. To enrich external validity (Yin, 1994), my empirical findings have been compared with extant literature in order to contextualize my contributions within the field of distance education.

Some techniques used for establishing reliability in my study include giving a full account of the data collection procedures in the field, and ascertaining that the goals of the study are in congruence with the research design. Equally, the study outcomes have been supported by other data sources (LeCompte & Goetz; Yin, 1994).

In order to authenticate the electronic survey processes in the current study, I communicated with various persons who dealt with the survey processes at the case institutions, and I also had access to the online feedback sections designed for responses. Specifically, to understand the technique used in designing the web survey for Case 2, I sent an email to the web developer with the following questions that he answered.
Q: What is the name of the software used for creating/developing the questionnaire and the feedback section?

A: I created a program using the combination of Practical Extraction and Report Language (PERL) scripting language, HTML and Java scripting to create both the questionnaire and the feedback.

Q: What are the main strengths and weaknesses of the software?

The strengths:
1. PERL is very flexible, you might realize that when I created the questionnaire, the format of my database was not compliant to your statistical program, but because of the flexibility of the language, you can perform migration.

2. It is Internet-based therefore can be used anywhere at any time. Note: If you want to know more about the strengths and weaknesses of PERL you can visit http://www.perl.com

The weaknesses:

1. Since both scripts run on the server, the processing speed is affected.

2. If the server goes down while the user is still busy with the questions, the program will block the user from re-answering the questions.

Q: Were there any students that participated more than once in answering the questionnaire? And if so, how could you detect this?

A: No. A student was allowed to participate once, and if he/she practically completed the questionnaire, there was no chance of re-participation. They had only one chance.

(J. N., personal communication, October 10, 2002)
4.7 Summary

This chapter has presented a detailed account of how the empirical part of the present study was conducted. Data collection involved both quantitative and qualitative methods within a case study research design. Five higher education institutions (Cases 1-5) were selected for case studies. The first four cases were chosen to answer objectives one and two of the study, which were: (1) to analyze the views and experiences of selected higher education students in South Africa concerning the use of diverse ICT equipment and the delivery of learning content for distance education. (2) To analyze the views and experiences of selected course facilitators (assistants) on how they carried out their work at a distance education institution in South Africa. The fifth case was selected to answer the third objective, namely, (3) To analyze the views and experiences of selected students who used the services of an Internet café at a technikon (university of technology) in South Africa.

Ethical considerations involved informed consent (getting permission to conduct fieldwork); acknowledging the persons whose questionnaires were adapted for the electronic surveys; and demonstrating how issues concerning confidentiality and anonymity were dealt with. Cover letters attached to the questionnaires requested voluntary participation, while all identifiable information linked with the case institutions, and email/Internet addresses on the responses, were removed before analysis.

The chapter has described the diverse research instruments used for data collection, which included relevant documents (for literature review), questionnaires, interviews and observations. It has also provided a detailed account of how fieldwork was conducted in South Africa between February and May 2002, to administer electronic surveys, conduct unstructured interviews, and make observations. It has concluded with a discussion on how different techniques were used to increase validity and establish reliability in the present study.
Chapter 5: Data Analysis

5.1 Introduction

This chapter presents the analysis for the empirical part of the present study, whose main aim was to investigate the views and experiences of selected students at five distance and campus-based higher education institutions in South Africa. Two questionnaires, found in Appendix A1 and Appendix A2 at the end of this study, were administered by email and on the Web, to know how they accessed ICT equipment, received learning materials, and used the services of a private on-campus Internet café. In addition, 13 unstructured interviews were held with selected students and course facilitators at Case 1 only, to enrich the quantitative interpretations. Non-participant observations in classrooms and informal interviews were also conducted during fieldwork in 2002. The descriptive terminology for the study is “ICT-based distance education”.

5.2 Analysis Procedures

The framework of analysis for the quantitative data is based on descriptive statistics that summarize category and variable patterns within the responses. These responses are displayed using tables, graphs and charts with frequency and percentage distributions, cross tabulations, standard deviation and mean scores. The self-selection sampling technique that was applied to collect quantitative data is a type of non-probability sampling method that has restricted the scope of analysis to descriptive statistics. Wegner (2010) cautions against using inferential techniques on samples acquired through non-probability methods because the outcomes would be invalid. “Thus, only descriptive statistical analysis can be performed on non-probability derived samples” (p. 215). Examples of inferential statistics include $t$-tests, Analysis of Variance, Regression, Correlation, Chi Square test and Factor Analysis.

Data editing involved correcting typographical errors in the open-ended sections of the survey responses. A few responses appeared twice with the same information indicating age, while some had the same student login ID though with different information. Such entries were compared and only the relevant ones were chosen. Bethlehem (2009) affirms that there are three types of errors found in gathered data, namely:
A range error occurs if a given answer is outside the valid domain of answers; for example, a person with an age of 348 years. A consistency error indicates an inconsistency in the answers to a set of questions. An age of 8 years may be valid, a marital status “married” is not uncommon, but if both answers are given by the same person, there is something definitely wrong. The third type of error is a routing error. This type of error occurs if interviewers or respondents fail to follow the specified branch or skip instructions; that is, the route through the questionnaire is incorrect: irrelevant questions are answered, or relevant questions are left unanswered. (p. 3)

Usable data were then exported to the Statistical Program for the Social Sciences (SPSS), which is a statistical software package for quantitative analysis. Afterwards, data for Cases 1-4 were merged and coded, then run to generate frequencies and percentages. Likewise, in order to analyze data from the Internet café study (Case 5), the questions were run to generate frequencies and percentages. The open-ended responses complement the numerical findings in this study, and various themes have been used to categorize and report them, especially questions 22-24 for Case 5 (see Appendix A2).

The datasets generated by SPSS contained item nonresponse (missing data/answers) possibly because some questions were not relevant to the respondents, or to the case institutions’ methods of content delivery. Issues concerning how sections of the questionnaires were deleted by case institutions are discussed broadly in subsection 4.5.2 and in sections 6.13 and 7.2, respectively. Although Bethlehem (2009) recommends a weighting adjustment procedure “to correct for unequal selection probabilities and nonresponse” (p. 4), this was not done in the present study, because according to Professor J-E. Gustaffson (University of Gothenburg):

For weighting to be viable, there must be information about how the sample differs from the population in one or more important respects, and my impression is that you do not have access to such information. I am therefore hesitant to the idea of trying to use weighting here. An important question in this context is also the importance of having a representative sample. For issues where the estimation of population parameters is the focus, this is obviously important. However, for issues relating to relationships between different variables, this is not important. (Personal communication, April 28, 2009)
Equally, Billiet and Matsuo (2012) argue that, “assessing non-response bias requires either population information with respect to the core variables of a survey, or similar information on non-respondents. Both are rarely available, at least in surveys on opinions, attitudes, and values” (p. 153). Therefore, since it was unknown how those who responded differed from the whole population of Internet users, the present study is not a representative sample; can never be, and does not have to be. Moreover, “weighting procedures cannot fully compensate for data lost due to different and reduced response rate” (Rosier, 1997, p. 159). Subsequently, no imputation (replacement/substitution) procedure was carried out to adjust for item non-response (missing values) in the present study.

After editing the raw data, the number of “clean responses”, which formed the sample size (number of respondents) in the final data files for analysis in the study were as follows: Case 1 = 18 (Pharmacology) and 56 (MBA); Case 2 = 503; Case 3 = 5; Case 4 = 23; and Case 5 = 274, totaling 879 respondents. The results are reported in tables, graphs and charts in Chapter 6 of this study. The category, no answer, points to the missing data in particular questions. The findings for the five case studies are reported according to the selected sections in the two questionnaires. The responses are rounded off to the nearest percentages and differences across the cases are provided. The questionnaires comprised closed-ended and open-ended questions.

Out of the total sample size, data comprising 605 respondents at four institutions (Cases 1-4) were analyzed separately from those of 274 respondents (Case 5) who participated in the Internet café survey. The analysis was based on “Respondents listed.” Before the field study, it was assumed that approximately 2,000 students would participate in the surveys. The highest response rate was from Pharmacology at Case 1 (56%), while Case 2 had the highest case base of 503 respondents (4%). Case 3 had the least respondents (n = 5), while Case 4 had the lowest response rate (0.02%). The response rates in the surveys were very low (0.6%) compared to the wider population size (N) of students at the case institutions. Table 5.1 exhibits the population distribution and survey sample size of the study.
Table 5.1: Total population and survey sample of cases

<table>
<thead>
<tr>
<th>Cases</th>
<th>N</th>
<th>n</th>
<th>Response rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1: (Pharmacology) (MBA)</td>
<td>32</td>
<td>18</td>
<td>56</td>
</tr>
<tr>
<td>Case 2: (Virtual Campus)</td>
<td>12,000</td>
<td>503</td>
<td>4</td>
</tr>
<tr>
<td>Case 3: (e-University)</td>
<td>4,000</td>
<td>5</td>
<td>0.13</td>
</tr>
<tr>
<td>Case 4: (Distance Education University)</td>
<td>120,000</td>
<td>23</td>
<td>0.02</td>
</tr>
<tr>
<td>Case 5: (Internet café)</td>
<td>2,000</td>
<td>274</td>
<td>14</td>
</tr>
</tbody>
</table>

\[ N = 138,599 \ (100\%) = \text{the total number of students registered at the four universities and one Internet café in 2002; } n = 879. \]

Note: \( N \) means population of the study; \( n \) means the survey sample of the population; Cases means the unit of analysis, which comprises the surveyed higher education institutions. The MBA and Pharmacology respondents belonged to the same institution (Case 1) that provided ICT-based distance education at a contact university.

### 5.2.1 Transcribing the interviews

An audiocassette player was used to listen to the 13 tape-recorded unstructured interviews from Case 1, which were transcribed during a period of two months. Patton (2002) argues that whereas unstructured interviews tend to generate varied responses, common patterns need to be found when they are analyzed. I assigned each informant an ID number for the purpose of confidentiality as required in research ethics, and also for the ease of identification during verbatim quotations in the findings chapter of this thesis. The reasons that motivated my decision to use verbatim quotations were, namely, to deepen the understanding of how ICT-based education was conducted at Case 1, and to provide voice to the informants’ views. A study by Corden and Sainsbury (2006) found that:

> Researchers who used quotations to bring vividness and immediacy to reports, or to explain the strength of people’s feelings, felt that eloquent or forceful views expressed in colourful language added meaning or portrayed depth of feeling which they could not achieve in their own prose. (p. 16)

The authors suggest that researchers need to choose the appropriate way of presenting interview transcripts. For instance, they can be edited to fit into the goals of a study. I edited the
transcripts in order to retain the most relevant information to complement the quantitative findings.

The interviewees at Case 1 included two module managers (male and female); two students (male and female); two module advisors (females); six course facilitators (two females and four males), and the technology-support person (male) for the web-based students. The following ID numbers were provided: MM1 (male) and MM2 (female) for the module managers; S1 (male) and S2 (female) for the two students; MA1 and MA2 (females) for the two module advisors; CF1, CF2 for the female course facilitators; CF3, CF4, CF5, CF6 for the male facilitators; and TS1 for the technology support assistant.

5.3 Summary

This chapter has discussed different procedures that were used to treat the raw data I had collected in 2002 during fieldwork in South Africa, which involved editing typographical errors and deleting incomplete responses from the electronic surveys. Usable data were run on SPSS to generate frequency and percentage distributions for Cases 1-5. Furthermore, the 13 interviews from Case 1 were transcribed and only appropriate ones were referred to in verbatim quotations reported in the results of this dissertation.

The chapter has elaborated with support from relevant literature that the self-selection method, which is a type of non-probability sampling technique that was used to collect quantitative data at the case institutions, occasioned the choice of descriptive statistics and not inferential statistics, to summarize the analyzed data. Though missing data were found in some of the questions, no weighting adjustment or imputation procedure was conducted for item nonresponse, since my study did not aim to be representative of the general student population.

Some questions were deleted by gatekeepers at the case institutions because they were not relevant for their learning content delivery modes. Additionally, while I was offered passwords to access the survey processes virtually, I still depended upon the case institutions to control the survey processes. The next chapter presents findings from the observed categories that are posted in tables, charts and graphs, using frequency and percentage distributions. The interview results and field observations are also reported to corroborate the quantitative data.
Chapter 6: The Case Study Findings

6.1 Introduction

This chapter reports the results of the electronic surveys from Cases 1 to 5, which were analyzed to generate frequency and percentage distributions shown in tables, graphs and charts. Furthermore, selected verbatim quotations and paraphrased information from the transcribed interviews are used to complement the quantitative findings. The institutions are first introduced in section 6.2 according to the information that I took from their websites in 2002, to understand how they provided ICT-based education. Parts from another report are also used to discuss the operations of Case 1. Since I chose not to identify the case institutions because of research ethics regarding confidentiality, the sources of information are not cited. The institutions were as follows: Case 1 - (Pharmacology and MBA); Case 2 - (Virtual Campus); Case 3 - (E-University); Case 4 - (Distance Education University) and Case 5 - (Internet café). The first questionnaire (see Appendix A1) for Cases 1-4 is divided into the following eight sections:

A. Background Information
B. Experience with Computers
C. Equipment Access
D. Video and Material Ratings
E. Asynchronous Learning
F. Access to Online/Virtual Lectures
G. Program Delivery/Learning Support Technologies
H. Comparison Between ICT-based Learning and Traditional Learning Modes

The case study research design for the present study was initially aimed to be revelatory and inductive. However, given its non-replicable nature, the non-probability sampling technique used for data collection, and small sample size, the results could not be generalized to the wider student population at the case institutions. For instance, Case 3 (E-University) had only five respondents. Subsequently, descriptive statistics are the main format used to report the quantitative findings through frequency and percentage distributions. Nevertheless, Chapter 7 discusses the key findings further, in relation to the literature review on South Africa, which is
presented in Chapter 2 and other studies. From the generated data, some linkages were found after delineating the key variables in order to analyze the objectives of the study that were: (1) To analyze the views and experiences of selected higher education students in South Africa concerning the use of diverse ICT equipment and the delivery of learning content for distance education. (2) To analyze the views and experiences of selected course facilitators on how they carried out their work at a distance education institution in South Africa. (3) To analyze the views and experiences of selected students who used the services of an Internet café at a technikon (university of technology) in South Africa.

By way of illustration, racism affected all aspects of life in South Africa during the apartheid rule. However, given that it had already been abolished when the present study was conducted in 2002, were there racial disparities among the respondents in terms of Internet access? What were the main concerns among the respondents in ICT-based distance education? Did the respondents have adequate computer skills? Furthermore, what were the respondents’ main reasons for using the private Internet café at the technikon? Were they happy with the Internet services? What were the views of the interviewed facilitators concerning content delivery at Case 1?

6.2 Description of the Case Institutions

Case 1: Pharmacology and MBA

Case 1 was established in the 1990s as a unit for telematic learning within a former whites-only contact university. The telematic learning model blended face-to-face meetings with suitable technologies in the learning process (print and ICT-based materials). Facilitators were employed to assist students at over 50 study centers across South Africa. The institution’s flexible technology-supported mode of learning had by 2002, enabled more than 4,000 people to participate in higher education while they continued working within or outside the country. According to information on the website of Case 1, telematic learning was outcomes-based, affordable and offered highly interactive study material. The outcomes-based education model was an initiative by the government of South Africa aimed primarily at improving the quality of learning at schools during the early post-apartheid reform processes. It also encouraged a learner-centered approach and the development of study materials by individual institutions.

A report published in 2001 following a review of the educational approaches at Case 1 by an international panel of experts in technology-supported education, showed that there were around
2,293 students enrolled in contact telematic learning, and 463 students in distance telematic learning. Furthermore, it was understood that telematic learning provided educational opportunities for mature students who could not join other academic programs after high school graduation due to lack of places, past apartheid barriers, personal, geographical or linguistic challenges. The report also mentioned that telematic learning provided Case 1 with an opportunity to earn income from the sales of its learning materials or those jointly produced with a commercial provider, or other institutions of higher learning. The report appreciated that Case 1 was in the process of developing an electronic platform that was to be launched in March 2002, and would be used to store all study materials. The platform had the prospect for commercialization since it could be used asynchronously, which was advantageous, given the local high cost of telephone usage.

Print materials for the MBA program consisted of the Study Guide, which was a package of learning materials including textbooks given to students by the management of Case 1. Alternatively, they would get the same materials reproduced on CD-ROM that had all the nine MBA modules. Compulsory textbooks were either supplied by Case 1 through a partnership with Case 2, or were bought by the students. There were six optional videos for students that used the print model or five CD-ROM discs and videos only for the electronic mode. Lastly, the Guide contained one discussion video that was used during a tutorial managed by a facilitator, and another video with comments on the central issues in the students’ assignments. Facilitators were given notes prepared by the management of Case 1 to guide them during those discussions.

The Pharmacology program was provided both online and through CD-ROM, while the learning package for students included an installation CD, a CD-ROM with materials, an electronic library and textbooks. Their study timetable indicated when they had to read what materials, date of delivering assignments, and when contact sessions would be held. However, the 2001 report indicated that some of the sessions were video-based. The materials were updated annually and could be reprinted within 48 hours of the students’ demand. Textbooks were expensive to order from abroad because of high airfreight charges, and extra copies were sometimes not available from the publishers.

It was reported that there were 500 facilitators recruited and employed on the basis of their qualifications and experience, to assist in all the telematic learning programs. Nonetheless, there was disquiet that they might not have been familiar with new pedagogical models and required
further training, particularly those who were involved with postgraduate programs. The report suggested that since the role of facilitators was to support students in developing educational skills to make them independent learners, special training was necessary for their development.

According to the 2001 report, there were three groups of students who participated in telematic learning, namely, fulltime (campus-based); learners (the majority) who were linked to study centers and attended contact (face-to-face) meetings; and remote students who could not attend contact sessions at the study centers because of geographical challenges. Additionally, there existed a smaller group of students that did not necessitate the employment of a facilitator to guide them in a particular module at their study center. Alternatively, they were offered a center coordinator to play them videos during contact sessions. Students in this category felt that they were inferior to others who lived in highly populated areas and participated in more popular programs.

