

Didactic conversation and transactional distance: A case study of retention and throughput of accounting students

by

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submitted in accordance with the requirements
for the degree of

DOCTOR COMPUTATIONIS

at the

UNIVERSITY OF SOUTH AFRICA

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JULY 2015

DECLARATION

I, the undersigned, declare that this thesis **Didactic conversation and transactional distance: a case study of retention and throughput of accounting students**, is my own work, and that all the sources I have used or cited have been indicated and acknowledged by means of complete references.



2 December 2015

.....
Signature

.....
Date

RECOGNITION AND ACKNOWLEDGEMENTS

I am grateful to all who assisted me with the compilation of this thesis. In particular, I want to thank the following:

- My promoter, Prof. Kobus Wessels, for his guidance, advice, motivation and assistance;
- My employer, the University of South Africa, for the research and development leave and the Masters and Doctoral Support Programme funding;
- The Executive Dean of the College of Accounting Sciences, Prof. Elmarie Sadler, who supported and encouraged me in this transformational journey in my life;
- My colleagues and various supporting staff at the University of South Africa, as this thesis would never have been completed without their assistance;
- Dr Elizabeth Archer and Mr Hennie Gerber for their statistical assistance, and Jackie Viljoen for language editing of this thesis;
- My students who participated in this research and made it possible to gather data and conduct the study;
- My friends and family – and in particular my daughters, Jacqueline and Leandri – for their love, encouragement and moral support through the good and the not-so-good times; and
- My Creator for blessing me with the aptitude to do this work and for giving me the desire to complete this journey.

PREFACE

The purpose of this preface is to present the reader with a glimpse into my research journey. My interest in supporting distance education students emerged from my personal experience as a lecturer in the Department of Financial Accounting at the University of South Africa, the largest distance education and open distance learning institution on the African continent. Not only have I been teaching Accounting for more than 15 years, I have also obtained my postgraduate Accounting qualification at Unisa before I was appointed as an academic in the Department of Financial Accounting. I therefore understand that being employed full-time and studying part-time is difficult and that students often need encouragement and motivation.

I undertook this journey not only to grow scholarly, but also because I had (and will always have) empathy with my students. I furthermore wanted to share my knowledge of the content of the Accounting module with all of them. I was trusting that my support and guidance, which I wanted to deliver via an accessible and affordable technology, would assist and motivate them and that they may be more successful in their studies through this additional support. Although technologies were widely used by many international distance education institutions when I started working on my doctoral degree, only a small number of colleagues at Unisa were experimenting with on-line tools to support students. At the time (2005), I was of the opinion that on-line support was not the best solution; however, I was encouraged by Collis and Moonen (2002:217) who say: “You can’t *not* do it.” In addition, Clark (1983:445) also defines technology as a “vehicle” to provide students with the support, inspiration and motivation they so often need to pursue their dreams. As mobile phones were widely used in 2005 and most students had access to a phone and the various applications available on the phone, I decided to use mobile phones as the delivery vehicle in the Accounting module.

When the study commenced in 2006, I was the course leader on a second-year Financial Accounting module (FAC2602). I developed, implemented and evaluated the various mobile phone interventions described in this study myself. Although this has been a lengthy journey (from 2006 to 2012), I definitely felt myself becoming increasingly connected to my students and encouraged to continue with my voyage

as the study progressed and consequently could support my students on their arduous journey to become chartered accountants.

Over a period of six years, the didactic conversation and transactional distance theories of Holmberg (1982) and Moore (1973) provided me with the theoretical lenses to explore my study, and my students provided me with their experiences and perceptions. These assisted me to understand the problem of low retention and throughput rates of the accounting students at Unisa, and provided me with findings that aided me to identify strategies and guidelines for others to use.

In conclusion, I believed that I have indeed achieved my goal to support my students in the best possible way, when one of the FAC2602 students' stated in 2012:

“Distance learning is no longer distant anymore.”

SUMMARY

**Didactic conversation and transactional distance:
A case study of retention and throughput of accounting students**

by

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Degree: Doctor Computationis

Subject: Financial Accounting

Promoter: Prof. JS Wessels

Key terms: Accounting education; Didactic conversation; Distance education; Financial Accounting; Mixed-method case study; Mobile phones; Open distance learning; Transactional distance

The study was necessitated by the fact that the throughput rates of accounting students studying at distance learning institutions in South Africa are disturbingly low when compared to students studying at residential universities. Bearing in mind the magnitude of the University of South Africa's (Unisa's) market share of accounting students in South Africa, it was pivotal to comprehend the unique challenges related to retention and throughput of these students. This thesis reports on a case study of the use of mobile phones in an Accounting module by applying the theories of didactic conversation and transactional distance to understand the retention and throughput rates of the Accounting students in an open distance learning (ODL) environment. Considering the landscape of accounting education in South Africa, the specific challenges faced by accounting students at Unisa and the recent scholarly discourse on retention and throughput of distance education students, this study contributes to the limited theoretical understanding of students' retention and throughput rates in an Accounting module at Unisa.

This theoretical understanding has been obtained through combining the transactional distance theory of Moore (1973) and the didactic conversation of

Holmberg (1982) in a single conceptual framework. By applying this framework, this thesis makes an original contribution to the deepening understanding of the retention and throughput rates of accounting students in an ODL environment. The study has shown that retention and throughput rates can be improved through the lessening of the transactional distance between facilitator and student and by improving the quality and extent of the two-way didactic conversation in the learning process.

To this effect, the study provided empirical evidence of the successful use of various complementing technology interventions, suitable for accounting students with time constraints, to enhance the learning process.

ABBREVIATIONS AND ACRONYMS

Abbreviation or acronym	Meaning
BBM	BlackBerry Messenger
BCompt	Bachelor Computationis degree
CA	chartered accountant
CAS	College of Accounting Sciences
CAs	chartered accountants
CD	compact disc
CDs	compact discs
CEMS	College of Economic and Management Sciences
CHE	Council of Higher Education
CTA	Certificate in Theory of Accounting
DBE	Department of Basic Education
DE	distance education
DE/ODL	distance education or open distance learning
DHET	Department of Higher Education and Training
DVD	digital video disc or digital versatile disk
FAC2602	A second-year Financial Accounting module
GPRS	General Packet Radio Service
GSMA	Groupe Speciale Mobile Association
HEIs	higher education institutions
ICT	information and communication technologies
IFRS	International Financial Reporting Standards
IP	Internet Protocol
IT	information technology
LMS	learning management system
MMS	multimedia messaging systems
MOOCs	massive open on-line courses
MXit	Instant messaging software application developed in South Africa that runs on mobile phones

ODL	open distance learning
OER	open educational resources
PCs	personal computers
QE	qualifying examination
RSS	Really Simple Syndication
SAICA	South African Institute of Chartered Accountants
SIM	subscriber identity module
SMS	short message service/short message system
UID	universal instructional design
Unisa	University of South Africa
USA	United States of America
WAP	Wireless Access Protocol

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CHAPTER 1

INTRODUCTION TO THE STUDY

“If we teach today as we taught yesterday, we rob our students of tomorrow”
(John Dewey, 2011:online)

1.1 INTRODUCTION

Research conducted by the South African Institute for Chartered Accountants (SAICA) reveals that the throughput rate of both undergraduate and post-graduate accounting students studying at the various distance learning institutions in South Africa is considerably lower compared to students studying at residential universities (Olivier & Bulman, 2009:8). These research results not only have serious implications for the profession in South Africa, but reflects negatively on the University of South Africa (Unisa), Africa’s “leading open distance learning institution” (Unisa, 2015:online), which enrolls on average 40% of all accounting students in South Africa (College of Accounting Sciences, 2014a; Table 1.1). In fact, the 2012 throughput rate of Unisa students was 9%, compared to the national average of 18% (College of Accounting Sciences, 2014a; Table 1.1).

Considering the magnitude of Unisa’s market share of accounting students in South Africa, it is pivotal to understand the unique challenges related to retention and throughput of these students. This thesis reports on a case study applying the theories of *didactic conversation* and *transactional distance* to understand the retention and throughput rates of accounting students in an open distance learning (ODL) environment.

This chapter will consequently provide a brief overview of the unique nature and challenges of accounting education in South Africa, the distinct nature of Unisa as an ODL institution, and the challenges related to retention and throughput of accounting students at an ODL institution. From this overview, the rationale to the study, the research problem and the research questions will be deduced. This chapter will also

provide an explanation of the research design and methodology for this study, the significance of the research and an outline of the chapters in this thesis.

1.2 PRESENTATION STYLE

Although I adhere to the traditional professional conventions of scholarly discourse, I will sometimes share this journey with you as reader by writing in the first person following the example of Webb (1992:747) who states, “the use of the neutral, anonymous third person is deceptive when applied to quantitative research because it obliterates the social elements of the research process”. Writing in the first person has become acceptable in the broader discourses of qualitative research (Berger, 2001:506; Creswell & Plano Clark, 2011:253; Macbeth, 2001:35; Patton, 2002), and including a personal narrative is an essential ingredient in any reflexive attempt at making and constructing meaning (Macbeth, 2001:68). Although I will write in the first person from time to time and share aspects of my personal narratives in this journey, this study is not primarily an autoethnography as defined by Ellis, Adams and Bochner (2011). I use the personal narrative every now and then in this study on the one hand as a way to establish rapport with you as reader (Berger, 2001:506) and on the other hand to acknowledge my biases, assumptions and beliefs as part of my ethical framework for doing and sharing this research (Patton, 2002).

1.3 BACKGROUND AND CONTEXTULISATION OF THE STUDY

In order to understand the retention and throughput rates of accounting students at Unisa, it was necessary to take into consideration the landscape of accounting education in South Africa, the specific challenges faced by accounting students at Unisa and the recent scholarly discourse on retention and throughput of distance education (DE) students.

1.3.1 Accounting education in South Africa

This study has been conducted within the context of the shortage of accountants and more specifically chartered accountants (CAs) in South Africa – estimated by SAICA as approximately 17 000 accountants and 5 000 CAs (Innocenti, 2009; Marshall, 2014; PricewaterhouseCoopers, 2012; SAICA, 2012). A CA candidate can qualify within seven years, but this is not the norm in South Africa as on average only one

out of five registered students will complete their studies in the minimum timeframe (Van der Post, 2010). This results in an average annual growth of the number of CAs by about 5% (Enslin-Payne, 2011) which will not ease the shortage soon.

Before a student can write SAICA's qualifying examination (QE) in South Africa, he or she must obtain a BCom Accounting (CA stream) degree and pass a Certificate in Theory of Accounting (CTA) postgraduate qualification at an accredited university in South Africa (Van der Post, 2010). Undergraduate and postgraduate qualifications are offered by 14 SAICA-accredited residential universities in South Africa (SAICA, 2014) as well as Unisa.

1.3.2 Accounting education at Unisa

Unisa the main ODL institution in South Africa (Department of Higher Education and Training, 2013:50), offers the undergraduate BCompt degree (the required BCom Accounting degree for the CA stream) and the postgraduate CTA qualification. Table 1.1 (College of Accounting Sciences, 2014a) not only highlights Unisa's major market share in accounting education in South Africa (around 40%), but also the lower throughput rate compared to national figures (of about 20%) (College of Accounting Sciences, 2014a).

Table 1.1: Accounting students' enrolment: comparison between South Africa and Unisa

Year	National			Unisa			Total market	Percentage graduates produced for the sector
	Headcounts	Graduates	Throughput rate	Headcounts	Graduates	Throughput rate		
2005	88 062	12 267	14%	34 516	2 099	6%	39%	17%
2006	94 530	14 019	15%	39 070	1 773	5%	41%	13%
2007	95 125	14 465	15%	41 618	2 087	5%	44%	14%
2008	95 410	14 341	15%	44 375	2 185	5%	47%	15%
2009	97 613	14 591	15%	44 284	2 060	5%	45%	14%
2010	93 753	14 196	15%	42 841	3 153	7%	46%	22%
2011	95 925	14 408	15%	45 422	3 043	7%	47%	21%
2012	81 306	14 635	18%	33 446	2 895	9%	41%	20%

(College of Accounting Sciences, 2014a)

The majority of the Unisa students referred to in Table 1.1 are enrolled for the BCompt degree consisting of 30 compulsory modules. In South Africa, there are two options available to students who want to pursue a career as a CA: the face-to-face option at residential universities and the DE option at Unisa. The bulk (almost 60%) of students completes their undergraduate qualification on a full-time basis at residential universities in South Africa (Olivier & Bulman, 2009:8). Students who want to pursue the career on a part-time basis (as most BCompt students at Unisa do), are required by SAICA to enter into a five-year training contract with a registered training office and obtain their undergraduate degree within five years (SAICA, 2012). Being employed full-time, as trainee accountants while studying part-time, unavoidably places many challenges on the successful completion of these tough qualifications (Olivier & Bulman, 2009:8), which may contribute to the low retention and throughput rates of these students. Furthermore, DE students are required to have sufficient discipline to work through course material and assignments on their own and at their own pace. They have no or limited contact time with facilitators as well as other students and may struggle to stay focussed and motivated in their studies (Holmberg, 1995b; 2005:171; Olivier & Bulman, 2009:8; Simonson, Smaldino, Albright & Zvacek, 2012:229).

In order to understand the unique challenges related to the retention and throughput rates of these students at Unisa, I had selected one of the 30 compulsory modules, the FAC2602 module, a second-year Accounting module, as a single case for this study (refer section 1.6). The throughput rates of the FAC2602 module (refer Table 1.2) is pivotal to the throughput rates of the BCompt degree graduates produced for the sector (refer Table 1.1), which justified the selection of this module to be a representative case for this study.

Table 1.2: FAC2602 student examination statistics – 2003, 2004, 2005 and first semester 2006

Semester and year	1st 2003	2nd 2003	1st 2004	2nd 2004	1st 2005	2nd 2005	1st 2006	Average
Number of registered FAC2602 students	2 391	2 352	2 275	2 087	2 136	2 427	2 549	2 317
Number of FAC2602 students admitted to the examination	2 375	2 327	2 253	2 075	2 131	2 413	2 544	2 303
Number of FAC2602 students who wrote the examination	1 966	1 834	1 737	1 616	1 655	1 924	1 997	1 818
Number of FAC2602 students who passed the examination	879	646	829	827	457	799	545	712
Percentage of registered students who wrote the examination	82.22%	77.98%	76.35%	77.43%	77.48%	79.27%	78.34%	78.46%
Percentage of registered students who passed the examination	36.76%	27.47%	36.44%	39.63%	21.40%	32.92%	21.38%	30.72%
Percentage of students who wrote and passed the examination	44.71%	35.22%	47.73%	51.18%	27.61%	41.53%	27.33%	39.16%

The FAC2602 module is presented to second-year accounting students by the Department of Financial Accounting at Unisa. The Department of Financial Accounting is one of six departments offering tuition to the BCompt undergraduate students. The other five departments are Taxation, Auditing, Financial Management, Financial Intelligence and Financial Governance (College of Accounting Sciences, 2014b).

When this study commenced, the School of Accounting Sciences resided in the College of Economic and Management Sciences (CEMS). In January 2014, the School of Accounting Sciences was constituted as a separate college, namely the College of Accounting Sciences (CAS) (College of Accounting Sciences, 2014a). The commitment of Unisa as well as CAS to the alleviation of the shortage of CAs in

South Africa was also emphasised as follows by Prof. Elmarie Sadler, the Executive Dean of CAS in 2014:

South Africa has a dire shortage of skills in the accounting field, which has seen this sector ranked amongst the national priorities of the country. As a university, we are both excited and ready for the challenge to contribute to national efforts aimed at supplying the country with much-needed skilled people in this field (Unisa, 2014b).

In order to assist the students with their studies, lecturers in the Department of Financial Accounting had been offering group discussions and tutorial classes in the past. Lecturers had conducted at least one group discussion class, which lasted between three and five hours, once a semester, in three of the main centres (Pretoria, Durban and Cape Town) in the country. In addition, tutors were also employed to assist smaller groups of students at various learning centres across the country, on a weekly basis, for a total of 15 hours per semester.