**Case 2: Virtual Campus**

Case 2 was established in the mid-1990s as a multimedia and online unit (Virtual Campus) within a distance education technikon. It formed part of the technikon’s strategic decision to use technology for flexible and open learning through a business plan, which would increase income from students by 10 percent annually, and make it more market-oriented in all its businesses. Distance education students received support from lecturers and tutors, while those who had computer and Internet connection, could access their assignments, some study materials, examination marks and timetables, via the Virtual Campus. Case 2 had video conferencing facilities for students at 13 different sites in the country, while it produced and maintained video and audio materials for learning.

The Virtual Campus had three interfaces for learners, academic staff and administrative staff. The academic interface supported courseware, assignments, academic support, interactive discussion groups, and a library database, while the administrative real-time section was used by staff and students to check on financial records, assignments, examination timetables and marks. There were nearly 600 academic subjects posted on the Virtual Campus. However, key challenges included insufficient access to technological facilities, poor quality learning content, and lack of appropriate technology skills among the academic staff. There were 10,863 students
registered at the Virtual Campus by the end of 2001, according to information available then on its website. However, by 2002 when this study was conducted, the Virtual Campus had 12,000 registered students.

**Case 3: E-University**

Case 3 was a private South African company established in 1998 to create and deliver electronic and multimedia-supported study materials for private and public higher education institutions, all packaged as eLearning. By 2002, there were around 4,000 students across and beyond Africa who received content from e-University through collaboration with other accredited educational institutions, according to information retrieved from the institution’s website. The goal of Case 3 was to deliver high quality course materials and training using technology, in order to boost education. Learner support services included helping students with application and approval processes at the various academic institutions, the registration process, ongoing support to students accessing electronic course materials, assistance with contact between the facilitator (from the accredited institutions) and the student, and the provision of additional online information to students. The institutions where the students were registered at provided learning centers where they met for face-to-face facilitation and sat examinations.

Case 3 also commercially developed software tools, learning materials, and developed, delivered, and implemented eLearning courses. The eLearning programs were user-friendly for teachers and students from all backgrounds and levels of education. Website information indicated that studying through the online services was cost-effective since students saved on the costs of traveling to attend lectures, tutorials, bookshops, and libraries. They also avoided incurring costs for staying on campus as residential students. E-University provided constant electronic contact with lecturers, tutors, students, and administrative personnel. The interaction was important in the learning process and students were glad to pay extra money for these services.
Case 4: Distance Education University

Case 4 was a well-established distance education university with around 120,000 students registered worldwide in 2002. It offered accredited certificate, diploma and degree courses up to the doctoral level, and had many learning centers in South Africa. Its educational content was mainly delivered through a correspondence/print model, which consisted of study guides, tutorial letters, assignments and examinations. Face-to-face meetings were limited to discussions with students about challenges in their studies. However, at an extra cost, they received regular learner support from the lecturing staff who met them at various regional facilities. Other learner support facilities included audiocassettes with learning content, and library services. In the mid-1990s, Case 4 introduced an online service that enabled students with Internet access to communicate with their lecturers and fellow students via electronic mail. It also offered students access to personal and assignment information, and the library catalogue.

Case 5: Internet Café

In order to contextualize the private provision of ICT services within public institutions, this study selected and studied an Internet café at a technikon, which was managed by a private company that collaborated with certain South African universities to offer ICT-related services to students at a cost. Its main aim was to provide the students ICT-related services like email and the Internet, printing and scanning facilities, photocopying, fax and CD-writing, in order to improve their quality of education. The company also offered computers for students’ private use or to train and gain skills. These services were available at Internet cafés with 30 to 100 workstations depending upon demand. The company had plans to expand within South African universities to meet the needs of many students who worked for long hours, yet did not have Internet access at home or in their workplace. The cafés were established to help them to access study materials electronically. According to the company’s website, whereas many institutions had on-campus computer laboratories, their opening hours were limited and not all students could access them. There were 2,000 students registered to use the services of the Internet café in 2002.
6.3 Background Information of the Respondents

This section presents the frequency and percentage distributions for the demographic background of the survey respondents at Cases 1-4 \( (n = 605) \). The gender distribution was as follows: 284 females and 320 males. Only one student did not answer this question. Figure 6.1 shows the percentage distribution of their gender.

![Figure 6.1: Gender distribution of the respondents \( (n = 605) \)](image)

The age range in the survey sample \( (n = 605) \) was from 17 years (the youngest) to 63 years (the oldest). Only nine did not indicate their ages. Their marital status was as follows: 86% of respondents were single (520), while 12% (71) were married \( (n = 605) \). In terms of race, there were 250 Blacks; 247 Whites; 38 Indians; and 40 Coloreds, while 30 did not mention their race \( (n = 605) \). Figure 6.2 reveals the percentage distribution of the races per case institution.
A percentage distribution of the respondents’ educational status is illustrated in Figure 6.3, which shows that the majority had answered ‘Others’ (40%), denoting that what they were studying was not among the available choices. All the five respondents at Case 3 were undertaking a Bachelor’s degree.
Top three factors for selecting ICT-based courses

The respondents ($n = 605$) were requested to mention the top three factors (from six choices) that determined their selection of ICT-based courses. The majority at Pharmacology (44%) chose flexibility, quality education and being cheaper than traditional learning, as the highest priority. However, there were other factors combined with flexibility as shown in percentages within Figure 6.4. The flexible provision of distance education at the case universities was based on a blended learning approach that involved face-to-face interactions between students and course facilitators at the learning centers. Those students who worked, were parents or lived abroad, were able to carry on with their studies through this self-paced mode of distance education. As to whether ICT-based courses were cheaper than traditional learning, an undergraduate male student at Case 1 differed during an interview I conducted with him by saying that:
ICT-based learning is more expensive than campus-based. My sisters are studying campus-based programs and last year they paid ZAR 8,000 and I paid 15,000 Rand. It costs more to do ICT-based learning than the traditional program. (Interview statement from S1)

Figure 6.4: Factors for the respondents’ selection of ICT-based courses ($n = 605$)

**English language background**

It was important to ask if the respondents ($n = 605$) felt comfortable with using the English language for studies, considering that most of them (65%) were not native speakers. Whereas 31% answered that they were native speakers, 4% did not respond. In a follow-up question asking if they were comfortable with using English, 74% answered affirmatively, while 22% did not answer at all. A cross tabulation was run to see how many respondents were comfortable with using English for ICT-based education and whether English was a native language. The answers
are presented in percentages per institution within Figure 6.5. The consolidated cross tabulation table \((n = 605)\) and other tables generated per case institution are available in Appendix A5.

![Figure 6.5: Respondents’ comfort in using English for ICT-based education (n = 605)](image)

For those who replied in the affirmative, it is unlikely that they were all native English speakers because South Africans speak many languages and clearly, the case institutions did not belong to the historically white English-medium category. It is also possible that the respondents chose this answer since English was their language of instruction, or they did not understand the meaning of \textit{native/first language}. Responses from the open-ended section showed that some wanted English to be used since it was an international language, while others suggested that the other official languages of South Africa be added for instruction, in order to bring equality and more participation in distance education. Here are selected comments:

- **Black (male):** \textit{Add other Ngoni languages for flexibility. This will attract more prospective students.}
• **Black (male):** *Let us have a common language because of equality.*

• **White (female):** *Although I have no problem doing my subjects in English, I wish I could have Afrikaans handbooks.*

• **White (female):** *Best would be German, for better understanding.*

• **Colored (male):** *Arabic, Xhosa.*

• **Black (male):** *We cannot do marketing in Zulu; English is fine.*

• **Black (male):** *Stop using Afrikaans as the only other language.*

• **Indian (female):** *I would like to learn Afrikaans.*

• **Unknown (female):** *I feel it is best to use English as at least everyone can understand it.*

• **Black (male):** *Let them understand our problems and the way we answer some of the questions.*

• **Black (female):** *English is ok.*

During an undergraduate classroom observation at Case 1 that was part of a former Afrikaans-medium university, I noted that some Afrikaans-speaking students required translation during lessons that were held in English. I also observed that:

1. Code-switching from English to Afrikaans was common during teaching sessions to enable Afrikaans-speakers to follow discussions. Course lecturers or facilitators translated questions or comments to the non-Afrikaans speakers who answered in English then had the same translated into Afrikaans.

2. Some black and white students had difficulties expressing themselves in classroom when answering questions in English.

In the course of an informal conversation with three black female students at Case 1, I noted that they were dismayed by the use of Afrikaans during class sessions, which they claimed was a language of the former oppressive regime. Additionally, S1 mentioned as reported in the next verbatim quotation that he had difficulties in the beginning of his studies because classes were conducted in Afrikaans, and he had to pay for private lessons to learn the language.
The university was originally an Afrikaans-speaking university, but some changes came in the 1990s when they decided to open the doors to non-Afrikaans speaking students and then they started with ICT-based learning in 1996, if I am right. However, they said the mode would be in English, according to the admission papers, yet some of the facilitators have difficulties to express themselves in English because their first language is Afrikaans. Some Afrikaans-speaking students also discuss the courses in their own language because South Africa has 11 official languages. I had problems because the only South African language I know is English. When the Africans speak their languages I do not understand, and when the whites speak Afrikaans, I do not understand either. I therefore feel like I am out of the class. (Interview statement from S1)

S1 explained that though it was forbidden to speak Afrikaans in the telematic classes, if there were five Afrikaans-speakers and one English speaker (student) and the facilitator was an Afrikaans-speaker, then the facilitator would speak in Afrikaans and translate into the English language. When I asked S1 if he was frustrated with the language barrier in terms of active participation in the program, he answered that:

Yes, in the beginning it was very hard because I was trying to participate in the discussions with my broken English and people speaking Afrikaans could not understand. I therefore had to stop [studies] later because I felt discouraged. At times, they tended to make me forget about the class, but now they have tried to consider English and whatever is mentioned in Afrikaans would be translated for me by the Afrikaans-speaking students. (Interview statement from S1)

During the period of this interview, S1 was the only student in his second-year law program that was from outside South Africa and could “speak English”. The other two students from South Africa had left the program because their comprehension of Afrikaans was not good either.
Employment and sources of funding studies

Eighty-three percent of the respondents (n = 605) were employed, whereas 13% were not. This high response rate indicated the earner-learner (worker-student) profile of those who could not join fulltime (campus-based) studies. All the 18 respondents at Pharmacology were employed and only two at Case 3 answered that they were not. Figure 6.6 illustrates the percentage distribution of the four cases. As part of the conditions for admission into the postgraduate program, Pharmacology students were required to be employed and to study independently, since they did all their studies online and only visited learning centers to sit examinations. S2, who was a female first-year nursing student, mentioned that:

*If I wanted to study at the university, I could not, because I am working.* (Interview statement from S2)

From the open-ended section of the questionnaire, some respondents who were 30 years and above stated that they could not have participated in distance education successfully if they had been younger, since there was a feeling that distance education was meant for “mature” students, while on-campus education was for the younger ones. Most of those who answered that they needed more “contact” sessions were below 30 years, and undergraduates, suggesting that they needed more guidance. The Pharmacology students, who were all postgraduates, seemed to fit the mature students’ profile, with the oldest being 63 years. Some selected statements were as follows:

- *I can study fulltime while upholding my job responsibilities; the people attending ICT training are more mature and more committed to the program.*
- *It makes it easy to study for a person who has a fulltime job. The study group system gets you in contact with different people and businesses.*
- *Because all students are employed, their studies and the use of their time are important to them. They are serious about their studies.*
Figure 6.6 illustrates the percentage distribution of employment status among the respondents at Cases 1-4.

![Figure 6.6: Employment status of the respondents (n = 605)](image)

Figure 6.6: Employment status of the respondents (n = 605)

The respondents (n = 605) had diverse sources of funding their studies and the majority (41%) revealed that they paid by themselves, while 19% indicated that they had bursary, scholarships or grants, as illuminated with frequencies and percentages in Figure 6.7.
6.4 Experience with Computers

This section presents responses from questions 17-18 in Section B of the questionnaire titled, Your Experience with Computers, which examined the respondents’ (n = 605) frequency of using computers. For instance, question 17 sought to know to what extent they had used computers and other functions such as email, word processors and web browsers. The frequency of usage ranged from beginner, occasionally, frequently, to daily. Computer skills were necessary for their studies that depended upon various ICT tools for interaction with lecturers, course facilitators and fellow students. Further, various assignments, comments and other pieces of information were sent to
them by email. Appendix A6 comprises tables with frequency and percentage distributions for questions 17-18 covering Cases 1-4.

Out of the 605 respondents, the majority used personal computers daily (74%), while 18 answered that they were beginners (3%). All the respondents at Case 3 and at Pharmacology had varied answers. Pharmacology students were web-based while Case 3 was an online university. On the issue of email usage, the majority (73%) responded that they interacted with email daily, although 4% answered that they were beginners. In terms of their experience with word processors, 374 answered that they used them daily (62%), whereas 7% indicated they were beginners. Most of them answered that they used web browsers daily (53%), while 21% did so frequently. Only 45 students did not respond to this category. The item on programming indicated that 46% were beginners, though four students at Case 3 did not respond.

For question 18, the majority of respondents (n = 605) answered that their experience with computers was exciting (85%), yet five viewed it as dull. All the respondents at Case 3 answered that it was an exciting experience, though two at Pharmacology did not. Eighty percent felt it was fun, while 1% felt it was discouraging. Although 20% did not respond, those who felt it was easy or difficult were the majority (75%). Only 4% felt it was difficult, while 131 did not respond.

Fifty-one percent viewed computers as personal, yet 17% perceived them as impersonal. All at Case 3 (n = 5) felt that computers were helpful, while a total of 11 respondents for Cases 1-4 (n = 605), felt it was hindering. Eighteen percent of all the respondents did not answer. Finally, the majority answered that they were unthreatened by computers (62%), whereas 5% felt threatened. Two hundred did not respond.

6.5 Access to Computers, Internet and Printers

Section C of the questionnaire on Equipment Access had questions 19-23 that asked the respondents (n = 605) about their access to personal computers and the Internet. Tables with frequency and percentage distributions for these questions per case institutions are found in Appendix A7. Sixty-one percent answered that they used computers at home, whereas 25% did not. All at Case 3 did not have computers, while only one at Pharmacology was without. As to whether they had Internet access at home, 45% answered affirmatively, whereas a total of 3% mentioned that they did not. Three hundred five respondents did not answer at Case 2.
Respondents were asked whether they had access to printers, and 71% answered yes, while 11% answered no. Quite a number (109) did not respond to this question with the majority being at Case 2 (16%). Similarly, they were asked whether they had personal computers at work, and the majority answered yes (72%), while 7% mentioned no.

The last section asked respondents whether they had Internet access in the workplace and 72% answered in the affirmative. Twenty percent at Case 2 did not answer, though 57% at the same institution indicated they had Internet access at work. Full access to computers was conditional for the Pharmacology respondents whose study program was ICT-based. However, some had difficulties in using the Internet to access study materials as mentioned during an interview with the technology support assistant for the Pharmacology students who was on standby every evening for one hour, to answer or guide them by telephone. He mentioned that:

*I say five out of the group of sixty or seventy learners do not know about the computer, so it is difficult to explain to them to go to download or to go to the next button because they do not know the basics of Windows Explorer. It is difficult to explain to them.* (Interview statement from TS1)

The question concerning Internet access was run among the races (n = 605) and the result showed that Whites had the highest access as indicated in Figure 6.8.

![Figure 6.8: Internet access among the races (n = 605)](image)
6.6 Methods of Delivering Course Materials

Section D of the questionnaire, Video Rating and Material Rating (Q24-31), examined various modes of accessing and delivering video and reading materials. Videocassette recorders (VCRs) were key components for playing videotapes that delivered learning content. Fifty-two percent ($n = 605$) answered that they had constant access to VCR players, while 16% did not respond. Those who answered that the quality of videotape production was excellent were 21%, while 33% felt it was good. Only 1% mentioned that it was poor, whereas 25% did not respond. Forty-three percent and 23% indicated that they sometimes or frequently replayed all or substantial parts of the videotapes respectively, and only 10% answered that they never did. Twenty-four percent did not respond, yet 26% answered that the videocassettes provided them with a great deal of additional information, which was not available in other sources of reading, such as books and journals. Meanwhile, 42% felt they conveyed some additional information, while 26% did not answer. Respondents were also asked to rate the program notes and 52% (317) answered that they were helpful. Only seven students felt they were useless (1%), although 27% did not respond. Frequency and percentage distributions for Cases 1-4 are posted in Appendix A8.

During a classroom observation at Case 1, I was informed by some three black female undergraduate students that watching videotapes instead of lectures was the most boring and uninspiring experience. Additionally, some respondents were not happy that their study materials were not delivered in time by post. There were frequent delays in reaching geographically remote areas and students were inconvenienced when they could not have them early enough to plan their study schedules.

6.7 Respondents’ Perception on Teaching and Learning Tools

This section reports the findings from Section E (Q32) of the questionnaire, which had 15 statements on a five-point Likert scale (1 = Strongly disagree to 5 = Strongly agree 5). Respondents were requested to rate Asynchronous/Offline Learning to understand their perception on ICT-based teaching and learning tools such as teleconferencing, video conferencing and email. Their views were also sought on the essentiality of such techniques, their effectiveness in helping to express ideas and opinions, effectiveness in providing the necessary content, and the effectiveness in sharing ideas through discussions and revisions. Results for the
whole sample group \((n = 605)\) are written here, while the percentage distributions for Cases 1, 2 and 4, are found in Appendix A9. The results for Case 3 were too low to be included.

All the respondents had positive views about the essentiality of ICT-based learning for the distant student. The responses were mixed for the attributes such as effectiveness of the teaching technique in expressing the ideas and opinions in structured fashion. It also emerged from the responses that the techniques of email and asynchronous conferencing helped the respondents to feel less isolated. They were positive about the relevance of email and video conferencing contents. However, they were apprehensive about the contents of asynchronous teleconferencing.