The FAC2602 lecturers also offered their students the opportunity to attend the aforementioned group discussion classes once every semester until 2010. During these five-hour-long group discussions, the lecturers went through the whole FAC2602 syllabus and explained some of the most common problems students encountered during examinations. However, the attendance records of these group discussion classes revealed that as few as 10% of the registered FAC2602 students attended these contact sessions between 2003 and 2005. The same low attendance was discovered from the attendance records of the aforementioned tutorial classes.

Nevertheless, students who attended these FAC2602 group discussion classes had shown their appreciation for these interventions for enhancing their learning experience. The interventions have partially helped to fulfil their need for regular support from lecturing staff. The following are three comments the researcher received from students after the 2005 discussion classes. All identifiable student information was removed:

This is to say THANK YOU very much for the discussion class on Thursday. I really benefitted from the session!

I write to express my sincere gratitude for the guidance you provided during yesterday's class for course FAC2602. I promise to do justice to

your good guidance by working hard to pass the course. Thanks once more.

Thank you very much for the discussion class. I learned so much. For the first time I think I understand consolidated financial statements.

Additional interventions enhancing didactic conversations, and reducing transactional distance have thus shown to be essential for transferring Financial accounting concepts and content.

Previous research has shown that if DE students are supported through technology¹ in such a way that they will persevere with their studies, retention and throughput rates will increase (Simonson *et al.*, 2012:225; Simpson, 2008:161; Turney, Robinson, Lee & Soutar, 2009:80). However, it was a challenge to me (the researcher) to apply these technology-supported interventions in an Accounting module at Unisa. I have increased the frequency of communication with my students with the expectation that it would motivate them to persevere and to be more successful. It was not only important to me to add a human touch to the DE Accounting module in question, but also to utilise those technologies to make the learning experience accessible, affordable and beneficial to the students within the unique Unisa and African context. Mobile phones, being the most widely used application (refer section 2.6), have shown to be the most appropriate technology for this purpose.

1.3.3 Retention and throughput challenges of accounting students at Unisa

The challenges of low retention and throughput of accounting students and the FAC2602 students in particular constituted a major challenge. The purpose of this section is to provide a preliminary overview of the literature related to student retention and throughput in an ODL environment.

Studies (Koen, 2007; Prinsloo & Subotzky, 2009; Simonson *et al.*, 2012; Subotzky & Prinsloo, 2011; Tinto, 2006) indicate that factors affecting success in developing countries resemble those identified in international research; however, the relationship between and combination of variables probably vary significantly, as

¹ In this context, the concept *technology* refers to tools, technical objects or technical apparatuses as defined by Van Jaarsveldt and Wessels (2011:64) and for purposes of this study, more specifically mobile phones, CDs and a DVD. A more comprehensive definition is provided in section 1.8.

does the influence of the students' immediate environment. Exploring the vastness of research into student retention and throughput in higher education, it seems imperative to remember Tinto's warning (2002) that research findings are context-specific and what works in one context, will not necessarily work in another. A study published by the Scottish Council for Research in Higher Education (Hall, 2001) established that:

- retention rates differ by sector of education, age of students, level of course, subject of course, socio-economic group and institution;
- data on student retention is often of poor quality and may be inaccurate or misleading; and
- reasons for student dropout operate at individual student, institutional and supra-institutional levels.

Unisa's conceptual-hypothetical model (Subotzky & Prinsloo, 2011:184) captures the dynamic and complex nature of success and the particularities of the South African ODL context. The model (Subotzky & Prinsloo, 2011:188) defines success as follows:

- course success leading to graduation within the expected minimum time appropriate to qualification types in the ODL context;
- an optimistic student experience and high levels of satisfaction throughout all phases of the student walk;
- successful fit between students' graduate attributes and the requirements of the workplace and civil society; and
- course success without graduating, which includes the case of occasional students pursuing the primary reward of formative studies or completing qualifications at other institutions.

A large number of authors have also explored other variables influencing student success and failure or perceptions regarding the effect of these variables. These include the circumstances of student success (Sadler & Erasmus, 2005:32; Tinto, 2002), staff perceptions regarding student failure (Killen, Marais & Loedolff, 2003:148; Taylor & Bedford, 2004:375) as well as student perceptions regarding their success and failures (Killen *et al.*, 2003:148; Kreber, 2003:57).

A South African study (Jones, Coetzee, Bailey & Wickham, 2008:5) interrogated various categories of “disadvantage” and their correlation with success. These include:

- geography (specifically rural location);
- a lack of financial resources (which often accompanies geographic disadvantage);
- schooling (specifically under-resourced, low-performing schools);
- language (specifically where the language of tuition may be the student’s second or even third language); and
- other socio-cultural factors contributing towards students’ under-preparedness.

In another South African study, Scott, Yeld and Hendry (2007:iv) acknowledge that poor success is:

- a complex and multi-layered issue;
- shaped by underprepared students and underprepared staff;
- the nature and organisation of higher education teaching and learning;
- the conceptualisation of the educational process, particularly the appropriateness of content and assessment methods in relation to different institutional cultures;
- the extent of professionalisation of facilitators;
- the nature and extent of funding; and
- the role of system differentiation in addressing under-preparedness.

It is obvious from the aforementioned that there are various factors that affect students’ retention and throughput rates, especially in South Africa. In addition, universities’ funding in South Africa is also under pressure as the success rate of students is currently lower (74% in 2011) (DHET, 2013:32) than the national norm of 80% (DHET, 2013:32) and thus universities are encouraged to increase support for teaching and learning (DHET, 2013:32). Furthermore, universities must also focus on expanding the success rates of students in the scarce and critical skills areas needed by South Africa (of which accounting is one) (DHET, 2013:33) and incorporate technologies to assist with increasing student success. However, universities are

warned to plan these interventions carefully and to contemplate their pedagogical strengths (DHET, 2013:53).

Research by a variety of scholars in the DE and ODL fields (refer Bates, 2005; Birch & Volkov, 2007; Garrison & Vaughan, 2008; Simonson *et al.*, 2012; Simpson, 2008; Waddoups & Howell, 2002) has established that students' success depends not only on the quality of the learning package, but also on the quality and scope of support given to these students. Teaching and learning at a distance have therefore been changing rapidly; it now often includes technologies to assist with more frequent communication and interaction between facilitators and students (Hamid, Chang & Kurnia, 2009; Hoffman, 2009; Kim, Mims & Holmes, 2006; Simonson *et al.*, 2012). Thus, by increasing the use of technologies in a DE student's study package, student support is improved as the didactic conversation is increased and the transactional distance between facilitators and students is lessened (Kelsey & D'Souza, 2004; Simonson *et al.*, 2012:59). These two concepts were first introduced by Holmberg (1982) and his theory of didactic conversation as well as Moore (1973) with his theory of transactional distance. The aforementioned two theories (which will be explained in more detail in Chapter 2) propose interaction to be a predicating factor for the success of DE courses (Simonson *et al.*, 2012:79). Hence, to increase the retention and throughput rates of accounting students at Unisa, technology can be utilised to play a two-fold role by firstly increasing the didactic conversation and by doing so lessen the transactional distance and secondly by providing students with the necessary quality support they need.

Holmberg (1982) highlights the importance of didactic conversation in DE studies and Moore (1973) focusses on the importance of dialogue between facilitator and student to lessen the transactional distance. Subsequently, there was a need to investigate the possibilities of integrating technologies into the second-year Accounting module (the FAC2602 module) to increase dialogue and by doing so to lessen the distance between the institution, the lecturer and the students. However, integrating technologies into courses in South Africa creates an immense challenge to facilitators and lecturers (including those at Unisa) as technologies readily available to institutions in developed countries are not always accessible and affordable to students in developing countries (Wright, 2014). Although the use of computers and

the internet has given DE a new dimension, this is not always the case in South Africa as many of the registered students at Unisa come from historically disadvantaged backgrounds and live in remote areas, which have poor infrastructure and lack sustained electricity supply (Brown, 2003). Research conducted in the past confirmed that not all the FAC2602 students have access to computers and to the internet (Prinsloo & Van Rooyen, 2007:59).

If the FAC2602 lecturers thus wanted to increase communication between lecturers and students, they had to consider making use of technology to which most of the students had access and which they could afford. As previous research indicated that most students have a mobile phone (Van Rooyen, 2010a:47), this study opted to focus on the use of mobile phones. The present study therefore aimed to explore the effect of a mobile phone intervention on the retention and throughput rates of FAC2602 students. In addition, the study acquired these FAC2602 students' perceptions and experiences regarding the integration of mobile phones to assist them as accounting students with the teaching and learning of FAC2602 by facilitating quality interaction between the lecturer and student. Considering the accounting content and the African context of this study, the study (which commenced in 2006) utilised mobile phones to bring about more didactic conversation, thus lessening the transactional distance as connectedness and communication were increased. Although the main aim of the study was to focus and exploit the use of mobile phones only, compact discs (CDs) and a digital video disc (also sometimes referred to as a digital versatile disk) (DVD) were also incorporated later as part of the research project. The reasons for this will become evident as the research report unfolds.

When comparing DE accounting studies to accounting studies at a residential university, DE accounting students face different challenges, which may result in their lower pass rate in the QE examination. Not only do DE students not attend regular classes, they have very little contact with their lecturers and other students. DE thus refers to more than just geographical distance – it also includes time, economic, social, educational and communication distances (Heydenrych & Prinsloo, 2010:6; Moore & Kearsley, 1996:125; Prinsloo & Subotzky, 2009:19; Simonson *et al.*, 2012:72). Even though DE has evolved over centuries, its distinctive characteristic

has remained the physical separation between the delivering institution and its students (Heydenrych & Prinsloo, 2010:6; Moore & Kearsley, 1996:2; Simonson *et al.*, 2012:32).

The concepts of communication distances and physical separation between the institution and the students are in line with Moore's (1973, in Moore & Kearsley, 1996:200) own explanation of his theory of transactional distance where he emphasises the fact that distance refers to a distance of understandings and perceptions caused by the geographical distance that has to be overcome by facilitators, students and educational institutions if effective, deliberate and planned learning is to occur. Moore is of the opinion that this psychological and communication space that he calls "transactional distance" (Moore, 1991:2) is influenced by three factors, namely –

- (i) the dialogue developed between facilitator and students;
- (ii) the degree of structural flexibility of the programme; and
- (iii) the autonomy that alludes to the extent to which the student exerts control over learning procedures (Moore & Kearsley, 1996:199).

A more detailed exposition of Moore's theory and its operationalisation in this study is provided in section 2.3.2 of Chapter 2.

As Unisa is classified as one of the mega-universities in the world with a large student enrolment of approximately 400 000 students (Unisa, 2015), facilitators are always looking for solutions to solve the problem of transactional distance between themselves and their large student numbers. While Unisa as an institution has adopted a number of technologies to facilitate learning, it is ultimately the facilitators within an academic department who determine the extent and effectiveness of the use of such technology. As an Accounting lecturer, I know that two-way conversation is indeed necessary in the field of accounting studies, as students often struggle to understand different concepts and calculations. Courses in the Department of Financial Accounting focus on problem solving of various complex calculations (for example time-value of money, lease instalments, consolidated financial statements and deferred taxation) before a student can start to draft a complete set of financial statements. Not only must students be able to do the necessary computations, they

must also be able to integrate Companies Act regulations and International Financial Reporting Standards (IFRS) requirements to solve problems. Lecturers in the Department of Financial Accounting at Unisa have noticed that applying these concepts in various calculations and questions often creates problems for students.

Trying to address the problems related to student failure, Unisa has adopted an approach (as documented in its 2015 Strategic Plan) to establish technology-enhanced student support (Unisa, 2007:14). As suggested by Simpson (2008:159), Unisa will retain students when service-orientated, technology-enhanced student support is established. This is confirmed by a number of authors who have reported on the increasingly important role that technology plays in facilitating learning in higher education (Baltaci-Goktalay & Ocak, 2006; Marginson, 2006; Rodgers, 2004; Simonson *et al.*, 2012; Turney *et al.*, 2009).

As a lecturer on the FAC2602 module, I am familiar with the different concepts students have to grasp to be successful, but trying to convey these concepts through print-only study material has always been a challenge. As previous research at Unisa indicated that technology can indeed be used to assist DE students to compute and promote understanding in mathematical courses (Venter & Prinsloo, 2011:50), Financial Accounting students (including the FAC2602 students) at Unisa may also benefit if technology can assist them with their studies.

However, when this study commenced in 2006, the predominant mode of delivery of study materials, as well as communication, in the Department of Financial Accounting were via the postal service only. Students would register for the module and receive their study material via the postal service soon thereafter. Students were then expected to work through the study material, hand in assignments and write an examination paper at the end of the semester. Interaction and communication between lecturers and students were thus very limited; sometimes even non-existent. Although lecturers on the FAC2602 module worked relentlessly in trying to improve the quality of the study material with the intention of increasing the throughput rates, the retention rates hovered between 75% and 85%, and the throughput rates between 20% and 40% (refer Table 1.2).

The purpose of this study was therefore to create new understandings of the application of mobile phones in facilitating interaction between lecturer and students, with the aim to increase retention and throughput rates of the FAC2602 students within an ODL environment in South Africa. Because of the shortage of accountants and CAs in South Africa, there is a need to support accounting students more effectively in their DE studies at Unisa.

1.4 RATIONALE TO THE STUDY

This study set out to expand the limited theoretical understanding of students' perceptions and experiences on the use of mobile phones, in addition to other teaching and learning interventions, in an Accounting module at Unisa. There was a need to support accounting students more effectively in their studies to ensure they complete their studies within a shorter period of time. This would alleviate the shortage of accountants and CAs in South Africa. If mobile phones could assist students with learning and teaching of accounting concepts, it may be beneficial to all. The key stakeholders who may benefit from this research are the FAC2602 students, the Department of Financial Accounting and indirectly CAS, Unisa and ultimately SAICA and the country as a whole. Improving the retention and throughput rates of FAC2602 students should directly benefit the students by increasing their chances of obtaining their BCompt degree. Completing the BCompt degree is an essential step towards obtaining their CTA and CA qualifications.

Considering the low retention and throughput rates of the accounting students and the ODL nature of Unisa, it was necessary to understand the application of mobile phones in the teaching and learning of the FAC2602 module through the applications of the didactic conversation and transactional distance theories. However, limited research on DE student support in South Africa in the accounting field has been done so far. Various research projects have explained and analysed the integration of different technologies in accounting education (Ahadiat, 2008; Basioudis & De Lange, 2009; Jebeile & Abeysekera, 2010) but limited research has been done on the use of mobile phones in accounting education in developing countries in general. Through this enriched understanding, the researcher intends to fill the gap in the existing body of knowledge regarding improved didactic conversation and reduced transactional distance in accounting education in an ODL environment.

A variety of papers have considered how to improve the effectiveness of accounting teaching by using various technologies. Accounting education articles published in six journals, namely the *Journal of Accounting Education*, *Accounting Education: An International Journal*, *Advances in Accounting Education*, *Global Perspectives on Accounting Education*, *Issues in Accounting Education* and *The Accounting Educators' Journal* nevertheless revealed limited research on the use of technology in DE and ODL institutions (Apostolou, Hassel, Rebele & Watson, 2010:163; Watson, Apostolou, Hassel & Webber, 2007:22). A limited number of publications have reported in the past on the effect of technology on the improvement of learning, on web-based teaching and on DE (Watson, Apostolou, Hassel & Webber, 2003:292). The provision of visual information was found to have educational benefits as students remember visual facts more effectively than textual data (Garrison & Vaugan, 2008:78; Simonson *et al.*, 2012:242; Volmer, 1992:151). Audio technology is rarely used in accounting education, while the most frequently technologies used are computers, internet and videos (Ahadiat, 2008:130; Simonson *et al.*, 2012:108). Although the use of the internet in the teaching of accounting is on the increase (De Wet & Van Niekerk, 2001:98; Simonson *et al.*, 2012:98), Hall (2000) is of the opinion that a great deal more can still be done.

1.5 RESEARCH PROBLEM AND QUESTIONS

Bearing in mind the problem of low retention and throughput rates of the FAC2602 students at Unisa, this study set out to understand the retention and throughput of accounting students through the theories of didactic conversation and transactional distance of Holmberg (1982) and Moore (1973) respectively. Holmberg's guided didactic conversation theory (1982) explains student retention and throughput through the following characteristics of conversation between facilitator and student (Holmberg, 1989:44; Simonson *et al.*, 2012:48):

- easily accessible presentations of study matter in easily readable format;
- explicit advice and suggestions to the student about what to do and to what to pay particular attention and consider;
- invitations to exchange views;
- attempts to involve students emotionally; and
- personal style, including the use of personal and possessive pronouns.