While 48% strongly agreed that asynchronous teleconferencing was essential to distance students, 15% agreed and 24% did not answer. Thirty-two percent strongly agreed that email was essential to the distance student, while 20% agreed. Eighteen percent were neutral and 24% did not answer. Another statement arguing that video conferencing was essential to the distance student had 29% remaining neutral, while only 24% agreed that it was. One hundred sixty did not respond. Thirty-two percent strongly agreed that asynchronous teleconferencing helped one to express ideas and opinions in a structured fashion, while 25% agreed. Only 9% strongly disagreed, while 25% did not respond. The statement about email helping one to express ideas and opinions in a structured fashion had 25% remaining neutral, while 24% agreeing. One fifty-three students did not respond. Thirty percent strongly agreed that video conferencing helped them to express ideas and opinions in a structured fashion, whereas only 27% agreed. Twenty-five percent did not answer. Twenty-five percent were neutral as to whether asynchronous conferencing helped them to feel less isolated, while 20% agreed, and 15% strongly agreed. However, 31% did not respond.

Thirty-seven percent strongly agreed that email helped them to feel less isolated, while 27% agreed and 7% were neutral. One hundred forty-six did not respond. Thirty-one percent were neutral about video conferencing helping them to feel less isolated, whereas 20% agreed and 15% strongly agreed. One hundred sixty-two students did not respond. Twenty-six percent were neutral about asynchronous teleconferencing allowing them to obtain what was necessary to learn, while 20% agreed, 15% strongly agreed, and 2% strongly disagreed. One hundred eighty-six students did not respond. Respondents were asked if email allowed them to obtain what was necessary to learn and 36% strongly agreed, 27% agreed, and only 1% strongly disagreed. Twenty-four percent did not respond. As to whether video conferencing allowed them to obtain
what was necessary to learn, 30% were neutral, 20% agreed, and 15% strongly agreed. Twenty-seven percent did not respond. Twenty-six percent were neutral about asynchronous teleconferencing enabling them to discuss and revise ideas that were important in their mind, yet 20% agreed, 15% strongly agreed and 2% strongly disagreed. Thirty-one percent did not respond. Asked to state if email enabled them to discuss and revise ideas which were very important in their mind, 36% strongly agreed, 28% agreed, while 24% did not respond. Thirty percent were neutral to the last statement asking if video conferencing enabled them to discuss and revise ideas that were very important in their mind, while 21% agreed, 15% strongly agreed, though 27% did not respond.

Even though the virtual learning environments (VLEs) availed respondents the opportunity to interact with lecturers and fellow students, I found during fieldwork that the case institutions did not offer real-time/online interaction due to the huge cost of Internet connection. As such, the institutions only provided asynchronous interactions to support teaching and learning. For instance, the web-based Pharmacology students (Case 1) did all their assignments offline, and only interacted with their module manager on a virtual platform provided by the institution, while they used email communication with their course advisors.

_We realized we could make use of the Internet for every distance student. If we make good use of the people who are on the online module, we have to communicate with students; that is, between students in groups or individuals. We also make good use of textbooks but we do not have live/synchronous lectures._ (Interview statement from MM1)

Students at the four case institutions accessed the Internet at their own cost, although they were provided with access to online registration for courses and access to other institutional information. Some open-ended comments at Case 2 concerning their VLE were as follows:

_The ability to be able to contact my lecturers easily and conveniently._
_My lecturers respond promptly to emailed questions._
_The fact that I can communicate with other students doing the same thing as myself._
_The fact that you can go back to previous work that you did not understand the first time._

132
Self-motivation and self-discipline are challenging, yet are worthwhile qualities to adopt. The platform offers an excellent environment for achieving my study goals.

You can ask questions without being shy knowing someone will answer them.

Time coordination for online sessions such that students are available for the sessions.

Based on the respondents’ perceptions on the attributes of teaching and learning tools, a mean score was computed to describe their overall opinion on these modes. Differences between males and females were tested for their mean scores on various modes of teaching, namely, asynchronous teleconferencing, video conferencing and email. In the case of asynchronous teleconferencing, it was found that females (Mean = 3.96, [standard deviation] SD = 0.24) scored significantly higher than males (Mean = 3.87, SD = 0.34). For the other two modes of teaching, namely, email and video conferencing, the mean scores were not found to be statistically different. Table 6.1 presents the mean scores, standard deviations and the standard error of the means for males and females.

Table 6.1: Mean scores of males and females on selected teaching modes

<table>
<thead>
<tr>
<th>Sex of the Respondents</th>
<th>n</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean score for asynchronous learning</td>
<td>Female</td>
<td>161</td>
<td>3.9601</td>
<td>.24326</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>182</td>
<td>3.8745</td>
<td>.34722</td>
</tr>
<tr>
<td>Mean score for email</td>
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<td>4.1804</td>
<td>.74877</td>
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<tr>
<td></td>
<td>Male</td>
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<td>4.2612</td>
<td>.60893</td>
</tr>
<tr>
<td>Mean score for video conferencing</td>
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<td>3.5886</td>
<td>.56735</td>
</tr>
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<td></td>
<td>Male</td>
<td>240</td>
<td>3.6440</td>
<td>.50351</td>
</tr>
</tbody>
</table>

6.8 Access and participation in Online/Virtual Lectures

Section F of the questionnaire contained questions 33-38 that measured attributes related to access and system failure or breakdown. The terminology of “system” is used to describe various electronic equipment involving computers and the Internet. The respondents’ perceptions (n = 605) were measured using a five-point Likert scale (1 = A serious problem to 5 = Not a problem). The respondents had varied perceptions related to accessing online or virtual learning lectures, which included accessibility to a computer or an electronic terminal (such as video or television), instances of the connectivity line being busy, or a slow response rate of the system and the
system (Internet network) being down. Appendix A10 contains graphs with percentage distributions for Cases 1-4.

Respondents were asked if access to a computer for online classes was a problem, and 27% did not respond, while 22% answered that it was a little problem. Forty-two percent found it was a serious problem. On the question whether students had problems with “busy lines” to their system, the majority did not respond (28%). Twenty-four percent of the total sample mentioned that it was not a problem, yet 10% answered that it was a serious problem. Respondents were asked whether the slow response of the system had been a problem or barrier to them, and the majority (33%) answered that it was not a problem. One hundred seventy-two did not respond, while 4% answered that it was a serious problem. On the question asking how much of a problem the system being “down” had been, 28% did not answer, while 8% answered that it had been a serious problem. Sixty-nine percent answered that it was hardly a problem. Eight Pharmacology respondents answered that it had been a little problem.

Respondents were then asked whether the cost of telephone access had been a problem, and 25% answered that it was not a problem, while 27% did not respond. Twelve percent felt that it was a serious problem, and only 16% answered that it was a little problem. Lastly, they were asked whether access to an Internet Service Provider had been a problem, and 36% answered that it was not a problem. This question was not answered by 166 students (27%), though only 3% felt that it was a serious problem.

### 6.9 Program/Course Material Delivery and Learner Support

Section G of the questionnaire included eight items for Q39 that measured the respondents (n = 605) perceptions on the effectiveness of various modes or technologies for delivering program/course materials such as videotapes, audio conferencing, websites and so forth. These were measured on a five-point Likert scale ranging from 1 = Not effective, to 5 = Highly effective. Graphs with percentage distributions for Cases 1-4 are available in Appendix 11.

Respondents were asked to rate the effectiveness of textbooks and 25% answered that they were both highly effective and quite effective. One hundred ninety-two did not respond to this question while eight answered that they were not effective. Twenty-five percent felt that videotapes were highly effective, while 4% answered that they were poor. Thirty-four percent did not respond. On the question asking how effective public websites were, 42% did not answer,
while 23% responded that they were satisfactory. Three respondents at Case 3 answered that they were quite effective. The next question asked them what they thought about “members only” websites and 45% answered they were satisfactory, while 45% did not respond. Only 8% answered that they were highly effective and 13% wrote they were quite effective.

Another item asked the respondents to rate video conferencing discussions and 25% answered that they were highly effective, while 39% did not respond. Only 3% felt it was not effective. Thirty percent did not respond to this question, while 13% answered that it was poor. On audio conferencing, 11% answered that it was both highly effective and quite effective. Forty-eight percent did not respond, while 131 responded that it was satisfactory. On the question asking the effectiveness of email exchange/discussions, 29% answered it was highly effective, while 20% answered quite effective. Two hundred six did not answer this question. They were also asked about the effectiveness of face-to-face discussions and 21% responded that they were satisfactory, whereas 15% answered that they were both highly effective and quite effective. Two hundred forty-nine did not respond.

A statement was provided for the respondents to rate, using a five-point Likert scale 1 = Strongly disagree to 5 = Strongly agree, whether the availability of ICT-based learning had enabled them to continue their studies. Thirty-two percent did not respond, while 23% strongly agreed. Only 10 strongly disagreed and 138 strongly agreed. Another statement wanted to know whether the respondents would recommend ICT-based learning to their friends, and 50% did not respond. Thirty percent agreed, and 10% were neutral. Lastly, they were asked whether they received prompt, courteous learning support from their universities, and 30% answered yes, while 184 (30%) did not answer, and 17% (100) answered that they sometimes did. Fifteen percent replied that they never contacted their universities.

A positive an open-ended response from Case 1 who rang her course advisor occasionally, stated that:

Yes, the advisor is very good really because whenever I phone her, she is neither too busy nor impatient with my little questions that I ask, so I have been getting very good support. I phone her quite often and she is helpful and supportive.
From the interview with S1, I gathered that most participants in the undergraduate programs at Case 1 had face-to-face meetings at learning centers, which allowed them to discuss academic matters and to socialize. He also revealed that his learning center had adequate and well-functioning technology equipment such as computers, email, fax and printers that were used for learner support. They received quick assistance and the staff members were supportive in case of technical problems. Their learning materials were in print form that included books, videotapes audiotapes, diskettes and sometimes, CDs. These materials were delivered at a student’s residential address by post and S1 was quite satisfied with the efficiency of the process. However, he mentioned that:

Some students complained last year that they did not receive their materials in good time but the administration said it was because they [students] did not write their postal addresses correctly. (Interview statement from S1)

After receiving the learning materials, students would take around one or two weeks before attending a face-to-face session at the learning center, according to S1. Some of the print materials had references to websites that they were required to access for further information, and also retrieve other materials from the on-campus library. When I asked S1 whether he felt that learner support for telematic students was as good as that provided to campus-based students, he replied that:

I think campus-based students have an advantage because they can ask questions and receive answers or explanations faster, if not immediately, but for telematic learning, it takes a lot of time. First, you have to direct your questions to the course advisor who will then direct you to the lecturer, and the answer will come from the lecturer to the advisor, then to you. Sometimes this takes up to a week and if it is something you do not understand, then you cannot carry on with studies until the answer comes. This is time wasting and problematic. (Interview statement from S1)

While the respondents at Case 1 wished to send academic-related complaints by email directly to the lecturers, they were still bound to do so via course advisors because of policy. However, S1
stated that the lecturers were never available to respond immediately. I note here that S1 was pursuing an undergraduate law degree and most of his views were within his educational status. Other selected responses from the open-ended section (n=605) concerning learner support are as follows:

- *I have never received support for my subjects.*
- *The reaction from the university comes not very often or actually none or too late.*
- *I always get feedback on all my queries.*
- *There are lecturers who are prompt then there are others that do not remember to answer your queries.*
- *Lack of prompt personal support from lecturers.*
- *I need more communication with other learners.*
- *I would like to have more messages from the lecturer in my email than now.*
- *Difficult to get hold of some lecturers telephonically.*
- *Lecturers must give better feedback, and faster.*
- *A fulltime online lecturer that can assist in the learning process.*
- *I do not have textbooks to work with.*

### 6.10 Comparing ICT-based Learning with Traditional Learning

In section H of the questionnaire, the respondents (n = 605) were asked to answer 15 statements comparing ICT-based learning with traditional (face-to-face) learning, using a five-point Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree. The frequencies and percentages for the whole group are reported in this section, while those of individual case institutions (1-4) are illustrated in graphs within Appendix A12, using percentage distributions.

Twenty-three percent of the respondents strongly agreed with the statement saying that taking ICT-based courses was more convenient, while only 24% agreed. Forty-two percent did not respond, with the majority coming from Case 2 (40%). On the statement asking if they felt more unattached while taking ICT-based classes, 21% agreed, whereas 43% did not respond. One hundred five were neutral through 48 strongly agreed. Eighteen percent both disagreed and were neutral when asked if they did not have to work as hard for the ICT-based class. Only 7% agreed even as 43% did not respond. They were then asked to state whether they communicated more
with other students because of the computerized conference, and 24% were neutral, while 12% agreed. Two hundred sixty-two did not respond. As to whether having the computerized conference provided better access to the professors, 21% were neutral and 17% agreed with the statement. Two hundred sixty-seven students did not respond.

The next statement wanted respondents to mention whether they would be motivated to do a thorough job if their assignments were read by others, and 18% agreed, while 17% were neutral. Two hundred sixty-three did not respond, whereas 10% disagreed. On the statement suggesting that they were more likely to stop participating in the ICT-based class than the face-to-face class, 19% were neutral and 17% disagreed. Two hundred sixty-three did not respond.

Nineteen percent agreed with the statement about the ICT-based classroom mode being more boring than the traditional classroom, while 18% remained neutral. Forty-four percent of the respondents did not answer and only 3% strongly disagreed. Twenty-seven percent agreed to the statement noting that one felt more involved in taking part in the program, whilst 13% both strongly agreed and remained neutral. Forty-three percent did not respond. Twenty-six percent agreed with the statement claiming that they found comments made by other students useful, even as only 14% strongly agreed. Forty-four percent did not respond. Twenty-five percent agreed that reading reviews or assignments by other students would be useful, while 12% were neutral. Only 2% strongly disagreed.

Respondents were also asked if they would not choose another ICT-based learning program and 19% disagreed, while 16% remained neutral. Two hundred sixty-eight did not answer. On the statement saying that ICT-based learning was a better experience than face-to-face programs, 23% were neutral and 15% agreed. Two hundred seventy did not respond. As to whether they learnt more because of the available software, 21% agreed, while 16% were neutral. Two hundred sixty-five did not respond. The statement asking respondents whether they would have achieved more from a traditional program, had 153 remaining neutral, 16% disagreeing and 8% agreeing. Two hundred sixty-five did not answer.

From the findings, it can be discerned that participants in ICT-based learning were required to work less hard; that this mode encouraged communication among them; provided better access to the professors; increased the motivation to do assignments properly; and helped the students to share and review each other’s work. A sizeable proportion of the respondents seemed to be neutral on some other attributes such as comparison of ICT-based programs with the face-to-face
programs, the impact of virtual learning software, and so forth. Thus, the overall impact of ICT-based programs appeared to be positive.

The overall mean score on the perception rating for ICT-based programs was computed to examine differences between males and females, and it was found that no significant difference occurred between females (Mean = 3.37, SD = .29) and males (Mean = 3.32, SD = .42) for the overall mean score perception ratings. Table 6.2 reveals the mean scores, standard deviation and the standard error of the means for the males and females.

Table 6.2: Male and female overall mean score on the perception ratings for ICT-based programs

<table>
<thead>
<tr>
<th>Sex of the Respondent</th>
<th>n</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean score for all statements</td>
<td>Female</td>
<td>153</td>
<td>3.3720</td>
<td>.29604</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>203</td>
<td>3.3283</td>
<td>.42162</td>
</tr>
</tbody>
</table>

### 6.11 Course Facilitators

During an interview with a female module advisor (MA1) who was also a lecturer and a male course facilitator (CF3) at Case 1, CF3 explained that the lecturers updated the study guides and were responsible for running courses, while facilitators helped students to solve their academic problems. MA1 said that some study guides had video materials included for courses, though technology was not yet widespread. On the other hand, CF3 felt that the videos were obsolete since they repeated what was available in the study guides. He explained that facilitators met distance education students once or twice a month at the learning centers, to guide them through readings and group discussions. According to CF3, the facilitators generally did their best to guide the students using available materials, yet they could not change the study materials used in the courses because they were not authorized to do so. He also revealed that there was no proper communication between them and the Case 1 administration. For instance, they had no staff meetings with the administrators to suggest any improvement in the quality of work.

In another interview, a male facilitator (CF4) for an MBA course mentioned that as a facilitator, he went through the notes given by lecturers and asked students if they had challenges in understanding them. He had the students email addresses and also contacted the lecturers concerning the course materials. He mentioned that the face-to-face classes were quite interactive.
and the students were aware of the course content since most of them were employed in areas dealing with similar issues, and took the course to advance their qualifications. He felt that he added human value to the technology part provided by telematic learning.

Facilitation went beyond meeting students at the learning centers since some facilitators such as CF5, who was also an MBA lecturer, mentioned that he had cell phone and email contacts of the students he assisted and did not mind when they visited his home when in need of help.

_I do not mind if a student comes to my house to solve a question. I have to go an extra mile for the student; that is the other role of the facilitator - something which you find in us old lecturers. Members who are higher in society are supposed to do community time and I do that extra mile; it is my service to the community. I cannot give monetary contribution, but it is the only thing I can do in the meantime._ (Interview statement from CF5)

Whereas CF5 admitted that working as a facilitator did not earn him a lot of money, he was quite passionate about it and he had a good relationship with the management of Case 1, though communication needed to be improved, especially for those who worked in far-flung areas. The management of Case 1 held meetings with facilitators once a year.

A female facilitator (CF1) for the nursing management program mentioned in an interview that the introduction of telematic learning at Case 1 was very important because it enabled students to access technology support locally, instead of attending other universities. She said that the nursing management classes required computers, which could assist students in the learning process. In her opinion, the study materials were outstanding and self-explanatory, though certain students had learning challenges. However, she felt her role as a facilitator was that of a traditional lecturer, which was to create a learning atmosphere. A big challenge for most students was that they did not have money to register early enough for courses. As a result, they could not log into the virtual space to participate. Nevertheless, she and her colleagues would pay them a visit for support. She could not recall of any student that had dropped out because of academic challenges, since they did a lot to support them throughout the program. She also felt that communication with the Case 1 administration required improvement.