In addition, Moore's transactional distance theory (1973, in Moore & Kearsley, 1996:143; Simonson *et al.*, 2012:44) explains this phenomenon *inter alia* through the importance of the quality of the conversation and the extent to which the two-way conversation facilitates flexibility in the learning process and enhances the student's control over the learning procedures.

The theories of Holmberg (1982) and Moore (1973) therefore provide a theoretical framework for understanding student retention and throughput. As a result, the present study aimed to explore the participating students' perceptions and experiences on the use of mobile phones in the teaching and learning of FAC2602 to facilitate quality didactic conversations (Holmberg, 2005:171) and to lessen transactional distance (Moore & Kearsley, 1996:201) necessary for student retention and throughput.

The following research problem was therefore set to be solved:

To which extent does the application of mobile phones in an Accounting module at a South African ODL university improve the didactic conversation, lessen the transactional distance and increase the retention and throughput rates of these students?

From this central research problem statement and with reference to the theories of Moore (1973) and Holmberg (1982), the following questions (refer Table 1.3) emerged:

Table 1.3: Association between the theories of Moore (1973) and Holmberg (1982) and the research questions

Relevant theory	Research questions
Moore's transactional distance theory - quality and effective two-way conversation	1. To which extent can mobile phones support two-way conversation in a DE Accounting module?
Moore's transactional distance theory - enabling resolution of learning problems	2. To which extent can mobile phones be utilised to increase flexibility in resolving learning problems in accounting?
Holmberg's didactic conversation theory - easily accessible presentations of study matter in easily readable format	3. How can mobile phones be utilised to present study material to accounting students?
Holmberg's didactic conversation theory - explicit advice and suggestions	4. Are mobile phones appropriate when giving advice and making suggestions to accounting students?
Holmberg's didactic conversation theory - invitations to exchange views	5. How can mobile phones be utilised to exchange views between Accounting lecturers and students?
Holmberg's didactic conversation theory - involve student emotionally	6. How can mobile phones be used to involve accounting students emotionally?
Holmberg's didactic conversation theory - personal style	7. To which extent can mobile phones accommodate a personal conversation style between accounting students and lecturers?
Holmberg's didactic conversation theory and Moore's transactional distance theory	8. Does the mobile phone intervention have an effect on retention and throughput rates?
Holmberg's didactic conversation theory and Moore's transactional distance theory	9. How do students perceive and experience the mobile phone intervention?

(Author's own compilation)

Although various authors (Garrison & Anderson, 2003; Louw, 2005; MacDonald, 2008; Simonson *et al.*, 2012) have applied both these theories to highlight the importance of the relationship between the facilitator and student, and cited student-facilitator dialogue, no evidence of scholarly research related to the learning challenges of accounting students at a DE institution in South Africa could be found.

1.6 RESEARCH DESIGN AND METHODOLOGY

As emphasised previously, this study was guided by the DE theories of Holmberg (1982) and Moore (1973). These two theories were used to examine data in order to establish the perceptions and experiences of the FAC2602 students after mobile phones had been incorporated into the module to increase didactic conversation and to lessen the transactional distance. The present study used mobile phones and applied Holmberg (1982) and Moore's (1973) theories in a unique way in an Accounting course at Unisa a DE/ODL institution in South Africa.

Keeping the aforementioned theories in mind, the present study applied a mixed-method explanatory single case study research design (refer section 3.4) to understand participating students' perceptions on and experiences with the use of mobile phones to assist students studying at Unisa in terms of the teaching and learning of accounting in South Africa and by doing so, to increase their retention and throughput rates. The study described the teaching and learning experiences of me (the lecturer) and students in a second-year Accounting module in 2012.

The research design used in this study falls primarily within the interpretivist paradigm (Creswell, 2011:257; Creswell & Plano Clark, 2011:53; De Vos, Strydom, Fouché & Delpont, 2011:8). An interpretive paradigm involves taking people's experiences as the centre of what is real to them (Terre Blanche & Kelly, 1999). Making sense of my students' perceptions and experiences were important to my study because such knowledge helped me to explore, in a natural setting, student support as perceived and experienced by them. As the interpretivist paradigm assumes that each individual constructs reality, thus multiple realities exist in any given situation (Creswell, 2011:257; Creswell & Plano Clark, 2011:53). In this paradigm, I relied on the voices and interpretations of the research participants (the FAC2602 students), a method commended by scholars such as Creswell (1994; 2005) as well as Leedy and Ormrod (2001). The advantage of an interpretive position is that it recognises the existence of multiple social realities and the need for a researcher to explore how individuals interpret and make sense of their social experiences (Clarke & Dawson, 1999:56). I therefore approached the research context with an open mind and allowed multiple perspectives of learning support to emerge.

In my inquiry, I let the research design unfold as the research progressed, guided by the research participants and my interpretations as suggested by Clarke and Dawson (1999:56). The reasoning behind this was to have an in-depth understanding and explanation of the perceptions and experiences of these participating students on the student support and the effect this support has on their academic performance. From an interpretive standpoint, the context helped me understand a mobile phone intervention, like the one in the FAC2602 module.

The study used both qualitative and quantitative techniques to collect data and applied the complementarity framework of Greene, Caracelli and Graham (1989:258). The reason being that the data was collected during two different semesters (1st and 2nd semesters of 2012); thus involving two different groups of students/participants. However, as the content of the module and the mobile phone interventions were exactly the same in the two semesters in 2012, I believe that the data obtained from both questionnaires (refer Appendix A and Appendix B) is relevant to this research project. The complementarity framework of Greene *et al.* (1989:258) seeks to elaborate, enhance, illustrate and clarify the results from one method (quantitative) with the results from the other method (qualitative). This will become evident in Chapters 3 and 5 when the methodology and results are explained in more detail. Obtaining data through quantitative and qualitative questions strengthens the research outcome, as various authors agree that in real-life human sciences, researchers often need to combine elements of both approaches, since it has complementary strengths and can be used sequentially or simultaneously (Leedy & Ormrod, 2005:319; Teddlie & Tashakkori, 2009; Yin, 2009:219). The mixing of methods or techniques has the advantage of being able to accommodate both the subjective data, where insights, feelings and emotions count and are obtained through the use of qualitative methods and specifically numerical quantitative data. The mixing of methods also provided the breadth and depth necessary in understanding and interpreting student perceptions and experiences.

The case study is an appropriate design when examining and describing an intervention intended for a specific group of students in a specific module since it allows the researcher to conduct a continuous investigation of the real-life context in which this occurs (Newby, 2010; Stake, 1995; Yin, 2009). The case study has the

advantage of generating in-depth interpretations from participants and allows the reader the opportunity to experience the world of the participants through the eyes of the researcher (Eisner & Peshkin, 1990). Whilst one may not be able to generalise from a single case study, this technique was, however, an ideal design for my study as I focussed on discovery and insights and understanding the perceptions of students registered for FAC2602 in 2012. A case study offers the greatest promise of making significant contributions to the knowledge base, policy and practice of education in a local context (Merriam, 1998), and it allows for the use of rich and varied strategies and data sources which Descombe (1998) regards as the strengths of a case study.

The techniques used to collect data were two questionnaires (refer section 3.5.3, Appendix A and Appendix B), feedback obtained from students, such as e-mail correspondence, short message service (SMSes) and discussion forum documentation as well as my personal journal, all collected over the duration of the study (2006 to 2012). The questionnaires contained both closed and open-ended items. The quantitative data was analysed using the statistical package SPSS from which percentages were generated while themes emerged after a qualitative data analysis using Atlas.ti.

1.6.1 Anticipated research limitations

The participants in this study were DE students in a second-year Accounting module (FAC2602) at Unisa, an ODL institution in a developing country, South Africa. My intention was not to generalise, therefore I provide a detailed description of the profile of the participants of this study in this chapter. This will enable readers to make sound judgements should they be interested in transferability to similar contexts.