From the open-ended responses, some students mentioned that a few facilitators were boring and passive. They preferred facilitators who discussed their personal experiences with regard to
the business environment and workplace. Some facilitators were also of no help to them and should have been replaced with more qualified ones. One student wrote in the open-ended section that:

*I am currently not registered as a remote student, and thus attend facilitation sessions- the worst problem has been ineffective facilitators.*

6.12 Findings for Case 5

This section reports the findings from Case 5, whose purpose was to analyze the views and experiences of selected students who used the services of an Internet café at a technikon (university of technology) in South Africa. A sample of 274 respondents answered the web questionnaire (see Appendix A2) that consisted of three sections, namely:

A. Background information
B. Experience with computers
C. Accessing and using facilities at the Internet café

6.12.1 Background information

Responses from section A of the questionnaire concerning the demographic status of respondents at Case 5 are reported here using frequency and percentage distributions. There were 61 females (22%) and 211 males (77%), while two did not indicate their gender. Their ages ranged from 17 (1%) to 33 years (0.4%), and their marital status indicated that 259 respondents (95%) were single; two were married (1%) and two were divorced (1%). The race distribution shows that 264 respondents (90%) were Blacks, reflecting the high percentage of students from this race at the technikon where the Internet café was situated. The rest of the racial composition was as follows: 12 Whites (4%); eight Indians (3%); and the fewest respondents (four) were Colored (1%). The percentage distributions for race and marital status are displayed in Figure 6.9.

The issue of race was an interesting aspect in this study since some respondents indicated South African tribes such as Zulu, Xhosa, Venda, Tswana, Swazi and Shona, instead of their races. I grouped such entries as Black and similarly, European and Asian were grouped as White and Indian, to correspond with the official category of races in South Africa; namely, Black,
White, Indian and Colored, respectively. As mentioned earlier in Chapter 2 of this thesis, the race category is still used by the government to monitor socioeconomic progress within the historically disadvantaged groups. During an informal conversation with two black students at Case 1, they mentioned that they did not like the label “black”, which they deemed derogatory, and preferred to be called African.

![Pie chart showing respondents' race and marital status](image)

**Figure 6.9: Respondents’ race and marital status (n = 274)**

Most of the respondents (101) indicated that they were undertaking Undergraduate certificates, while 7% were in the Postgraduate/PhD programs. There were 89 undertaking a Bachelor’s degree and six were in the Master’s program. The 59 students who checked the option “Other”, did not indicate which programs or courses they were pursuing. The option was meant for any other than the provided choices. The percentage distribution for their educational status is posted in Figure 6.10.
The question asking if English was their first language or mother tongue scored 53% for No, and 47% for Yes. A follow-up question on this wanted to know if the respondents were comfortable with using the English language on the Internet, and a total of 262 (96%) answered that they did. This question aimed to understand whether they faced language barriers in accessing the Net. The high response rate could support the fact that many respondents were comfortable with English, which was also the language of instruction at the technikon. The percentage distribution is illuminated in Figure 6.11.

Figure 6.10: Respondents’ educational status (n = 274)
6.12.2 Experience with computers

Respondents were asked to rate their experience with various ICT components in order to understand whether they were comfortable when using them. The majority, who were 38%, indicated that they used computers daily and frequently, and only 16% were beginners. Forty-two percent answered that they used email frequently, and 9% indicated they were beginners. Only 14% used email occasionally. A total of 36% used word processors frequently, while 20% used them daily. The highest response of 41% showed they used web browsers frequently, whereas 14% were beginners. On the question about programming, 43% answered that they were beginners. Only 19% did this occasionally, yet 14% mentioned daily. Since computer programming involves software development, the internal response drop could correspond to the lack of computers and ICT skills. On the other hand, given that most of the respondents did not have access to computers and Internet elsewhere, they had probably not understood the question.

6.12.3 Using facilities at the Internet café

Respondents were requested to indicate whether they had used the Internet café before, and 96% answered affirmatively. The next question wanted to know how often they used the facilities and
the choices to select ranged from rarely to everyday. The highest frequency of usage was once a month for 121 respondents, and the least was once a week by four respondents. One hundred five used the facilities every day, while 27 indicated rarely. The Internet café manager had informed me during an informal interview that due to high crime rates in their city, many students did not feel safe using Internet cafés outside the campus at night. Having the Internet café on campus gave the female students a sense of safety because there were security guards. Figure 6.12 presents the percentages of how often the respondents used the Internet café.

![Figure 6.12: How often the respondents used the Internet café (n = 274)](chart)

This study sought to know when (time) the respondents used the Internet café, and 93 (34%) answered during lunchtime, while 70 (26%) used it in the evening (after classes). Eight (3%) used it only in the weekends and five (2%) used the facilities at midnight. Additionally, there were four reasons to choose from to explain why they used the Internet café, and the majority (120) mentioned that they did not have Internet access at home. One hundred indicated they did not have a PC at home, whereas 20 did not have Internet access at the technikon. The percentage distribution of these reasons is reflected in Figure 6.13. An open-ended response noted that:

*The Internet café gives me access to the Net; a privilege I do not have at home or at my hostel.*
Figure 6.13: Why respondents used the Internet café ($n = 274$)

Respondents were asked to mention how long they used the Internet during each visit at the Internet café and the results indicated that the majority (29%) spent more than two hours during each visit, while 8% (the least) spent 1-30 minutes only.

Nine statements were provided for respondents to select three top reasons for using the Internet at the Internet café, and the majority, who were 203, used it to receive and send email messages, while 195 indicated they went to browse/surf the Web. Sixty-eight percent mentioned that they used the Internet for academic research. Remarkably, there were more respondents (186) undertaking degree and postgraduate programs who answered this question, than those who pursued undergraduate certificate courses. Personal chat systems for instant messaging such as Hotmail and Yahoo! attracted only 46 respondents, probably because they were more interested in surfing. Additionally, the majority answered that they spent a maximum of one to two hours, which was not enough to do much. Since Internet access cost them money, they were likely to target specific activities during the visits. Only seven indicated that they bought things online. Percentages for these reasons are shown in Figure 6.14.
It was important to understand how cost-effective it was to access the Internet at the café. Therefore, using a five-point Likert scale rating (1 = A serious problem and 5 = Not a problem), respondents were requested to give various views on the cost of Internet connection. The percentages are provided in Figure 6.15.
The final three questions (22, 23 and 24) were open-ended, and requested the respondents to list some things that they liked and disliked about the on-campus Internet café and then comment on things that needed improvement. Responses from males and females were grouped into various categories as shown in the following three graphs with percentage distributions.

As illuminated in Figure 6.16, 15% of the females and 18% of the males liked the affordable Internet prices. The following are selected open-ended responses on what they liked about the Internet costs.

*It is easy for me to get access to a PC because it is affordable.*

*Get to browse as much as I like without worrying about the cost.*

*I like the fact that it is cheap and affordable for students, even if you don't have access to that much amount of money, you can still use the internet for only a buck.*

*The rates are also affordable.*

*Its prices are affordable as most learners are able to do their stuff at the Internet café.*
It is very cheap.
The price of the Internet café was made for students.
Internet access here is much cheaper when compared to other internet cafes.

Twenty-six percent of the females and 21% of the males liked the Internet café because of entertainment and communication: music, games, short message service (SMS), email and chat. There was background music played inside the café by the staff that respondents liked, according to some comments. They could also download ringtones for their mobile phones from the Internet, played Internet games, and bought prepaid phone cards to load on their mobile phones. Others liked to chat on the Internet and send text messages by email at different websites. The following selected comments illustrate their thoughts on entertainment.

Music is played for me while browsing around the computer.
Email, chat, and basically Internet access.
Sending SMS and searching for career opportunities.
It makes me feel loved because I receive email from the people who love me.
Easy access and email.
The music keeps me coming and price is reasonable.
The rates are not high and you also listen to music while surfing.
Sending massages.
Finding the information I need and being able to chat via the Internet.
The atmosphere created by the music.
Playing games.
Surfing the Net, downloading ringtones, pictures messages, and chatting.

Ten percent of the females and 14% of the males liked surfing and doing research on the Web. More postgraduates tended to use the Internet for academic research than the undergraduates did. Some of their comments are as follows:

It provides us with a wide range of info we need academically or when looking for a job.
I can access many different websites of interest to me.
I always get what I want when using the Internet.
I like surfing the Net mostly and doing my academic work.
I get all the information I need and it is not that difficult to use.
Microsoft office, reading e-newspapers.
I get a lot of information from the Internet. In-between classes, I can enjoy myself at the Internet café.
They are helpful to my academic achievement.
Surfing on the Internet.
Visiting websites and academic research.
To get access to the internet where I can get my course information and I believe the Internet is all what I need to be informed to world events and access to useful information.
I am able to do my research after classes at convenient hours and at a reasonable cost.

Easy accessibility was another category that indicated how the café’s close proximity to the respondents’ classrooms was convenient. They did not have to leave the campus and could drop in for services as long as it was opened. Seventeen percent of the females and 16% of the males felt this way. Some selected responses are provided here:

Easily accessible and relatively affordable.
It comes in handy.
The atmosphere is good and it is a time for me to relax.
It is closer to the class and it is open until late.
It has an accessible atmosphere at all times and the assistants are friendly.
Accessibility of the computers.
Printing and copying facilities.
It is fast and accessible; you can even have your own folder in the public folder.
Can be used at the time I want to use it.
It is close to me and in the immediate area of my classes.
It is on campus; thus easy access to the Internet.
The music that plays, the friendly staff and the fact that it is open on weekends.
It is very close and it equips me with some skills that might be of utmost important in the future.

Nineteen percent of the female respondents and 12% of males had a positive view of the service and staff hospitality. Some selected perceptions are as follows:

Their service is of the highest standard.
Their staff and students are very friendly.
The workers are friendly especially the female; I like that.
It is helpful with a lot of things.
The prompt service when one needs help.
The service we get makes enables us to use the center more frequently.
Assistance from the staff.
I like the printers and the speed they print.
Their service is fast.
Good customer service if I have a problem and refreshments to maintain our stay whilst connecting the Net.
Excellent service and friendly attendants.
Possible services: vending machines just nearby and hot take-away available at affordable prices, with friendly assistance from the staff.

Socializing was another category created from the responses. Seven percent of the females and 12% of the males gave corresponding views. Some selected responses are illustrated here:

You meet people that share your interests.
Meet students and discuss any problems.
You get to meet different people.
I get to meet different characters and beautiful ladies, like one of your employees.
Talking to people; socializing with other students.
We see beautiful students.
It is a great place to hang out.
The people and the atmosphere.

Student interaction; fun with everybody and the fast food sold.

It is the kind of place that when open you can go in and ease your mind after class.

There were a variety of responses in the “Other” category, which had 7% female respondents and 12% males. The following selected comments show that ICT services at the Internet café helped to improve their computer skills.

I am getting more computer practice.

It helps me to be computer literate.

I can take my time learning computer operations.

It gets my mind off things and helps me understand computers better.

Identify my capabilities of using a computer.

The respondents’ worst experiences were grouped into various themes as presented in Figure 6.17. Twenty-seven percent of the females perceived slow Internet connection (narrow bandwidth) as the worst thing that required improvement, whereas only 28% males felt the same.

Figure 6.17: The worst things that needed improvement at the Internet café (n = 274)
The following are selected views:

At least the data or the network must be faster whenever downloading information I have received.
I think you, as the Internet management, should every morning when you switch on the computers, make sure that they are up to date with Internet.
The server should be improved so as not to struggle when we access the internet.
The worst thing about the Internet café is the speed of the [Internet] system. I mean I can spend about 10 minutes to open only one page.

The respondents were dissatisfied with the computer hardware and software. Thirty-three percent of the females and 42% of the males felt this way. Some perceptions were as follows:

The speed of the computers is the only thing that needs to be improved.
Buy more computers to accommodate all students and install frequently used programs.
More and more computers. This campus has 16 000 students. Please! Please! Please!
There is a real shortage because the computers are so few that sometimes we have to stand for two hours waiting for a free computer. That really angers me as other students who are well-known get computers faster from their friends or anyone and leave you.

Poor staff service was another issue they wanted to be improved according to 10% of the females and 10% of the males. These are some of their views:

When one of your employees is in a bad mood and cannot serve us correctly.
The things that mostly need improvement are the service and the attitude of the people employed at the Internet café and the [Internet] network.
Lack of professionalism among the staff.
Sometimes the staff is slow to solve our problems with computers.
Some of the staff members are so rude and impatient.
Congestion or inadequate space was another matter that concerned 15% of the females and 10% of the males. The following views are quoted from them:

*Increase space of the building and the computers.*
*More space, more computers and more internet speed.*
*If it were possible to find a bigger room, this one is not big enough.*
*There are a lot of students, yet there are not enough computers.*

During my two visits to the Internet café, it was fully occupied after lunch and I could see many students whiling away time or sharing Internet access on a PC with others. It was evidently overcrowded during the peak hours, around lunchtime. From the final question that sought comments or suggestions for improvement, diverse themes were compiled for percentages as shown in Figure 6.18.

![Figure 6.18: Comments for improvements at the Internet café (n = 274)](image)

**Figure 6.18: Comments for improvements at the Internet café (n = 274)**
Fifteen percent of the females and 10% of the males had different views on what was the worst about using the Internet café. Some selected ones are:

There are no toilets nearby.
Sometimes we come with existing web addresses but the computers will fail to find them. Again, I think they need to regulate the time that one spends at the computers to enable others to use them.
Sometimes the stiffy drives [South African term for floppy disks] are not working when you really need to use them, and sometimes they get so full that you are not helped at the right time.
I typed my assignment and the next morning it was erased.
No privacy.
You can use earphones on only a few computers.
Not easy to download info. (Or we need some training).
The computers are slow during the day, and it is all piled up in here (of people) and it kind of gets stuffy because this is the most popular classroom on the whole campus. (No offence to the lecturers).
I think we should not be paying to use the Internet. It is so full sometimes you wait longer to use a PC.
Control on the Graffiti Wall, people swears on it, and we, fragile people, have to blind our eyes while in the café.
The Internet café is not used for academic purposes. It is mostly used to send SMS and email. You should have computers without Internet access for students to use programs like Excel and Microsoft Word to write assignments.

6.13 Findings from the Electronic Survey Methods

The email and web survey techniques used in this study have unearthed similar methodological challenges presented in section 4.5 and subsection 4.5.1 of Chapter 4 in this study. The following findings indicate their strengths and weaknesses.
(1) Internet coverage. It is assumed that limited Internet coverage contributed to the low response rates within the sample populations in my study. From the outcomes, it is clear that quite a few respondents had computers and Internet connection at home. However, I can speculate that other reasons beyond the scope of this study contributed to non-participation in the surveys. The self-selection technique could have steered the respondents’ choice to participate or not, since it was voluntary. Students might have also been “fatigued/saturated” with surveys, since some case institutions reported that they had run quite a few of them before mine. Others probably felt that the surveys were irrelevant even if incentives were provided. The fact that there was no free Internet access might have steered the students’ choice of what to spend their paid-up time on, while on the Internet. It is not easy to understand why Case 4, for instance, which had around 120,000 registered students, could only generate 23 respondents.

(2) Item nonresponse bias. Since a significant number of questions were not answered, it is assumed that the respondents might not have understood them or did not find them relevant to their programs. For instance, the provision of learning materials via video tapes, CD-ROM or the Internet. Consequently, item non-response bias was experienced in some questions.

(3) Non-representative results. The survey results were not generalizable to all the participants at the selected cases, since they depicted the views and experiences of the sample population only.

(4) Less costly. Conducting the surveys proved to be cheaper than sending and receiving paper questionnaires with feedback, or to traveling around South Africa to administer them. Additionally, there was no guarantee that sending them by post would have yielded higher response rates. Furthermore, from my experience during fieldwork, students at the learning centers had very little time to spare for answering questionnaires. I once experimented by distributing paper questionnaires to students at a learning center who had agreed to send them back to the facilitator. However, not a single person responded. It would have also cost more money to travel across the country to conduct interviews.
(5) **Time efficiency.** Less time was spent to distribute the questionnaires by email and it was easier to compile the feedback in a convenient format for statistical analysis. The web was similarly convenient once the questionnaires had been posted.

(6) **Incentives.** The incentives I offered might have encouraged some students to participate in the surveys. However, they did not seem to have influenced the wording of the responses, because while going through each one of them, I was convinced that they reflected the thinking of students who were genuinely expressing themselves. Moreover, having visited universities in South Africa, I had listened to similar patterns of expression.

(7) **Confidentiality and anonymity.** The email responses had respondents’ names and addresses, while the web responses had Internet Protocol numbers or computer identifiers. It was therefore clear that they were not completely anonymous. However, all these identifications were deleted before the analysis (see section 4.3).

(8) **Ownership of the survey processes.** I depended on certain officials at the case institutions to post questionnaires on their websites and to send them to participants by email. By the same token, they received the responses before forwarding them to me. I was therefore not in full control of the survey processes, although I had direct access to some of the websites through the provided passwords, to monitor responses.

Another experience was the deletion of sections from both questionnaires that were considered irrelevant at some institutions. The following questions were not attempted by respondents at Case 2, namely, (2) Faculty; (3) Learning center; and (9) How many online learning courses have you taken previously? Similarly, question 21 (problems with Internet connection) was not completed at Case 5. At Case 3, the respondents did not answer question 40 that sought to know three of their most often used means of communication. The sample size of five respondents at Case 3 was partly because the web survey was terminated without warning, leading to the loss of four other responses that I could not retrieve from the database. Furthermore, all the five open-ended sections in the Case 5 questionnaire were not answered because the Internet café manager did not include them. I can speculate that this happened because he had only allocated 30 minutes free of charge to students who were willing to participate in the survey. More questions would
have taken longer to complete, unlike the sections that required checking only, by using clickable buttons.

A South African professor had advised me to add some variables to a question that asked students to indicate the most common mode of technology-based communications tool among them. He also requested that I delete the option of “Neutral” from the Likert-scale variables because students in the country preferred to select it since they did not want to take a clear position in many matters. However, these modifications were not made because some institutions had already administered the original questionnaire (Appendix A1) to their students and I wanted a standardized survey. At Case 2, I was charged a fee to host the online questionnaire, while at Case 5, I was asked to pay a fee for the first 30 minutes that the students spent on the Internet to answer the questionnaire. For these institutions, hosting the questionnaires was a commercial service that engaged their labor, which cost money.