Another constraint was the possibility of bias and subjectivity as I conducted this research as the lecturer of the FAC2602 module. As a DE lecturer, I have my own beliefs on student support and have practised and observed support to students at Unisa in different ways in the past. In order to overcome the possible limitations due to me being biased as a result of my past experience and to improve validity, I used a variety of sources in my research. The research questions and surveys used for this

study were examined by various peers and experts for completeness of the questions and accuracy of the wording.

1.7 SIGNIFICANCE OF THE RESEARCH

This study built on existing literature by examining the effect of integrating mobile phones into an Accounting module, which prior to this research only provided a printed study guide to students, providing a more comprehensive perspective on both lecturer and students in a DE environment in South Africa, a developing country. Previous research findings and theories were applied in a specific DE/ODL South African context, which ensures a unique contribution to existing research findings. Using Holmberg's theory of didactic conversation and Moore's theory of transactional distance, data was interpreted in order to establish the perceptions and experiences of the accounting students after mobile phones had been introduced into their module.

The contribution of the research is significant as it:

- enhances the understanding of the use of mobile phones to improve the didactic conversation and lessen the transactional distance in a typical Accounting module at an ODL institution in South Africa;
- enhances the understanding of the influence of mobile phone interventions on accounting students' retention and throughput rates; and
- contributes to a conceptual framework for future research on the use of interventions for improving retention and throughput of accounting students in an ODL environment.

1.8 EXPLANATION OF KEY TERMS

To ensure a common understanding and frame of reference, working definitions for the following key concepts and terms are provided below.

Distance education (DE)

DE is the delivery of learning opportunities to students who are separated, mostly by time and space, from the institution providing the education (Garrison, 1985:235;

Moore & Kearsley, 1996:2; Simonson *et al.*, 2012:9). In DE, teaching is done through a variety of mediating processes used to transmit content, provide tuition and conduct assessment (Moore & Anderson, 2003). Currently, the term *ODL*, is used in the same context as DE as DE has continued to evolve from correspondence education to DE to ODL.

In this study, I make use of both DE and ODL terms. As the study focussed on the transactional distance between students and their lecturer, there was no preference for either the DE or the ODL concept. The problems related to DE were very much a part of this study, but in addition it was important to incorporate the term *ODL* as Unisa is known as an ODL institution.

Experience

Experience means to acquire knowledge or skill during a period of practical involvement in something, especially experience gained in a particular profession, an event or occurrence, which leaves an impression on someone; to encounter, to undergo, to feel (Oxford University Press, 2011). Epston and White (1992) argue that it is not possible for persons to have a direct knowledge of the world; that an objective description of the world is not available to us and our experience of the world is all that we have, and this is all that we know. The term *experience* as used in this study refers to the interpretation of the expressions of students' experiences as they tried to interpret the event for themselves. It refers to how students enrolled in an accounting DE module feel about the event. The students may feel satisfied or dissatisfied by the types of student support available in the course. They may share positive or negative feeling, e.g. motivation, satisfaction, confidence and connectedness or uncertainty, isolation, frustration and dissatisfaction.

Mobile phone interventions and functions

This study utilised mobile phones to apply the theories of Holmberg (1982) and Moore (1973) in supporting teaching and learning in an Accounting module. Although the study mainly focussed on mobile phones (often also referred to as *cellular phones* or *cell phones* by students) as the relevant mobile technology, students could make use of any mobile device to which they had access which they could use. The

broader term *mobile technology* is sometimes used in this thesis, and the definition of mobile technology will be explained in detail in Chapter 2.

Furthermore, the study made use of mobile phones and applied some of its available functions to assist the FAC2602 students. The functions used were SMSes, MXit (an instant messaging software application developed in South Africa that runs on mobile phones – also refer section 2.6.5), as well as various podcasts students could download from the *myUnisa* site (an on-line student academic portal) onto their mobile phones. All of these will be explained in more detail in Chapters 2 and 4. When my study commenced, I was focussing only on these three mobile phone functions. However, as the study unfolded I decided to include CDs and a DVD as well. The podcasts students could download on their mobile phones were made available to the FAC2602 students at the beginning of every semester on three CDs (thus exactly the same content as the podcasts). The reason for including the three CDs and DVD will be clarified in Chapter 4. However, throughout this thesis I will refer to SMSes, MXit and podcasts as the mobile phone functions and interventions.

Open distance learning (ODL)

The terms *ODL* and *DE* is often used in the same setting. Bates (2005:5) defines open learning as an educational policy. Open learning removes the barriers to learning and ideally, no one should be denied access to an open learning programme. Bates further highlights that openness has particular implications for the use of technology, and if no one is denied access, then technologies that are available to everyone need to be used.

As mentioned previously, I made use of both terms, *DE* and *ODL* in this study, as this study focussed predominantly on the transactional distance between students and their lecturer.

Perception

In the context of this study, perception means the belief (McDonald, 2011:1), strong or weak, that influences responses in terms of student support activities. Such beliefs may be true or false, close to reality or far from it, but still influence the student to make subjective judgements on the effect of student support interventions in terms of

whether these are effective and good or ineffective and bad. Perceptions can be positive or negative and even erroneous (Gable, Reis & Downey, 2003). The higher the percentage of positive student perception the more likely it is that student support may have made a positive difference. However, if a higher percentage of students have a negative perception, then the student support interventions were most probably less effective. Given possible errors in perception, I have decided to make use of triangulation of data sources in this study to invalidate or validate assumptions that might derive from the participants' perceptions.

Psychological distance

Psychological distance (as explained by Moore's theory of transactional distance) (1990:10) is created or exists between the student and the DE provider whenever there is an absence of or inadequate dialogue. This psychological communication gap or space has the potential to create misunderstanding between the students and the facilitators. A student, who experiences connectedness to the DE provider, has a minimal psychological distance from the DE provider (Shin, 2003:80). Dialogue and communication are purposeful and constructive exchanges between facilitators and students, students and students, with parties valuing and respecting the contributions of the other.

Retention

According to Fowler and Luna (2009), retention in an education setting refers to students' continued study until they successfully complete their qualification. In addition, Burr, Burr and Novak (1999) define retention as the efforts and strategies to anticipate and identify student needs prior to college or university enrolment, whereas Woodard, Mallory and De Luca (2001) are of the opinion that retention is an act where some students persist and graduate and others do not. For purposes of this study, retention was defined as the act of keeping students enrolled by providing them with as much as possible student support in the FAC2602 module, from the start of the semester until they write the examinations at the end of the semester. Thus, for purposes of this study, retention rate was calculated by expressing the number of students who sat for an examination in a particular semester as a percentage of those students who registered at the beginning of the same semester.

Student support

In the context of this study, student support refers to the services that are provided to DE students to assist them to overcome their barriers to learning and thus complete their studies successfully (Mims, Mims & Newland, 2009:593). Student support consists of three subsections, namely learning support or academic support, personal support and administrative support (Simpson, 2002; Tait, 2000:287; Thorpe, 2002:105). The provision of student support is imperative in DE and aims to enhance the academic performance of the distance student. The activities that make up student support delivered to DE students in a developing country include group discussion classes, tutorial classes, multimedia technologies, the internet and satellite broadcasts (Govender, 2012). In this study I focussed mainly on using mobile phones to provide student support.

Technology

Various meanings have been linked to the concept of technology. Veletsianos (2010:3) defines educational technology as “tools, concepts, innovations, and advancements utilised in diverse educational settings to serve varies education-related purposes”. Educational technology is thus a broad variety of modalities, tools and strategies for effective learning, which assist facilitators to achieve the desired instructional goals (Ross, Morrison & Lowther, 2010:19). According to Spector (2012), there are six major areas on which these educational technologies rely, namely communication, interaction, environment, culture, instruction and learning. These aforementioned definitions of educational technologies are all relevant in this study as a technology (a mobile phone) was used as a tool to increase the didactic conversation. Technology is not just restricted to the use of computers, but includes various technical objects or technical apparatuses (Van Jaarsveldt & Wessels, 2011), and in this study, I focussed mainly on mobile phones, but also included CDs and a DVD.