6.14 Summary

This chapter has reported findings from the electronic surveys that were administered to students at Cases 1-5, unstructured interviews with selected students and facilitators, and observations at selected learning centers and at the Internet café. Descriptive statistics are used to report the quantitative results that are displayed in tables, charts and graphs, while verbatim quotations are used to report expressions from selected interview findings. The case institutions have been described according to website information that was available in 2002. Further, Cases 1-4 had a blended format of delivering learning content that included print, ICT and face-to-face meetings with students.

Most respondents at Cases 1-4 chose ICT-based learning because it was flexible, cheaper and had better quality than traditional education. They were also comfortable using English for ICT-based education. However, code-switching from English to Afrikaans was observed during one of my classroom visits at Case 1. It was found that a majority of the respondents were employed and found the ICT-based model quite convenient since they could study anywhere at any time. Whereas the respondents had various sources of funding, most of them paid for their studies by themselves.

The chapter has shown that many respondents used computers daily and had frequent access to the Internet and printers. However, there were more whites with Internet access than the other
races. Besides, there were varied answers concerning the methods of delivering course materials using study guide packages with videocassettes and reading materials. In particular, S1 from Case 1 revealed that the study guides were rarely revised or evaluated.

There were low responses from statements that asked respondents to rate their perception about teaching and learning tools such as email, teleconferencing and video conferencing. I learnt during fieldwork that the case institutions did not offer real-time interaction because Internet connection was very costly. Similarly, there were low responses to statements asking about access and participation in online lecturers.

Learner support was featured more at Case 1 and involved technological support, especially for the Pharmacology students, who participated in web-based learning. However, S1 complained that it was not easy to get quick feedback from their lecturers by email. Though a majority of respondents were neutral on various statements that compared ICT-based learning with traditional learning, they were generally positive about the model since it enabled them to interact more with fellow learners and instructors.

The course facilitators who were interviewed at Case 1 were generally happy with assisting students, though they wished for more communication with the management of the institution. Some wanted the study guides to be revised, while one female felt that they were alright except that certain students had learning difficulties.

Key findings from Case 5 have shown that most respondents used the Internet café at the technikon because they did not have Internet access at home or at work. In terms of why they used at the Internet at the café, the top three reasons included email communication, browsing the Internet and academic research. Most of the respondents did not have a problem with the cost of Internet connection, and many indicated that they used the Internet café because of its affordable prices. The next chapter discusses these findings.
Chapter 7: Discussion of the Findings

7.1 Introduction

This chapter interprets the main findings of the current study in relation to the objectives that were set in Chapter 1, and other research outcomes within the realm of higher and ICT-based distance education. The chapter revisits the literature on South Africa (Chapter 2) and beyond (Chapter 3). The methodology (Chapter 4) is reconsidered to understand the strengths and weaknesses of using electronic surveys for data collection. My comments on these matters include personal discussions with people in South Africa, observations during fieldwork, and general knowledge.

7.2 Discussion of Results

The overarching goal of the present study was to investigate how the introduction of ICT into distance education at the public higher education institutions in South Africa during the early post-apartheid period from 1994 to 2002, offered learning opportunities for students and facilitated the delivery of educational content. The empirical part of the study was conducted in 2002, when some public higher education institutions in the country provided distance education as a means of increasing student participation, and generating income. However, the proliferation of private actors who collaborated with such institutions caused concern to the government that questioned their quality of learning content. Since ICT-enabled distance education was relatively new in South Africa when this study was conducted, it was important to interrogate how the government and institutions dealt with it.

In particular, the study examined and analyzed the views and experiences of students at four South African higher education institutions pertaining to their use of ICT equipment, and the delivery of learning materials. It also interviewed selected course facilitators (assistants) to understand how they supported students at various study/learning centers linked with one of the case institutions. The study also examined and analyzed the views and experiences of selected students regarding the services of a private Internet café that they used at a technikon.

The case study research design has satisfactorily addressed the objectives of the study within the context of higher education in South Africa. It has also provided essential information about the nature of distance education. The study found that overall, there were no significant
differences in the manner of delivering educational content at the four institutions (Cases 1-4), which used both print and ICT-based models of distance education. This section expounds on the main findings.

*Flexibility of learning*

The views and experiences of respondents from Cases 1-4 were varied and ranged from positive to negative. However, the majority perceived ICT-based courses and programs as flexible, cheaper, and of better quality than traditional ones. Most respondents were employed and found ICT-based distance education convenient because they could study at their own pace. They also expected that the model would enable them to complete studies quicker, and earn qualifications that would improve their professional skills. The virtual provision of the Pharmacology program for instance, allowed the participants to study without attending classes. The advantage of studying at one’s pace during the weekend or in the evening after work, was emphasized by one respondent this way:

*I can study fulltime while upholding my job responsibilities; the people attending ICT training are more mature and more committed to the program.* (A respondent’s view in the open-ended section of the questionnaire in Appendix A1)

The results confirm previous studies by Swanberg (2001) and Keller (2005), which revealed that students chose online learning because it was flexible and time efficient. They also assumed that virtual learning environments (VLEs) increased their opportunities for interaction with other distance learners and facilitators.

The need for more flexible and diverse learning is a recurring theme in South Africa’s education policy discussions (Jones & Walters, 2015). Moreover, the South African Department of Higher Education and Training (2013) would like higher education institutions to take into consideration the varied employment situations among students when scheduling classes at particular times and places. It also acknowledges the significant role of technology for boosting the flexibility and growth of blended, online and distance education programs.
Respondents at Cases 1-4 viewed the use of English language for instruction differently. Whereas the majority were not native speakers, they were comfortable with it. However, there were some who proposed that other languages from the 11 official ones recognized in the country, be included for instruction. My classroom observations at Case 1 also put to question how the language of instruction was handled, particularly when students and facilitators alternated between English and Afrikaans (see section 6.3).

South Africa’s language policy document developed by the Ministry of Education (MoE, 2002) states that the apartheid policy of “separate development” favored the advancement of English and Afrikaans as the official languages, while other languages remained marginalized and underdeveloped. The mass struggles experienced in the 1970s and 1980s were partly due to the apartheid regime’s attempt to enforce Afrikaans as a medium of instruction in black schools. The MoE (2002, p. 3) document mentions that:

Everyone has the right to receive education in the official language or languages of their choice in public educational institutions where that education is reasonably practicable. In order to ensure the effective access to, and implementation of, this right, the state must consider all reasonable educational alternatives, including single medium institutions, taking into account- (a) equity; (b) practicability; and (c) the need to redress the results of past racially discriminatory laws and practices (Section 29 (2) of the Constitution).

Nonetheless, Tshotsho (2013) argues that the idea of implementing mother tongue-based education is contentious because the official languages of instruction in South African secondary schools and universities are English and Afrikaans. The author argues that many parents (especially in urban areas) stress English as the language of choice for their children because it is more favored in the labor market. Vernacular languages are therefore perceived as optional.

In spite of the government policy of multilingualism, English and Afrikaans remain the only two languages used in tertiary institutions. The DoE has not been able to convince tertiary institutions to use one of the indigenous languages as a medium of instruction and the funds
for implementing this option are not likely to be available in the near future. Thus, the functional value of English as the medium of instruction is endorsed and students are obliged to adhere to English in order to progress at tertiary level. (p. 40)

A report published by the Council on Higher Education (2001) on the language policy framework for the South African higher education found that many institutions prefer to use English as a second language except Stellenbosch University that has retained Afrikaans. The historically black universities on the other hand, lean towards English-only for instruction. However, all institutions in the country offer proficiency classes to improve literacy. Outstandingly, English is ranked fifth as a home language, yet it is the most used language on the Internet. It could be argued that since it is the dominant language on the Internet globally, and South Africa falls within the Anglophone category, many people are obliged to use it. According to the Internet World Stats (2016), English is still the most widely used language on the Internet. By June 2016, around 68 percent of the estimated 1.5 billion English-speaking people worldwide used it. Besides these stated facts, a study by Lanerolle (2012) reveals that literacy barriers in the English language still determine Internet user profiles in South Africa.

Our research indicates that English language literacy is possibly the most important predictor of Internet use – more significant than age, income, gender or where people live. More than one in five respondents said they could not easily read and write in English. And virtually none of these people (3%) used the Internet. (p. 10)

The use of Afrikaans as the main language of instruction at the former Afrikaans-only universities such as Stellenbosch remains emotive. In early 2016, there were protests at the University of Pretoria and the University of the Free State because of this. Spaull and Shepherd (2016) argue that there is little evidence presented to show the number of students excluded from joining Stellenbosch because of language. However, 61 percent of all the students who qualified with a bachelor’s degree in 2014 countrywide did not take any Afrikaans subjects.

If one looks at black African students only, then 86% took no Afrikaans at all. It is reasonable to assume that 86% of black African students who qualify to go to university understand no
Afrikaans at all. How then are these students meant to understand some of their university subjects in Afrikaans if they are accepted at Stellenbosch University? (para. 12)

Spaull and Shepherd also disclose that code-switching is used at Stellenbosch in classes that are conducted both in English and Afrikaans, though there are translation services from Afrikaans to English, but not the other way around. As such, students who do not understand Afrikaans are excluded from active participation. Those who are not happy with the interpretation services claim that they are “are inadequate, frustrating, and create second-class students in the lecture hall. Having a mediated, second-hand learning experience is extremely frustrating and alienating” (para. 18). The authors suggest that while it would be ideal to use all the 11 official languages for instruction, it is not feasible because of limited resources. Furthermore, they recommend that Stellenbosch University should reform the language policy and at least begin offering all the courses in English. However, an out of court settlement in early 2016 allowed the university to use both English and Afrikaans equally for instruction, instead of English only, as demanded in an earlier court petition.

**Financing studies**

The majority of respondents at Cases 1-4 mentioned that they self-funded their studies. While the empirical part of this study did not delve deeper into how students financed their university education, the literature in section 2.5 (Chapter 2) shows that the burden of paying tuition and other fees has increased in recent years, and threatens to reproduce an apartheid-like inequality of participation among the socioeconomically deprived students. Spaull and Shepherd (2016), who are academic staff members at Stellenbosch University, uphold that:

The evidence of financial exclusion and financial inaccessibility is now well known. A research note published by our colleagues earlier this year showed that the cost of a BA degree at Stellenbosch increased 30% between 2006 and 2015 and now requires 44% of average adult income. (para. 9)
Whereas students take loans through the National Student Financial Aid Scheme (NSFAS), Cloete (2016) reveals that the poor ones who drop out for various reasons, revolve back into poverty since they lack qualifications for formal employment, and subsequently cannot repay the loans. Similarly, Kirlidog and Zeeman (2011) emphasize that unrelenting economic disparities among the races contribute to fee-payment challenges.

Subsection 2.5.1 has presented various views concerning the recent funding crisis in South Africa, which led to violent protests calling for tuition-free public higher education. Badat (2011) suggests that free education for all would benefit the wealthy and middle class groups more than the underprivileged ones. Alternatively, if the model were to benefit the poor, then a shift would be required in dealing with societal priorities, policies and goals, since the cost would be enormous at the expense of other public sector services. Cloete (2016) on the other hand, submits that more investment in vocational and technical training could promote equality in higher education. Finally, an interim report by the Commission of Inquiry into Higher Education and Training (the Fees Commission) established in January 2016, proposes that poor students should be assisted financially, once a means test has been conducted to determine their level of poverty (Heher, Ally, & Khumalo, 2016).

An unexpected finding from my study was the unexpressed perception that ICT-based education was cheaper than traditional education. The male student (S1) interviewed at Case 1 mentioned that telematic learning was not cheaper than traditional/on-campus learning. He gave the example of his campus-based sisters who paid lesser tuition than he did (see section 6.3). Evidently, the quality of outputs in education is notably related to the invested resource inputs.

**ICT access, study materials, course facilitators and learner support**

Access to the Internet was skewed in favor of most White respondents (Case 1 Pharmacology) compared to nonwhites. This reflected the national situation then, which showed that by 1999, less than one percent of the Black population had Internet access at home, while by early 2000, 12.2% of White men had Internet access at home and 12.8% had it at work, respectively (Wasserman, 2003). Although a large number of respondents from Cases 1-5 had mentioned that they did not have Internet at home and that the connection was slow when available, the situation has since improved and the mobile phone is now the most common means of accessing the
Internet in South Africa. However, as stated in Chapter 2, broadband costs are still high across the country.

Some respondents complained that learning materials such as videos and some textbooks were unrelated to their studies. Further, they were not delivered on time, especially for students in the far-flung areas of South Africa. By and large, they called for improvement in the time taken to deliver them.

Whereas all the course facilitators at Case 1 were generally happy with their work, some were disenchanted for not being allowed to effect changes in the study guides. They also felt that they did not have enough communication with the administrative personnel responsible for developing course materials. In a review of the programs run by the Telematic Learning Systems at Potchefstroom University, Rumble, Hope, Thelkeld, Kirkwood, and Lubisi (2001) recommended that facilitators be part of the academic setting (see subsection 2.10.1).

Learner support (technological and face-to-face) varied among the respondents at Cases 1-4. At Case 2, the virtual learning environment (VLE) offered a faster channel of interaction with lecturers and fellow students via email, and enabled respondents to revise learning materials at their own pace. It also motivated those who felt shy in a face-to-face environment. However, at Case 1, the informant (S1) mentioned that it was not easy to receive quick feedback to questions sent by email or even reach the course administrators by telephone.

Providing learner support via VLEs is still a challenge in South Africa as shown in a study of Unisa by Baloyi (2013), who states that the virtual space known as myUnisa is not accessible mainly to students in rural areas, who by and large do not have access to the Internet. The author found that only five out of the ten lecturers who were interviewed in the study visited the discussion forums or used other functions at myUnisa. An earlier survey by Liebenberg, Chetty, and Prinsloo (2012) established that most of the students who were active on myUnisa had regular access to ICT for educational purposes, compared to those who were not. However, the cost of Internet access is still an issue regardless of the available infrastructure, and the quality of Internet provision matters too, according to connectivity (bandwidth) and devices. To provide a solution to students who have Internet access problems especially in the rural areas, Unisa collaborates with privately managed telecenters that avail computer and Internet services in remote areas countrywide, at affordable costs (Unisa, 2016b).
Case 5: Internet café study

A central outcome from Case 5 indicated that most respondents used the private Internet café at the technikon for Internet access because they lacked computers and Internet connection at home. However, those who had such facilities mentioned that they were not efficient in terms of speed, and as such, they preferred to use Internet cafés, which had high-speed connection. The respondents revealed that the Internet café was reasonably priced, apart from being a meeting point for socializing with fellow students. Nonetheless, they requested for improvement on the Internet connection that was slow, and the low standard of service offered by some staff members. Considering that they paid only one ZAR per hour to use the Internet, the Internet café was quite cheap compared to others that I had visited in 2002 within the cities of Johannesburg, Cape Town and Pretoria, which charged from ZAR 1 to 6 per hour.

A study by Hobbs and Bristow (2007) found a huge price gap in using the Internet between the affluent northern suburbs and the less affluent areas of Braamfontein and Soweto in South Africa. In Braamfontein, it cost ZAR 5 per hour compared to ZAR 35 per hour (around $0.465 to $3.252) in Rosebank. The authors note that Soweto attracted middle and low-income earners, some of whom could afford personal computers and Internet connection. As a result, they established informal “residential cafés” to provide Internet access at a lower cost. Some residents with Internet connection at home also offered the service to local customers such as neighbors or schoolchildren. Hobbs and Bristow also found that prices dropped in the less affluent areas whenever there was a high concentration of Internet cafés. In Sandton, Johannesburg’s posh suburb, one paid for the luxury and not necessarily for the Internet connection, whereas in the less affluent areas, prices were “localized” to befit the average South African.

Only three percent of the respondents answered that they bought things online. The low response indicated a lack of access to banking facilities like credit cards. It could be generalized that many nonwhite South Africans did not own credit cards required for online electronic transactions, especially around the period of this study in 2002. Such facilities were quite limited to a small section of White South Africans. According to the Economist Intelligence Unit (2003):

While South Africa is unquestionably the region’s most mature e-commerce market, online sales remain low by global standards—just 0.1% of total retail sales in 2001. And much of the
recent growth in Internet usage and e-commerce is among white urban professionals, a small minority of the population. (p. 16)

The Internet café promoted and improved students’ computer knowledge/literacy through the services offered, according to my informal interview with the manager and some of the respondents’ open-ended views. The initiative was a good example of collaboration between a public university and a private company that provided ICT services to historically disadvantaged students, who were the majority at the technikon.

The electronic surveys

Some of the findings in section 6.13 are revisited here. The process of conducting the email and web surveys met with significant challenges including the aspect of limited Internet coverage across South Africa during that period, which might have hindered many potential survey participants, and hence the low response rate. Bethlehem and Biffignandi (2011) uphold that whereas Internet access has increased worldwide, its coverage is not yet universal. This factor prevents the usage of Internet for household and personal large-scale electronic surveys.

Kwak and Radler (2002) advance the argument that the demographic profile of electronic survey respondents can have implications for coverage error and validity. Web surveys were relatively new during the period they published their study. In this respect, the authors expected that early adopters of the Internet technology were mostly likely to participate in electronic surveys because they had Internet access, and were therefore over-represented, more educated, and male. These characteristics mirror the Pharmacology postgraduate respondents’ profile, whose web-based program made it conditional for them to have access to computers and the Internet. Out of the total number of 32 students who were enrolled in the program at Case 1 in 2002, there were only five females among the 18 respondents in the email survey.

The non-probability sampling technique did not offer the general student population at the case institutions, an equal opportunity to participate in the surveys. Moreover, the issue of item nonresponse that was experienced in certain questions has been exhausted in section 5.2. Yan and Curtin (2010) state that an issue of concern in item nonresponse is the possibility of reduced
sample size if the completed cases are the only ones to be analyzed, putting to question the data quality.

With regard to costs, while I may have saved money by not traveling across South Africa to distribute paper questionnaires, there were administrative costs for developing the web platform and “incentives” at Cases 2 and 5. Cohen, Manion, and Morisson (2013) maintain that Internet surveys may not be cheaper if the “development, programming, testing and modification time, initial contact time and follow-up time to ensure an increased response rate are factored in” (p. 280). On the other hand, web-based survey results are easily transferrable to statistical software for analysis, which makes the process more efficient compared to paper-based questionnaire feedback that takes more time to feed into similar software (McPeake, Bateson, & O’Neill, 2014).