Throughput rate

Latief and Blignaut (2008) define successful throughput as the completion of an undergraduate study within the years allocated by the institution to complete the qualification. The Council of Higher Education (CHE) in South Africa (2010:15)

however calculates the graduation rate by dividing the total number of qualifications awarded at an institution by the total number of students enrolled, but this does not take into account the time lag from enrolment to graduation and the different durations of the qualifications. In addition, a cohort analysis can be used to track students from their first year of entering an institution to examine their progress (Voorhees & Lee, 2009). In this study, the throughput rate of FAC2602 students in a given semester was calculated by dividing the number of FAC2602 students who passed the examination at the end of the semester by the number of students registered for the module at the beginning of the particular semester.

1.9 OUTLINE OF STUDY

Applying Holmberg's (1982) theory of didactic conversation and Moore's (1973) theory of transactional distance, the main focus of this case study was to understand the retention and throughput rates of accounting students at an ODL institution in South Africa. Focussing on mobile phones and building on existing literature, the study examined the effect of integrating mobile technology into an accounting module.

During the investigation, I focussed on the research questions stated in this chapter (refer section 1.5) and employed a mixed-method approach to understand accounting students' experiences and perceptions after the mobile phones had been introduced into the module.

The thesis comprises of six chapters. In this chapter I have provided background on the state of accounting education in South Africa and at Unisa, stated the gap in knowledge, conceptualised the research questions and highlighted the significance of the study. Chapter 2 focusses on the literature perspectives I reviewed which helped me to contextualise the study. Holmberg's (1982) theory of didactic conversation and Moore's (1973) theory of transactional distance are discussed in more detail and the chapter also provides a provisional theoretical framework that assisted me in the collection, processing and interpretation of the findings. The framework enabled me to position my findings within the existing body of knowledge related to DE student support. Chapters 3 and 4 explain the research process in detail. Chapter 3 focusses in particular on the research design and methodology, whereas Chapter 4 provides

details on the various mobile phone interventions used in the study. Chapter 5 constitutes the presentation of the research findings, and answers the research questions using numbers and rich descriptions (quotations). Chapter 6 interprets the findings, answers the research questions and provides conceptual conclusions. This last chapter also explains the contribution to knowledge, outlines the limitations of the study and makes recommendations for future research. This thesis outline is reiterated in Figure 1.1.

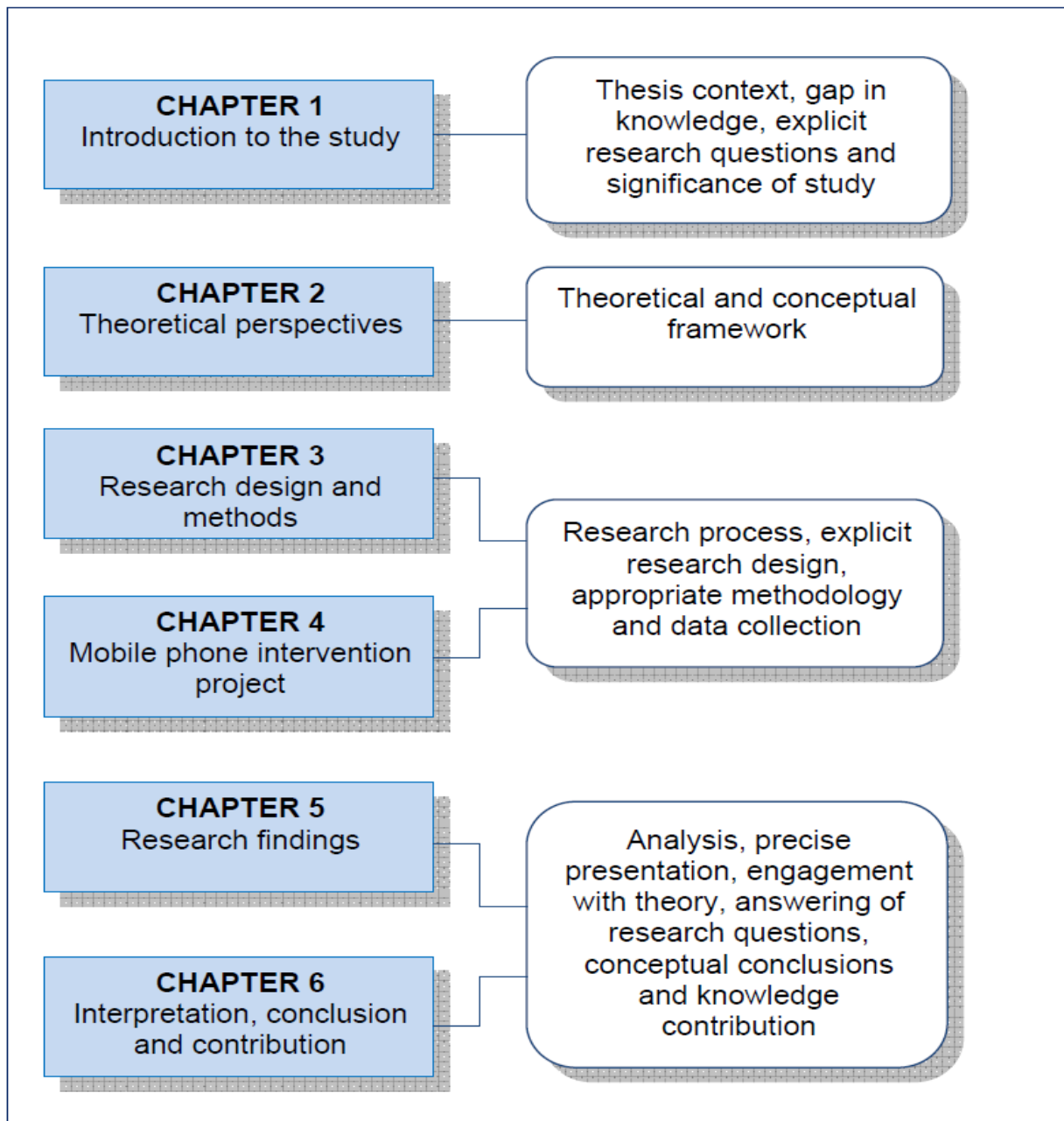


Figure 1.1: Structure of thesis

Compiled after considering the components of doctorateness identified by Trafford and Leshem (2008)

1.10 CHAPTER CONCLUSION

This chapter has shown that the throughput rates of accounting students studying at a DE institution are considerably lower than the national average, including students studying at the other 14 SAICA-accredited universities in South Africa. Holmberg (1982) and Moore (1973) have revealed in separate studies that the retention and throughput rates of students can be understood through the theories of didactic conversation and transactional distance. However, a preliminary review of the literature revealed that limited research has been done on student support of DE accounting students in South Africa. In order to fill this apparent gap in the literature, the present study set out to contribute to the understanding of these problems through the didactic conversation theory and transactional distance theory of Holmberg (1982) and Moore (1973) respectively.

Chapter 2 will elaborate on these theories in order to provide a conceptual framework for the study.

CHAPTER 2

THEORETICAL PERSPECTIVES

“... it’s not just learning that’s important. It’s learning what to do with what you learn and learning why you learn things that matter”
(Norton Juster, 2011:online)

2.1 INTRODUCTION

In Chapter 1, the low throughput rate of DE accounting students in South Africa was compared to the national norm. The present study set out to understand the low retention and throughput rates of accounting students through the transactional distance theory of Moore (1973) and the didactic conversation theory of Holmberg (1982). In this chapter, the literature relating to the theories of Holmberg and Moore is reviewed in order to deduce a conceptual framework for understanding the low retention and throughput rates.

The literature review begins with a historical overview of the establishment of correspondence study and the changes that took place over the years, leading to the concepts of DE and ODL as we know it today. Theoretical considerations in DE are explored and the reasons for deciding on the two theoretical frameworks for this study are highlighted. Literature describing the factors which influence the teaching and learning of students, focussing mainly on accounting and the ODL context, is also considered. Highlighting the integration and use of mobile phones and technologies in DE courses, I came across literature explaining the transformation of DE and ODL courses (including Accounting courses) through the adoption and integration of technology into the course content. The literature and theoretical reviews therefore served the purpose of enabling me to identify the constraints and challenges involved in the teaching and learning of DE accounting students at an ODL institution in South Africa.