Though I did not have particular difficulties in accessing research sites for observations, some case institutions deleted parts of the questionnaires (see section 6.13). Moreover, I did not have full control of the survey processes. Gatekeepers (persons who control research access), according to Bryman (2012), negotiate access into their organizations, are apprehensive about how they are represented, can sway how research is conducted, whom to involve, what to ask, and probably how results are interpreted. Because of those reasons, Singh and Wassenaar (2016) recommend that while undertaking fieldwork, a researcher should adhere to what has been agreed on for the sake of conducting good research. They assert that gatekeepers play an important role in guiding the researcher in order to honor the stated institutional ethics. Therefore, researchers should be mindful of the fact that gatekeepers can influence the direction of data collection.

Higher education: changing patterns and emerging models

The present study began with a review of some comparative global perspectives that have shaped higher education since the latter half of the 20th century (see Chapter 1). Due to the ever-growing demand for higher education by individuals, national governments, society, and the need for professionals in the workplace, many universities have developed diverse models to attract more students. Moreover, because of cutbacks in public funding that began in the 1980s, many higher education systems worldwide have adopted cost-sharing measures (charging tuition and other service fees) so as to generate revenue. Distance education was viewed as a solution to meet the
demand for higher education by students without gathering them into buildings. The advent of new technologies then expanded the mode of delivering teaching and learning beyond print materials, and included radio, television, videos, computers and other electronic devices such as CD-ROM and DVDs.

When the World Wide Web was introduced in the 1990s, many higher education institutions in the North created virtual learning platforms that were either purely Internet-based (without interaction among students and lecturers) or blended (with interaction). The Internet led to the establishment of virtual universities mainly by private stakeholders, who also collaborated with some public universities. It was thought that technology would be the driving force at such institutions, without human contact at all, as shown in the case of the now defunct United Kingdom electronic University, which failed to enroll the required number of students in order to survive (see Chapter 3).

The emergence of inexpensive education has also been realized through the open educational resources (OER) movement spearheaded by top-ranking universities in the United States of America and elsewhere, that distribute free courses on the Internet. However, higher education institutions are yet to establish formal structures for integrating the new learning content delivery model called massive open online courses (MOOCs). While the Internet has provided so much opportunity for students to participate in higher education, the digital divide (the gap between those who have Internet access and those who do not) still hinders many others from doing so, especially in the South (see section 3.3).

Even though the Internet is currently more accessible worldwide, copyright restrictions and other expenses by some publishers of academic content, particularly in the North, deny users in most parts of developing countries the opportunity to share electronic literature. As a consequence, the idea of a global knowledge society remains unrealistic for many. Despite those barriers, ICT has dramatically redefined the way we think, plan, design and deliver education. Nevertheless, distance education does not enjoy the same conditions and status as traditional education. The male student (S1) interviewed at Case 1 mentioned that as a telematic student, he felt that there was more attention paid to the on-campus students who were closer to the lecturers, while he had to reach them through course advisors (see Chapter 6).
Chapter 1 introduced the context of South Africa to understand how the first democratically elected government of 1994 created policies to enhance the use of ICT in higher and distance education. The country’s government, just like other governments elsewhere, has focused on ICT both as a means of expanding higher education and of increasing participation in the global knowledge economy. It liberalized the ICT sector by licensing a private national provider of telecommunications services and other Internet service providers. South Africa is among the leading African countries in the distribution of ICT services, which include mobile telephony that has become ubiquitous, especially in rural areas that were deprived telecommunications infrastructure during apartheid.

Transforming the public higher education system has also been a priority, and is aimed at redressing inequalities that were created by the racist and sexist apartheid ideologies, which barred nonwhite men, women and girls, from upward mobility in academia (Badat, 2010; Habib, 2016; Kaburise, 2014). For instance, the process of merging some universities and technikons that happened from 2001 to 2007, was a major step in demolishing the expensive and duplicated apartheid system of education.

However, the mushrooming of private distance learning providers that collaborated with some public contact institutions (mainly former whites-only) during the early post-apartheid period to provide learning content, was seen to lower the quality of distance education. Subsequently, the government called for a stricter delivery of educational content by making the University of South Africa (Unisa), the sole provider of distance education in the country. While some other institutions are also currently authorized to offer distance education, they are not on the earlier unmonitored scale.

To conclude this chapter, I can state, with consideration to the literature and empirical evidence gathered in my study, that the process of transforming South Africa’s higher education system by redressing past inequities has not been easy, despite the application of multipronged strategies and the increased participation of nonwhite students, since 1994. For instance, there are still not adequate black professionals to take over university leadership and research activities, which are still dominated by whites. Investment in new technologies has also not matched the policy strategies drawn to promote ICT-based learning as a whole, since there is still a shortage
of specialized instructors with the knowledge of implementing online teaching and learning. Madiope and Govinder (2015) state that the current technological infrastructure at Unisa was unreliable and some academics had technophobia. Additionally, there are still very few students in the country who excel in Mathematics and Science at the school level, in order to be admitted to pursue ICT-related programs in higher education. The Department of Higher Education and Training (2013) emphasizes the need for ICT infrastructure improvement at all higher education institutions in South Africa. This is important for increasing the country’s participation in a globalized world and for counteracting educational inequalities in the country. The next chapter brings the current study to a conclusion.
Chapter Eight: Conclusion and Recommendations

8.1 Introduction

In this concluding chapter, I make inferences with regard to the evidence gathered and analyzed to justify my study. I revisit the problem statement, research questions and the objectives of the study, by linking them to the literature review and empirical investigation. I then make recommendations for future research in distance education within and beyond South Africa. In order to rationalize the study, I situated it within the global (Chapters 1 and 3), national (Chapter 2, South Africa) and higher education institutions’ milieu (Chapter 6, the case study findings). In Chapter 4, I used a case study research design that included quantitative and qualitative methods, to investigate the overall aim and specific objectives of the study.

8.2 Reflections

When apartheid ended in 1994, one of the main goals of the South African government was to make public higher education inclusive of all races by redressing past inequities. While distance education was viewed as one of the means of expanding participation for the nonwhites, the challenge was how to control the burgeoning private providers who collaborated with some public on-campus institutions to deliver distance learning content. Those traditional institutions had adopted distance education to generate income by attracting more students, particularly from the historically disadvantaged institutions. They delivered educational content to students through print and ICT modes, and employed course facilitators to guide during face-to-face meetings at learning centers across South Africa. These issues provided a basis upon which the problem statement in the present study was formulated.

In order to resolve the uncontrolled provision of distance education, the government established regulations that required foreign private providers to register in South Africa, according to the quality assurance criteria of the Higher Education Quality Committee. Consequently, more control was enabled by the institutional mergers of some technikons that provided distance education, and Unisa was created as the sole provider. However, due to the ongoing demand from students who wish to participate in distance education, the government would like to involve more institutions to deliver learning content (Glennie & Bialobrzeska, 2006; DHET, 2013).
The overall aim of my study was to investigate how the introduction of ICT into distance education in South Africa during the early post-apartheid period from 1994 to 2002, provided learning opportunities for students at universities and technikons, and facilitated the delivery of learning content. To achieve this aim, electronic surveys were carried out at four distance education institutions to analyze the views and experiences of selected higher education students in South Africa, regarding the use of diverse ICT equipment, and the delivery of learning content for distance education. Equally, the views and experiences of selected students who used the services of an Internet café at a technikon were analyzed. The purpose was to understand how students accessed the ICT resources, considering their unequal provision in South Africa at that time. The views and experiences of selected course facilitators were also analyzed from unstructured interviews that were held to understand how they conducted their work at learning centers affiliated with a distance education institution in South Africa (Case 1). Two students were also interviewed from the same institution (see Chapter 6 on the survey findings).

The current study has contributed to a deeper understanding of the South African higher education system in general, and to the selected distance education institutions and students, in particular. Moreover, it has revealed that there are comparative global patterns in the operations of ICT-based distance education. The following two paragraphs demonstrate my specific contributions in this dissertation.

This dissertation contributes to the literature on distance education in South Africa by presenting empirical evidence gathered in 2002, which addresses the gap in research on ICT in education and other related aspects during the early post-apartheid period until the year 2000, as mentioned in section 1.1. Primary data were gathered in South Africa and a wide-ranging volume of studies was identified and reviewed to develop evidence in order to answer the overall aim of my study. The literature has covered developments in ICT, higher and distance education since the early post-apartheid era in South Africa, until the year 2016. In this respect, my findings add to the existing body of knowledge.

My study has also established that electronic surveys are viable for data collection and can generate reliable data. However, the methods require a wider penetration of the Internet and other associated ICT resources, to attract more respondents.

This thesis has reviewed various facets and stakeholders that steer the expansion and emerging methods of content delivery in higher education, from a global and comparative perspective.
They include the growth and means of financing higher education; relations with the economic market; the changing student profile in distance education (earner-learner); participation; the role of non-higher education actors (for-profit aspects); globalization; international agencies such as the World Bank and IMF; and the integration of ICT into education (see section 3.3 and subsections 3.3.1 to 3.3.3 in Chapter 3).

With respect to theory, I selected arguments from renowned distance education academics who assert that distance education hardly reflects educational and psychological theory. The paucity of theory-based studies in the field shows that distance education researchers are not concerned with validity and reliability matters, especially in quantitative research. In particular, Lee, Driscoll, and Nelson (2004) recommend that new paradigms and methodology are necessary to heighten research in distance education. It has been revealed that the lack of specific theories of distance education could lead technology to supersede pedagogy (see section 3.4 and subsection 3.4.1 in Chapter 3).

However, Moore’s (1993) Transactional Distance Theory goes beyond the known geographical (spatial) and time (temporal) barriers of interaction between instructors and learners, since it chiefly focuses on the psychological and communication hindrances that separate them, leading to disruption in the learning process. Moore’s three constructs in the theory, namely, dialogue, structure and autonomy, are essential in enhancing communication between the learner and instructor (dialogue), and in designing educational content (structure). Autonomy as a construct supports the independence of a learner, who needs to be accountable while participating in learning (see subsection 3.4.2). I view Moore’s transactional theory as universal, and can be applied within the context of South Africa. Nevertheless, it has been challenged for lacking empirical authentication. It also needs reconsideration in light of emerging learning models like MOOCs, which include more interactive modes of communication (Goel, Zhang, & Templeton, 2012; Gorsky & Caspi, 2005; Huang et al., 2016; Starr-Glass, 2013).

For South Africa, I provided an overview of selected socioeconomic issues during apartheid, in order to understand their impact in the post-1994 period (see section 2.2 and subsection 2.2.1). The higher education landscape was discussed to understand the effects of apartheid, and some significant measures that have been taken since 1994, to redress past inequalities so as to increase student participation (see sections 2.3 and 2.4). I also discussed how the country’s government and other stakeholders have systematically worked to increase access to ICT in the country,
through policies and infrastructural investments. ICT is expected to enhance the knowledge economy (see section 2.8).

The thesis has found that though ICT presented new opportunities within distance education for students and higher education institutions in South Africa during the early post-apartheid era, access to new technologies was still limited and expensive (especially the Internet) to enable distance education providers to exploit them fully. As such, Internet cafés and telecenters were established to promote access. Today, these public access points continue to offer Internet and ICT-related services, despite the ubiquitous mobile technologies. For instance, Unisa partners with privately-owned telecenters to provide computer and Internet services to distance learners in rural areas.

Subsection 2.4.1 shows that distance education students in South Africa drop out more than campus-based students because of financial reasons and other personal challenges. Likewise, although more nonwhite women currently participate in higher education, not many undertake challenging fields such as medicine and engineering. Many also drop out before completion, due to similar circumstances.

The flexibility of distance education was the most prioritized reason for joining distance education as indicated in the case study findings in Chapter 6. However, some respondents wanted an improvement in the means of delivering their learning materials, while the course facilitators wished for more say in the way the study guides were designed at Case 1.

The language of instruction was particularly problematic for non-Afrikaans speakers, specifically at Case 1 (see interview with S1). Generally speaking, this is still a challenge in the education system of South Africa, which propagates the use of all the 11 official languages for instruction, yet can only formally apply English and Afrikaans. Learner support was inadequate particularly among the undergraduates who asked for more facilitation through lectures (see case study results in Chapter 6).

The Internet café case study indicated that many respondents did not have Internet access and other ICT facilities at home. The café, located at a technikon, filled that gap and also enabled them to socialize. The study found that the undergraduates used the Internet lesser than the postgraduates for accessing academic materials. Overall, they were happy with the Internet café services that were cheaper than some others outside the campus, though they wanted more bandwidth for a faster Internet connection.
Whereas my study has met its overarching aim and objectives, a key limitation was the non-probability sampling technique that resulted from the self-selection approach used to administer the electronic questionnaires. Access to the Internet was also still limited in South Africa in 2002, which possibly contributed to the low response rates in the electronic surveys.

8.3 Recommendations

Three levels are focused upon to present recommendations in the present study, namely, Level I: policy (the national system of education); Level II: institutional (the higher education institutions); and Level III: individual (the distance education students). In addition, these levels are divided into (a) recommendations for practice, which raise issues that require the attention of practitioners and policymakers; and (b) recommendations for future research, which refer to the limitations and delimitations of my study by pointing on what should be studied further.

8.3.1 Recommendations for practice

Emerging learning models such as massive open online courses (MOOCs) offer potentially high quality content and professional opportunities for learners to develop new knowledge and skills. Some universities are already collaborating with providers of MOOCs to give partial credit for completed online courses. As such, it is recommended that:

- Distance education practitioners and policymakers across the world emphasize quality as these models become part of normal learning. Specifically, governments need to establish or improve available quality assurance frameworks to recognize and accredit MOOCs as non-formal learning pathways, especially in developing countries.

For the case of South Africa, there is a need to move from mere rhetoric in the name of policy directions in higher and distance education. Whereas there have been numerous policy papers written since 1994 to guide the reform process so as to transform higher education, statistics show that there are fewer graduates who are qualifying in distance education and other related fields within ICT. It is therefore recommended that:

- More resources including competent personnel, money and learning materials, should be
allocated to improve distance education, research and development. The implementation of educational reforms should strategically correspond with the sustainable development goals.

- A rigorous quality assurance process should be established together with follow-up/evaluation to understand why student throughput and output rates are lower in distance education.

- Hindrances in attaining distance education need to be reduced to make it as attractive as the traditional forms of higher education.

- High priority should be given to learners in rural areas who are digitally marginalized due to the high cost of accessing ICT products.

- Institutions of higher education in South Africa should make a concerted effort to provide quality ICT-based learning not only by transferring their teaching content from paper to electronic modules, but also by involving experts to train and improve the ICT skills of lecturers.

- Institutions need to improve learner support so as to incentivize distance education students to complete their studies.

- Even though the footprints of apartheid are still visible in the higher education landscape, there is a need for education practitioners to actively voice the barriers they face in the academy. They should be able to give direction to bring quality in the learning process.

- At the individual level, distance education students need to take full responsibility to accomplish their learning goals despite the diverse challenges that many face. In order to compensate for the psychological barriers of communication between them and their instructors, they can create or make use of existing virtual communities to interact and get feedback.
8.3.2 Recommendations for future research

- Given the current wider Internet coverage in South Africa, the challenges I experienced in conducting the electronic surveys in 2002 can be lessons for improving similar studies to reach sizeable samples. Section 6.13 of this thesis titled, *Findings from the Electronic Survey Methods*, provides rich material on how to replicate this research, particularly in developing countries.

- More research is required to examine the systemic racial inequalities that still prevail in South Africa’s higher education due to apartheid. Why is it taking longer to reach the vision of transformation through redress that began in 1994? Is the government putting enough financial resources to improve the quality of higher and distance education? Does the higher education quality assurance authority work efficiently?

- In light of the ongoing implementation of ICT-based distance education in South Africa, further research is required to examine and compare good practices from other parts of the world.

Finally, I conclude this dissertation with a paragraph cited from the late former President Nelson Mandela’s opening address of the *26th International Conference on Improving University Teaching in Johannesburg, South Africa, July 2001*, which states that:

This is indeed the information age. The divide between the rich and the poor, the privileged and the deprived, the powerful and the marginalised have become marked primarily by a differentiation in access to knowledge and information. Those who have access to cutting edge knowledge hold the advantage in all arenas of social, political and economic life today. Higher and further education has a particularly crucial role to play in addressing these challenges of our time. (Nelson Mandela Foundation, 2001, para. 3-4)

Mandela’s statement still fits into today’s South Africa and many other developing countries’ reality of the digital divide. This study has also argued that despite the growth in Internet
coverage worldwide, access to online educational content remains restricted. Therefore, more effort should be made to democratize ICT-based learning content.
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187


191


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Appendices

Appendix A1 Electronic Questionnaire for ICT-based Distance Education Students

Questionnaire for ICT-Based Distance Education Students

Dear Student,

Information and communications technology (ICT) is currently being applied to deliver learning content to distance education students worldwide. This questionnaire will investigate the views and experiences of ICT-based distance education students at selected higher education institutions in South Africa, concerning the use of ICT equipment for learning and the delivery of content. All responses will be treated with confidentiality and anonymity, and will only be used for the purpose of writing my PhD dissertation. Please answer all the questions voluntarily.

Thank you in advance for your cooperation.

Jared Odero (PhD Candidate)
Institute of International Education
Stockholm University
S-106 91 Sweden

Instructions for filling in the questionnaire: Please mark using X or write inside the parentheses () where required.

A. Background Information

1. Name of your university ()
2. Faculty ()
3. Learning Center ()
4. Your gender: Male () Female ()

5. Age ()

6. Marital status ()

7. Race ()

8. What are your TOP THREE determining factors in selecting ICT-based courses? (Please mark only three).
   - Flexibility, Cheaper than traditional learning, Improve my professional skills ()
   - Flexibility, Quality education, Quicker means ()
   - Flexibility, Quality education, Cheaper than traditional learning ()
   - Quality education, Cheaper than traditional learning, Improve my professional skills ()
   - Flexibility, Quality education, Improve professional skills ()
   - Flexibility, Quicker means, Cheaper than traditional learning ()

9. How many ICT-based learning courses had you taken previously?
   - None. This is my first ICT-based course ()
   - One ()
   - 2-4 ()
   - 5 or more ()

10. What degree or certificate are you pursuing?
    - Undergraduate certificate ()
    - Bachelor’s degree (BA or BS) ()
    - Post graduate ()
    - Master’s degree ()
    - PhD ()
    - Other, please specify ()

11. Your major/specialization ()

12. Is English your native or first language? Yes () No ()

13. If not: Do you feel comfortable using English for ICT-based learning? Yes () No ()

   Other comments on language use ()

14. Are you employed? Yes () No ()

15. If employed: Average number of hours per week that you currently study for ()

16. How do you finance your studies ()
B. Your Experience with Computers

17. The following categories describe your experience with computer systems:

1. **BEGINNER**: I seldom or never use
2. **OCCASIONALLY**: used before
3. **FREQUENTLY**: used (e.g., more than 10 times; somewhat regularly)
4. **DAILY**: this use of computers is central to my PROFESSIONAL work

(Please mark where applicable).

<table>
<thead>
<tr>
<th></th>
<th>Beginner</th>
<th>Occasionally</th>
<th>Frequently</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computers</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Email</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Word Processors</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Web browsers</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
<tr>
<td>Programming</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
</tbody>
</table>

18. For each of the following pairs of words, please mark the response that is closest to your CURRENT FEELINGS ABOUT USING COMPUTERS.

<table>
<thead>
<tr>
<th></th>
<th>Exciting</th>
<th>Dull</th>
<th>Fun</th>
<th>Discouraging</th>
<th>Easy</th>
<th>Difficult</th>
<th>Personal</th>
<th>Impersonal</th>
<th>Hindering</th>
<th>Helpful</th>
<th>Unthreatening</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
<td>()</td>
</tr>
</tbody>
</table>

C. Equipment Access

19. Do you currently use a personal computer at home?

- Yes ()
- No ()

20. IF YOU ANSWERED **YES** TO QUESTION 19, Do you have Internet access?

- Yes ()
- No ()

21. Do you have access to a printer?

- Yes ()
- No ()

22. Do you currently have access to a personal computer at your workplace?

- Yes, I have convenient Internet access at work. ()
- No, I have no Internet access at work. ()
23. Do you currently have Internet access in your workplace?

Yes, I have access to a personal computer at work. ()
No, I have no access to a personal computer at work. ()

D. Video Rating and Materials Rating

24. Which of the following video delivery methods do you use?

- Broadcast/Cablecast ()
- VHS tape circulation ()
- Library viewing ()
- Other, please specify ()

25. Do you have convenient access to a VCR for viewing video portions of courses?

- None ()
- Some Access ()
- Constant Access ()

26. Video lessons are generally:

- Interesting ()
- Boring ()
- Relevant ()
- Irrelevant ()

27. The quality of the video production is:

- Excellent ()
- Good ()
- Satisfactory ()
- Fair ()
- Poor ()

28. How often do you replay all or a substantial part of a videotape?

- Frequently ()
- Sometimes ()
- Never ()

29. You may also have readings on these topics. To what extent do the videos convey additional information, not in the readings?

- A great deal ()
- Some ()
- None ()

30. The program notes are:

- Helpful ()
- Rather helpful ()
- Useless ()
31. How frequently do you have problems with lack of a working VCR or late arrival of mailed tapes?

() Frequently
() Sometimes
() Never

Other Comments on video materials ()

E. Asynchronous/Offline Learning

32. How would you rate the following statements on asynchronous/offline learning?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asynchronous teleconferencing is essential to the distance student</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E-mail is essential to the distance student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Videoconferencing is essential to the distance student</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asynchronous teleconferencing helps me express ideas and opinions in a structured fashion</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E-mail helps me to express ideas and opinions in a structured fashion</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Videoconferencing helps me to express ideas and opinions in a structured fashion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asynchronous conferencing helps me to feel less isolated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E-mail helps me to feel less isolated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Videoconferencing helps me feel less isolated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asynchronous teleconferencing allows me to obtain what is necessary to learn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E-mail allows me to obtain what is necessary to learn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Videoconferencing allows me to obtain what is necessary to learn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asynchronous teleconferencing enables me to discuss and revise ideas, that are important in my mind</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E-mail enables me to discuss and revise ideas, which are very important in my mind</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Videoconferencing enables me to discuss and revise ideas, which are very important in my mind.

F. Access to and Participation in Online/Virtual lectures

33. Is access to a terminal or computer for online classes a problem for you?

() A serious problem
() A problem
() A little problem
() Hardly a problem
() Not a problem

34. How much problem have you had with "busy" lines or no available ports to the system?

() A serious problem
() A problem
() A little problem
() Hardly a problem
() Not a problem

35. To what extent has the slow response of this system been a problem or barrier for you?

() A serious problem
() A problem
() A little problem
() Hardly a problem
() Not a problem

36. How much of a problem has the system being "down" been for you?

() A serious problem
() A problem
() A little problem
() Hardly a problem
() Not a problem

37. Has the cost of telephone access been a problem?

() Serious problem
() Problem
() A little problem
() Hardly a problem
() Not a problem

38. Has an Internet Service Provider been a problem?

() Serious problem
() Problem
() A little problem
G. Program Delivery and Learning Support Technologies

39. Do you find the following course material delivery and learner support modes/technologies effective?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textbook(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Videotapes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Website</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members Only (password protected) Website</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video conferencing discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio conferencing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-mail exchange/discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other, please specify ()

40. What communication means do you use MOST OFTEN to contact your fellow participants? (Please mark only three).

() Telephone
() Videoconferencing
() Chat groups
() E-mail
() E-mail & chat groups
() Telephone, e-mail & chat groups
() Face-to-Face

41. The availability of this ICT-based learning program has enabled me to continue my studies than would otherwise have been possible.

() Strongly Agree
() Agree
() Neutral
() Disagree
() Strongly Disagree

42. I would recommend ICT-based learning delivery to my friends.

() Strongly Agree
() Agree
() Neutral
43. Do you receive prompt, courteous learning support from your institution?

() Yes
() No
() Sometimes
() I never contact my institution.

Other comments about support from your institution ()

H. Comparison between ICT-based learning and traditional learning modes

44. Please compare your ICT-based classes to your experiences with "face to face" courses. To what extent do you agree with the following statements about the comparative process and value of the ICT-based courses, which you participate in?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking ICT-based courses is more convenient.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I feel more “unattached” taking part in ICT-based discussions.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I don’t have to work as hard for ICT-based classes.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I communicate more with other students in the class as a result of the</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>computerized conferencing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having a computerized conferencing system available provides better</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>access to the professor(s).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The fact that my assignments would be read by other learners increases</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>my motivation to work hard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I become very busy with other things, I am more likely to stop</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>participating in the ICT-based class than I would have been to “quit” a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>weekly face-to-face lecture.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The ICT-based classroom mode is more boring than traditional classes.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I feel more “involved” in taking an active part in the program.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I find the comments made by other students to be useful to me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I find reading the reviews or assignments of other student to be useful</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>to me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would NOT choose to take another ICT-based learning program</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
I find the ICT-based learning program to be a better learning experience than normal face-to-face programs.

I learn more because of available virtual learning software.

I would have gotten more out of a traditional program.

THANK YOU FOR PARTICIPATING!
Appendix A2 Questionnaire for Internet Café Users

Dear Student,

Internet cafés are currently available to provide Internet access in public places. This questionnaire will investigate the views and experiences of selected students who use an Internet café at a technikon in South Africa. All responses will be treated with confidentiality and anonymity, and will only be used for the purpose of writing my PhD dissertation. Please answer all the questions voluntarily.

Thank you in advance for your cooperation.

Jared Odero (PhD Candidate)
Institute of International Education
Stockholm University
SE-106 91 Stockholm
Sweden

Instructions for filling in the questionnaire: Please mark using X or write inside the parentheses () where required.

A. Background Information

1. Name of your university ()
2. Name of your Internet café ()
3. Faculty ()
4. Your gender: Male () Female ()
5. Age ()
6. Marital status ()
7. Race ()
8. What degree or certificate are you pursuing?
   Undergraduate certificate ()
   Bachelor’s degree (BA or BS) ()
   Post graduate ()
   Master’s degree ()
   PhD ()
   Other, please specify ()
9. Is English your mother tongue?  
   Yes ( )  
   No  ( )

10. If not: Do you feel comfortable using English on the Internet?  
    Yes  ( )  
    No  ( )

B. Your Experience with Computers

11. The following categories describe your experience with computer systems:

1. BEGINNER: I seldom or never use  
2. OCCASIONALLY: used before  
3. FREQUENTLY: used (e.g., more than 10 times; somewhat regularly)  
4. DAILY: this use of computers is central to my PROFESSIONAL work  
(Please mark where applicable).

<table>
<thead>
<tr>
<th>Beginner</th>
<th>Occasionally</th>
<th>Frequently</th>
<th>Daily</th>
</tr>
</thead>
</table>
   Personal computers | () | () | () | () |
   Email | () | () | () | () |
   Word Processors | () | () | () | () |
   Web browsers | () | () | () | () |
   Programming | () | () | () | () |

12. For each of the following pairs of words, please mark the response that is closest to your CURRENT FEELINGS ABOUT USING COMPUTERS.

<table>
<thead>
<tr>
<th></th>
<th>Exciting</th>
<th>()</th>
<th>Dull</th>
<th>()</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fun</td>
<td>()</td>
<td>Discouraging</td>
<td>()</td>
</tr>
<tr>
<td></td>
<td>Easy</td>
<td>()</td>
<td>Difficult</td>
<td>()</td>
</tr>
<tr>
<td></td>
<td>Personal</td>
<td>()</td>
<td>Impersonal</td>
<td>()</td>
</tr>
<tr>
<td></td>
<td>Hindering</td>
<td>()</td>
<td>Helpful</td>
<td>()</td>
</tr>
<tr>
<td></td>
<td>Threatening</td>
<td>()</td>
<td>Unthreatening</td>
<td>()</td>
</tr>
</tbody>
</table>

C. Accessing the Facilities at the Internet Café

13. Have you used the Internet café before?  
   Yes  ( )  
   No  ( )

14. If you answered Yes to the question above, how often do you use the facilities at the Internet café?

   | Rarely | () |
   | Once a month | () |
   | Once a fortnight | () |
   | Once a week | () |
   | More than once a week | () |
   | Every day | () |
   | Other, please specify | () |
15. When do you often use the Internet café?

<table>
<thead>
<tr>
<th>Time</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the morning (before classes)</td>
<td>()</td>
</tr>
<tr>
<td>During class hours</td>
<td>()</td>
</tr>
<tr>
<td>During lunch Time</td>
<td>()</td>
</tr>
<tr>
<td>In the evening (after classes)</td>
<td>()</td>
</tr>
<tr>
<td>At mid-night</td>
<td>()</td>
</tr>
<tr>
<td>Only in the weekends</td>
<td>()</td>
</tr>
<tr>
<td>Other, please specify</td>
<td>()</td>
</tr>
</tbody>
</table>

16. Why do you use the Internet café?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not have a PC at home</td>
<td>()</td>
</tr>
<tr>
<td>I do not have a printer at home</td>
<td>()</td>
</tr>
<tr>
<td>I do not have Internet access at home</td>
<td>()</td>
</tr>
<tr>
<td>I do not have Internet access at the university</td>
<td>()</td>
</tr>
<tr>
<td>Other, please specify</td>
<td>()</td>
</tr>
</tbody>
</table>

17. How long do you often use the Internet on each occasion?

<table>
<thead>
<tr>
<th>Duration</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 30 minutes</td>
<td>()</td>
</tr>
<tr>
<td>30-60 minutes</td>
<td>()</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>()</td>
</tr>
<tr>
<td>More than 2 hours</td>
<td>()</td>
</tr>
</tbody>
</table>

18. What are your TOP THREE reasons for using the Internet at the Internet café? (Please choose only 3).

<table>
<thead>
<tr>
<th>Reason</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Wide Web browsers</td>
<td>()</td>
</tr>
<tr>
<td>Academic research</td>
<td>()</td>
</tr>
<tr>
<td>E-mail</td>
<td>()</td>
</tr>
<tr>
<td>Print academic materials</td>
<td>()</td>
</tr>
<tr>
<td>Buy things</td>
<td>()</td>
</tr>
<tr>
<td>Read e-newspapers</td>
<td>()</td>
</tr>
<tr>
<td>Internet relay chat</td>
<td>()</td>
</tr>
<tr>
<td>LISTSERV</td>
<td>()</td>
</tr>
<tr>
<td>Personal chat systems (e.g. ICQ), MICROSOFT WORD/OFFICE, etc.</td>
<td>()</td>
</tr>
<tr>
<td>Other, please specify</td>
<td>()</td>
</tr>
</tbody>
</table>

19. Is the cost for Internet connection at the Internet café a problem for you?

<table>
<thead>
<tr>
<th>Problem Level</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>A serious problem</td>
<td>()</td>
</tr>
<tr>
<td>A problem</td>
<td>()</td>
</tr>
<tr>
<td>A little problem</td>
<td>()</td>
</tr>
<tr>
<td>Not a problem</td>
<td>()</td>
</tr>
<tr>
<td>Hardly a problem</td>
<td>()</td>
</tr>
</tbody>
</table>
20. How much money do you spend **per month** on using the Internet?

- Less than Rand 50 ( )
- More than Rand 50 ( )
- Less than Rand 100 ( )
- More than Rand 100 ( )

21. How much of a problem has the server being “down” been for you?

- A serious problem ( )
- A problem ( )
- A little problem ( )
- Not a problem ( )
- Hardly a problem ( )

Other comments on Internet access at the Internet café ( )

**D. Overall Comments and Suggestions for Improvement**

22. What are some things about using the Internet café do you like the best? ( )

23. What are some things about using the Internet café are the worst and need improvement? ( )

24. Other comments or suggestions for improvements ( )

**THANK YOU FOR PARTICIPATING!**
Appendix A3 Interview Guide for ICT-based Distance Education Students

- What is your view about telematic learning?
- Do your work and study at the same time?
- I would like to know about the language of instruction during face-to-face meetings at the learning centers.
- Explain to me the process of delivering learning materials to telematic students.
- Please tell me about the cost of telematic learning compared to on-campus learning.
- What is the role of course facilitators during your face-to-face meetings at the learning centers?
- What type of ICT facilities do you have at your learning center?
- Do you communicate with the management of your institution?
Appendix A4 Interview Guide for ICT-based Distance Education Course Facilitators

- Please describe your role as a facilitator.
- I would like to know your opinion about the study guides and other learning materials.
- Please describe your working relationship with the institution’s management.
Appendix A5 Cross Tabulations for using English in ICT-based Learning (Cases 1-4)

Q12. Is English your native or first language? Q13. If not: Do you feel comfortable using English for ICT-based learning?

Cross tabulation: Q13 by 12

<table>
<thead>
<tr>
<th>Count</th>
<th>Q13. If not: Do you feel comfortable using English for ICT-based learning</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Q12. Is English your native or first language</td>
<td>No</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td>109</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td>448</td>
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</table>

Crosstabs: Institution-wise results

<table>
<thead>
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<th>Total</th>
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</thead>
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<td></td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Q12.Is English your native or first language</td>
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<td>2</td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
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<td>12</td>
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</table>

(c) Project name = Pharmacology (n = 18)

<table>
<thead>
<tr>
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<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Q12.Is English your native or first language</td>
<td>No</td>
<td>6</td>
</tr>
<tr>
<td></td>
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<td>5</td>
</tr>
<tr>
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<td>45</td>
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(b) Project name = MBA (n = 56)
<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Q12. Is English your native or first language</td>
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<td>38</td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td>95</td>
</tr>
<tr>
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<td>370</td>
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</table>

**d) Project name = Case 2 (n = 503)**

<table>
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<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Q12. Is English your native or first language</td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
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**a) Project name = Case 3 (n = 5)**

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</thead>
<tbody>
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<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Q12. Is English your native or first language</td>
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<td>1</td>
</tr>
<tr>
<td></td>
<td>yes</td>
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</tr>
<tr>
<td>Total</td>
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**e) Project name = Case 4 (n = 23)**
## Appendix A6 Experience with Computers (Cases 1-4)

### Personal computers

<table>
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<tr>
<th>Cases</th>
<th>Item nonresponse</th>
<th>Beginner</th>
<th>Daily</th>
<th>Frequently</th>
<th>Occasionally</th>
</tr>
</thead>
<tbody>
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<td>F(0)</td>
<td>F(4.0)</td>
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<td>F(0)</td>
</tr>
<tr>
<td>MBA</td>
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<td>9(1)</td>
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<td>6(1)</td>
<td>5(1)</td>
<td>4(0.6)</td>
</tr>
<tr>
<td>2</td>
<td>40(6)</td>
<td>15(2)</td>
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<td>20(3)</td>
</tr>
<tr>
<td>4</td>
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<td>15(3)</td>
<td>5(1)</td>
<td>2(0.3)</td>
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<tr>
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</table>

### E-mail

<table>
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<tr>
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<th>Item nonresponse</th>
<th>Beginner</th>
<th>Daily</th>
<th>Frequently</th>
<th>Occasionally</th>
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<tbody>
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<td>3</td>
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<td>F(1.0)</td>
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<td>F(0)</td>
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<td>6(1)</td>
<td>5(1)</td>
</tr>
<tr>
<td>2</td>
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<td>25(4)</td>
</tr>
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<td>0(0)</td>
<td>16(3)</td>
<td>5(1)</td>
<td>2(0.3)</td>
</tr>
<tr>
<td>Total</td>
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<td>23(4)</td>
<td>440(73)</td>
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</table>

### Word processors

<table>
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<tr>
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<th>Frequently</th>
<th>Occasionally</th>
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<td>F(1.0)</td>
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</tr>
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### Web browsers

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<th>Frequently</th>
<th>Occasionally</th>
</tr>
</thead>
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<td>F(0)</td>
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### Programming

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<th>Occasionally</th>
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<td>0(0)</td>
<td>1(0.2)</td>
</tr>
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<td>Cases</td>
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<td>Dull</td>
<td>Exciting</td>
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**Fun/Discouraging**

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<th>Fun</th>
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**Easy/Difficult**

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<th>Easy</th>
</tr>
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<td>11(2)</td>
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**Personal/Impersonal**

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<td>3(0.4)</td>
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<td>21(3)</td>
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<td>10(2)</td>
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<tr>
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<td>74(12)</td>
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<td>5(1)</td>
<td>5(1)</td>
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<td>101(17)</td>
<td>309(51)</td>
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</tbody>
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**Hindering/Helpful**

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<th>Hindering</th>
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<td>0(0)</td>
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<td>1(0.2)</td>
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<td>403(67)</td>
<td>8(1)</td>
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<td>Unthreatening</td>
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<td>--------------</td>
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<td>F(%)</td>
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<td>311(51)</td>
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<td>200(33)</td>
<td>32(5)</td>
<td>373(62)</td>
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</table>
## Appendix A7 Access to personal Computers, Printers and Internet (Cases 1-4)

**Do you currently use a personal computer at home?**

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<td>F(%)</td>
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<tr>
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<td>52(8)</td>
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<tr>
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<td>17(3)</td>
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<td>283(47)</td>
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<td>Total</td>
<td>85(14)</td>
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</table>

**If you answered Yes to the above question, Do you have Internet access?**

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</tr>
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<td>F(%)</td>
<td>F(%)</td>
<td></td>
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</tr>
<tr>
<td>MBA</td>
<td>4(0.6)</td>
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<td>41(7)</td>
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<tr>
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<tr>
<td>Total</td>
<td>314(52)</td>
<td>19(3)</td>
<td>272(45)</td>
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**Do you have access to a printer?**

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<th>No</th>
<th>Yes</th>
</tr>
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<td>F(%)</td>
<td>F(%)</td>
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<td>5(1)</td>
<td>0(0)</td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>2</td>
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<td>54(9)</td>
<td>350(58)</td>
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<tr>
<td>Total</td>
<td>109(18)</td>
<td>67(11)</td>
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**Do you currently have access to a personal computer in your workplace?**

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<th>Yes</th>
</tr>
</thead>
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<td>F(%)</td>
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</tr>
<tr>
<td>MBA</td>
<td>2(0.3)</td>
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</tr>
<tr>
<td>Pharmacology</td>
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</tr>
<tr>
<td>2</td>
<td>119(20)</td>
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<td>345(57)</td>
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<td>4</td>
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<td>1(0.2)</td>
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<tr>
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<td>44(7)</td>
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217
Appendix A8 Video and Material Ratings (Cases 1-4)

Do you have convenient access to a VCR for viewing video portions of courses?

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<td>F(%)</td>
<td>F(%)</td>
<td>F(%)</td>
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<tr>
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<td>2(0.3)</td>
<td>2(0.3)</td>
<td>1(0.2)</td>
</tr>
<tr>
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<td>4(0.6)</td>
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</tr>
<tr>
<td>Pharmacology</td>
<td>3(0.4)</td>
<td>8(1)</td>
<td>1(0.2)</td>
<td>6(1)</td>
</tr>
<tr>
<td>2</td>
<td>89(15)</td>
<td>259(43)</td>
<td>58(9)</td>
<td>97(16)</td>
</tr>
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<td>3(0.4)</td>
<td>0(0)</td>
<td>5(1)</td>
<td>15(3)</td>
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<tr>
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<td>314(52)</td>
<td>67(11)</td>
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The quality of the video production is:

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<th>Good</th>
<th>Poor</th>
<th>Satisfactory</th>
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<td>F(%)</td>
<td>F(%)</td>
<td>F(%)</td>
<td>F(%)</td>
<td>F(%)</td>
</tr>
<tr>
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<td>0(0)</td>
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<td>2(0.3)</td>
<td>0(0)</td>
<td>0(0)</td>
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<td>1(0.2)</td>
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<td>0(0)</td>
<td>1(0.2)</td>
</tr>
<tr>
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<td>108(18)</td>
<td>16(3)</td>
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<td>0(0)</td>
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How often do you replay all or a substantial part of a videotape?

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<th>Never</th>
<th>Sometimes</th>
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<td>F(%)</td>
<td>F(%)</td>
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<td>141(23)</td>
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You may also have readings on these topics. To what extent do the videos convey additional information, not in the readings?

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<td>F(%)</td>
<td>F(%)</td>
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<td>0(0)</td>
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<td>2(0.3)</td>
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</tr>
<tr>
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<td>2(0.3)</td>
<td>6(1)</td>
</tr>
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<td>139(23)</td>
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The program notes are:

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<td>F(%)</td>
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Appendix A9 Asynchronous/Offline Learning (Cases 1, 2, & 4)

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<th>Neutral</th>
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<td>0 0%</td>
<td>0 0%</td>
<td>0 0%</td>
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</tr>
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<td>0 0%</td>
<td>0 0%</td>
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<td>0 0%</td>
<td>0 0%</td>
</tr>
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<td>0 0%</td>
<td>0 0%</td>
</tr>
<tr>
<td>Email lessens isolation</td>
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<td>0 0%</td>
<td>0 0%</td>
<td>0 0%</td>
<td>0 0%</td>
<td>0 0%</td>
</tr>
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<td>Asynchronous conferencing lessens isolation</td>
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<td>0 0%</td>
<td>0 0%</td>
<td>0 0%</td>
<td>0 0%</td>
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<td>0 0%</td>
<td>0 0%</td>
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<td>0 0%</td>
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<td>0 0%</td>
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Asynchronous teleconferencing is essential
Email is essential
Videoconferencing is essential
Asynchronous enables expressions
Email enables expressions
Videoconferencing enables expressions
Videoconferencing enables learning
Email enables learning
Asynchronous enables learning
Videoconferencing lessens isolation
Email helps lessens isolation
Asynchronous conferencing lessens isolation
Videoconferencing lessens isolation
Asynchronous enables learning
Email enables learning
Videoconferencing enables learning
Email enables discussions and revisions
Videoconferencing enables discussions and revisions
Email enables discussions and revisions
Asyncronous teleconferencing enables discussions and revisions
Email enables discussions and revisions
Videoconferencing enables discussions and revisions
Email enables discussions and revisions
Asyncronous teleconferencing enables discussions and revisions
Email enables discussions and revisions
Videoconferencing enables discussions and revisions
Email enables discussions and revisions

MBA (Case 1)

<table>
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<th>Asynchronous enables expressions</th>
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<td>6%</td>
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<td>5%</td>
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<td>4%</td>
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<td>0%</td>
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<td>0%</td>
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<td>Strongly disagree</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
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<td>0%</td>
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Asynchronous teleconferencing is essential
Email is essential
Videoconferencing is essential
Email enables expressions
Videoconferencing enables expressions
Asynchronous conferencing lessens isolation
Email lessens isolation
Videoconferencing lessens isolation
Asynchronous teleconferencing enables learning
Email enables learning
Videoconferencing enables learning
Asynchronous teleconferencing enables discussions and revisions
Email enables discussions and revisions
Videoconferencing enables discussions and revisions

Case 2
No answer
Strongly agree
Agree
Neutral
Disagree
Strongly disagree

<table>
<thead>
<tr>
<th></th>
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<th>Email is essential</th>
<th>Videoconferencing is essential</th>
<th>Asynchronous teleconferencing enables discussions and revisions</th>
<th>Email enables discussions and revisions</th>
<th>Videoconferencing enables discussions and revisions</th>
<th>Email enables discussions and revisions</th>
<th>Videoconferencing enables discussions and revisions</th>
<th>Email enables discussions and revisions</th>
<th>Videoconferencing enables discussions and revisions</th>
<th>Email enables discussions and revisions</th>
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<th>Videoconferencing enables discussions and revisions</th>
<th>Email enables discussions and revisions</th>
<th>Videoconferencing enables discussions and revisions</th>
</tr>
</thead>
</table>
Asynchronous teleconferencing is essential for learning and discussions. Email is essential for expressions, isolations, and learning. Videoconferencing is essential for expressions, isolations, and learning. Asynchronous teleconferencing enables learning and discussions, while email enables learning and discussions. Videoconferencing enables learning and discussions.
## Appendix A10 Access and Participation in Online/Virtual Lectures (Cases 1-4)

### Graphs and Data

The graphs and data below represent the access and participation in online/virtual lectures for Case 1.

### Graph Description

- **Has an Internet Service Provider been a problem?**
  - No answer: 0%
  - Not a problem: 0%
  - Hardly a problem: 0%
  - A little problem: 1%
  - A problem: 0%
  - A serious problem: 0%

- **Has the cost of telephone access been a problem?**
  - No answer: 0%
  - Not a problem: 0%
  - Hardly a problem: 1%
  - A little problem: 1%
  - A problem: 0%
  - A serious problem: 0%

- **How much of a problem has the system being ‘down’ been for you?**
  - No answer: 0%
  - Not a problem: 0%
  - Hardly a problem: 1%
  - A little problem: 0%
  - A problem: 0%
  - A serious problem: 0%

- **To what extent has the slow response of the system been a problem or barrier for you?**
  - No answer: 0%
  - Not a problem: 0%
  - Hardly a problem: 1%
  - A little problem: 1%
  - A problem: 0%
  - A serious problem: 0%

- **How much problem have you had with ‘busy’ lines or non-available ports to the system?**
  - No answer: 0%
  - Not a problem: 1%
  - Hardly a problem: 0%
  - A little problem: 0%
  - A problem: 0%
  - A serious problem: 0%

- **Is access to a terminal or computer for online classes a problem for you?**
  - No answer: 0%
  - Not a problem: 2%
  - Hardly a problem: 0%
  - A little problem: 0%
  - A problem: 0%
  - A serious problem: 0%
Is access to a terminal or computer for online classes a problem for you?
How much problem have you had with 'busy' lines or non-available ports to the system?
To what extent has the slow response of the system been a problem or barrier for you?
How much of a problem has the system being 'down' been for you?
Has the cost of telephone access been a problem?
Has an Internet Service Provider been a problem?
Is access to a terminal or computer for online classes a problem for you?

How much problem have you had with ‘busy’ lines or non-available ports to the system?

To what extent has the slow response of the system been a problem or barrier for you?

How much of a problem has the system being ‘down’ been for you?

Has the cost of telephone access been a problem?

Has an Internet Service Provider been a problem?
<table>
<thead>
<tr>
<th>Case 3</th>
<th>No answer</th>
<th>Not a problem</th>
<th>Hardly a problem</th>
<th>A little problem</th>
<th>A problem</th>
<th>A serious problem</th>
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<td>Has the cost of telephone access been a problem?</td>
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<td>How much of a problem has the system being ‘down’ been for you?</td>
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<tr>
<td>To what extent has the slow response of the system been a problem or barrier for you?</td>
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<td>How much problem have you had with ‘busy’ lines or non-available ports to the system?</td>
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<tr>
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<td>Is access to a terminal or computer for online classes a problem for you?</td>
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<td>Has the cost of telephone access been a problem?</td>
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Appendix A11 Program Delivery and Learner Support (Cases 1-4)
Textbooks
Videotapes
Public websites
Members only websites
Video conferencing discussions
Audio conferencing
Email exchange
Face-to-face discussions
Not effective
Poor
Satisfactory
Quite effective
Highly effective
No answer
MBA (Case 1)
Case 2

- No answer: 31% 32% 40% 41% 31% 38% 31% 38%
- Highly effective: 16% 22% 8% 6% 23% 11% 23% 10%
- Quite effective: 19% 13% 10% 10% 14% 10% 14% 10%
- Satisfactory: 13% 10% 19% 19% 8% 18% 8% 18%
- Poor: 3% 4% 3% 4% 5% 4% 4% 4%
- Not effective: 1% 2% 4% 3% 2% 2% 2% 2%
<table>
<thead>
<tr>
<th></th>
<th>Textbooks</th>
<th>Videotapes</th>
<th>Public websites</th>
<th>Members only websites</th>
<th>Video conferencing discussions</th>
<th>Audio conferencing</th>
<th>Email exchange</th>
<th>Face-to-face discussions</th>
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<td>0%</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Poor</td>
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<td>0%</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Satisfactory</td>
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<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Quite effective</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Highly effective</td>
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Case 4
Appendix A12 Comparing ICT-based Learning and Traditional Modes (Cases 1-4)

- Taking ICT-based courses is more convenient
- I feel more “unattached” in taking part in the ICT-based discussions
- I don’t have to work as hard for ICT-based classes
- I feel more “involved” in taking an active part in the program
- I communicate more with other students in the class as a result of the computerized conference
- The ICT-based classroom mode is more boring than traditional classes
- The fact that my assignments would be read by other learners increases my motivation to work hard
- When I become very busy with other things, I am more likely to stop participating in the ICT-based class than I would have been to “quit” a weekly face-to-face lecture
- Having the computerized conferencing system available provides better access to the professor(s)
- I would NOT choose to take another ICT-based learning program
- I would have gotten more out of a traditional program
- I learn more because of available virtual learning software
- I find the ICT-based learning program to be better learning experience than normal face-to-face programs
- I find reading the reviews or assignments of other student to be useful to me
- I find the comments made by other students to be useful to me
- I would NOT choose to take another ICT-based learning program
- I feel more “involved” in taking an active part in the program
- The ICT-based classroom mode is more boring than traditional classes
- When I become very busy with other things, I am more likely to stop participating in the ICT-based class than I would have been to “quit” a weekly face-to-face lecture
- The fact that my assignments would be read by other learners increases my motivation to work hard
- Having the computerized conferencing system available provides better access to the professor(s)
- I communicate more with other students in the class as a result of the computerized conference
- I don’t have to work as hard for ICT-based classes
- I feel more “unattached” in taking part in the ICT-based discussions
- Taking ICT-based courses is more convenient
Taking ICT-based courses is more convenient

<table>
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<th>Statement</th>
<th>MBA (Case 1)</th>
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<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
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<td>3%</td>
<td>1%</td>
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</tr>
<tr>
<td>I learn more because of available virtual learning software</td>
<td>0%</td>
<td>2%</td>
<td>5%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
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<td>2%</td>
<td>4%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>I would NOT choose to take another ICT-based learning program</td>
<td>0%</td>
<td>2%</td>
<td>4%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
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<tr>
<td>I find reading the reviews or assignments of other students to be useful to me</td>
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<td>3%</td>
<td>3%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
<td></td>
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<tr>
<td>I find the comments made by other students to be useful to me</td>
<td>0%</td>
<td>2%</td>
<td>4%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>I feel more “involved” in taking an active part in the program</td>
<td>0%</td>
<td>4%</td>
<td>3%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>The ICT-based classroom mode is more boring than traditional classes</td>
<td>0%</td>
<td>2%</td>
<td>4%</td>
<td>0%</td>
<td></td>
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<td></td>
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<tr>
<td>When I become very busy with other things, I am more likely to stop participating in the ICT-based class than I would have been to “quit” a weekly face-to-face lecture</td>
<td>0%</td>
<td>3%</td>
<td>3%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>The fact that my assignments would be read by other learners increases my motivation to work hard</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>3%</td>
<td>1%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Having the computerized conferencing system available provides better access to the professor(s)</td>
<td>0%</td>
<td>2%</td>
<td>4%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>I communicate more with other students in the class as a result of the computerized conference</td>
<td>0%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I don’t have to work as hard for ICT-based classes</td>
<td>0%</td>
<td>4%</td>
<td>4%</td>
<td>0%</td>
<td></td>
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<td></td>
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<tr>
<td>I feel more “unattached” in taking part in the ICT-based discussions</td>
<td>0%</td>
<td>2%</td>
<td>2%</td>
<td>0%</td>
<td></td>
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<tr>
<td>Taking ICT-based courses is more convenient</td>
<td>0%</td>
<td>5%</td>
<td>3%</td>
<td>0%</td>
<td></td>
<td>0%</td>
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</tbody>
</table>
Taking ICT-based courses is more convenient.
I feel more "unattached" in taking part in the ICT-based discussions.
I don't have to work as hard for ICT-based classes.
I communicate more with other students in the class as a result of the computerized conference.
The ICT-based classroom mode is more boring than traditional classes.
When I become very busy with other things, I am more likely to stop participating in the ICT-based class than I would have been to "quit" a weekly face-to-face lecture.
The fact that my assignments would be read by other learners increases my motivation to work hard.
Having the computerized conferencing system available provides better access to the professor(s).
I would have gotten more out of a traditional program.
I learn more because of available virtual learning software.
I find the ICT-based learning program to be better learning experience than normal face-to-face programs.
I would NOT choose to take another ICT-based learning program.
I find reading the reviews or assignments of other student to be useful to me.
I find the comments made by other students to be useful to me.
I feel more "involved" in taking an active part in the program.
I find the ICT-based learning program to be better learning experience than normal face-to-face programs.
I would NOT choose to take another ICT-based learning program.
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The fact that my assignments would be read by other learners increases my motivation to work hard.
Having the computerized conferencing system available provides better access to the professor(s).
I communicate more with other students in the class as a result of the computerized conference.
I don't have to work as hard for ICT-based classes.
I feel more "unattached" in taking part in the ICT-based discussions.
Taking ICT-based courses is more convenient.
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When I become very busy with other things, I am more likely to stop participating in the ICT-based class than I would have been to "quit" a weekly...
I would NOT choose to take another ICT-based learning program
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Taking ICT-based courses is more convenient

I feel more “unattached” in taking part in the ICT-based discussions

I don’t have to work as hard for ICT-based classes

I communicate more with other students in the class as a result of the computerized conference

I feel more “involved” in taking an active part in the program

The ICT-based classroom mode is more boring than traditional classes

When I become very busy with other things, I am more likely to stop participating in the ICT-based class than I would have been to “quit” a weekly face-to-face lecture

The fact that my assignments would be read by other learners increases my motivation to work hard

Having the computerized conferencing system available provides better access to the professor(s)

I learn more because of available virtual learning software

I find reading the reviews or assignments of other students to be useful to me

I find the comments made by other students to be useful to me

I would NOT choose to take another ICT-based learning program

I would have gotten more out of a traditional program

I find the ICT-based learning program to be better learning experience than normal face-to-face programs

I feel more “involved” in taking an active part in the program

The ICT-based classroom mode is more boring than traditional classes

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List of Publications (Studies in Comparative and International Education (ISSN 0348-9523)
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