A visual presentation of the layout and structure of Chapter 2 is provided in Figure 2.1.

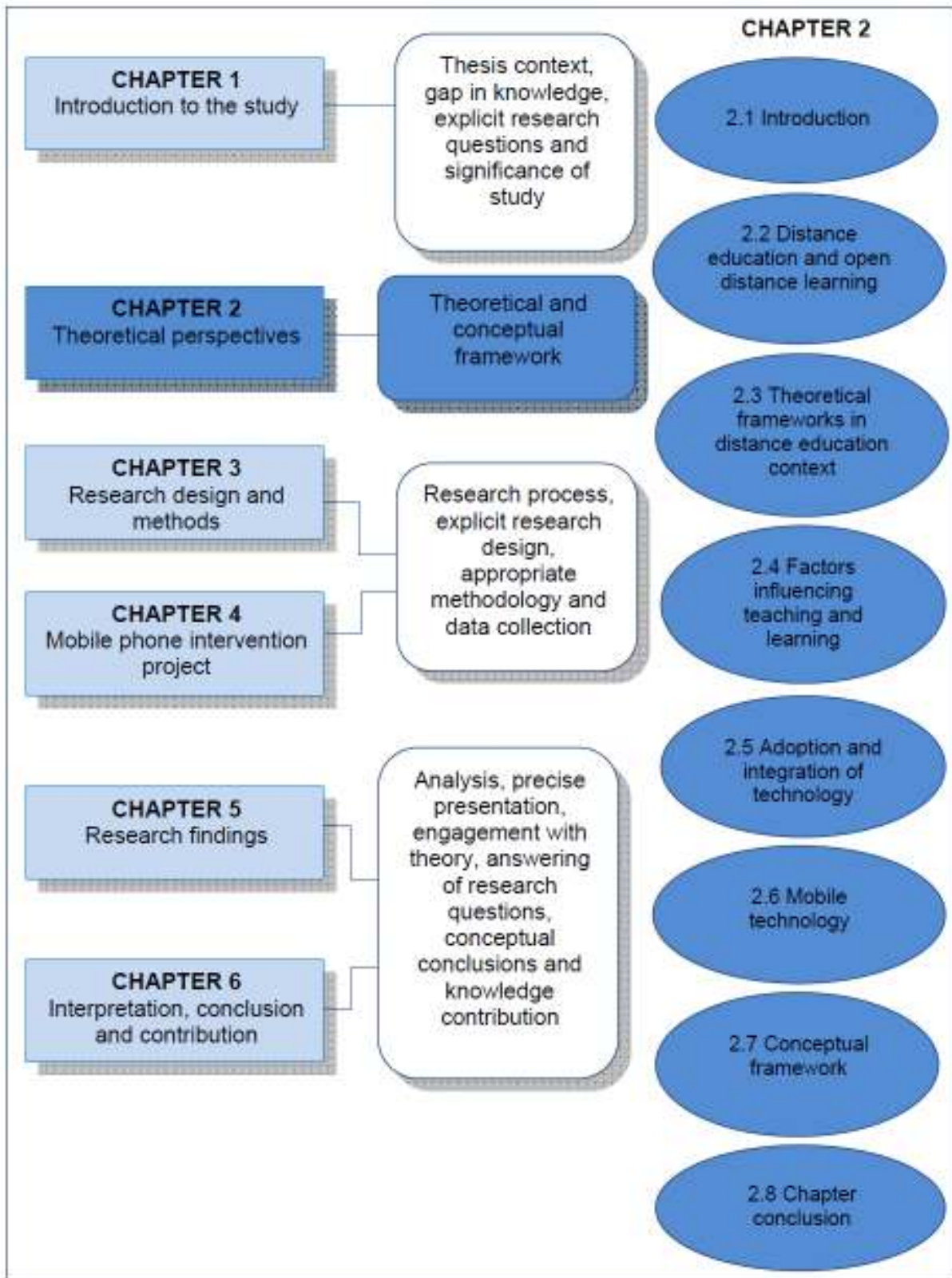


Figure 2.1: Structure of Chapter 2

Compiled after considering the components of doctorateness identified by Trafford and Leshem (2008)

I conclude the chapter by proposing a provisional conceptual framework for understanding students' perceptions and experiences of the application of mobile technology in the teaching and learning of the FAC2602 module in an ODL context supporting retention and throughput.

2.2 DISTANCE EDUCATION AND OPEN DISTANCE LEARNING

This case study investigated the participating FAC2602 students' perceptions and experiences in their Accounting module at Unisa, an ODL institution in South Africa. To understand the problems the FAC2602 students encounter better, it must be made clear that these students often encounter problems with their studies, and to appreciate their perceptions and experiences, it was necessary to understand the historical background and various concepts of DE and ODL, specifically from a South African perspective.

The roots of DE, in the form of correspondence study/education, was established in Germany more than 170 years ago when Charles Toussaint and Gustav Langenscheidt started teaching language in Berlin via correspondence (Holmberg, 1989:1; 2005:13; Moore & Kearsley, 1996:20; Simonson *et al.*, 2012:37). Correspondence education has been known during the greater part of the twentieth century, mainly as part of adult education, and it relied wholly or mainly on the printed and written word as its medium (Garrison & Anderson, 2003:35; Holmberg, 1989:1). Correspondence education was a remarkable social innovation as it made education and training available to those who lived in remote areas or who had to work during normal teaching hours (Holmberg, 2003). In 1901, the Moody Bible Institute formed a correspondence department, which still operates today, with a record of over one million enrolments from all over the world (Simonson *et al.*, 2012:39). Although the capacity for limited two-way communication exists in correspondence study, it was very difficult to achieve because of the slowness of the postal process (Holmberg, 2005:171; Moore & Kearsley, 1996:20). However, when sophisticated media (radio, television, satellite technology and video) became available in the early 1900s, the leading correspondence institutions started utilising them in their teaching programmes (Bates, 2005; O'Donoghue, Singh & Dorward, 2001:511; Simonson *et al.*, 2012). It was the refinement of correspondence education that paved the way for modern DE as applied in the last decades of the twentieth century (Holmberg, 2005).

DE has continued to evolve from correspondence education to DE to ODL. Although the term *open learning* and *distance education* are often used to mean the same thing, there are significant differences. Bates (2005:5) defines open learning as:

primarily a goal, or an educational policy. An essential characteristic of open learning is the removal of barriers to learning. Ideally, no-one should be denied access to an open learning programme. Openness has particular implications for the use of technology. If no one is to be denied access, then technologies that are available to everyone need to be used.

DE is thus an instructional delivery that does not require students to be physically present in the same location as the instructor/facilitator. It also provides access to those who would otherwise not be able to participate in face-to-face courses (Simonson *et al.*, 2012).

Bates (2005:6) argues that, although open learning and DE can mean different things, the one factor they have in common is an attempt to provide high-quality education for students who either cannot enrol for conventional, campus-based programmes, or choose not to. According to Holmberg (2005:10), DE represents a method, and open learning implies evading avoidable restrictions. Holmberg is of the opinion that the two go well together, and believes that DE is an eminent method in open learning. As explained in section 1.8, in this thesis I make use of both key terms. As this study focussed on the transactional distance (refer section 2.3.2) between students and their lecturer, there is no preference to either the DE or the ODL concept.

Although it is evident that DE has evolved over centuries, its one distinctive characteristic is still the physical separation between the delivering institution and its students (Garrison, 1985:235; Keegan, 1986; Moore & Kearsley, 1996; Simonson *et al.*, 2012). In short, DE can be defined, according to Garrison and Anderson (2003:5), Holmberg (2005:9), Keegan (1986:31), Moore and Kearsley (1996:2) and Simonson *et al.* (2012) as learning where:

- facilitator and student are separated during at least a majority of each instructional process;
- educational media is used to unite facilitator and student and carry course content;

- two-way communication between facilitator and student is provided; and
- delivery can be synchronously (in real time) or asynchronously (without simultaneous student/facilitator participation).

All of the above were applicable to this study. The lecturer/researcher (situated at main campus in Pretoria, South Africa) and the participating FAC2602 students were separated as a large number of students lived in other main centres or remote parts of South Africa, or even in various other countries. There were thus limited (sometimes even none) interaction between the lecturer and the students when the study commenced in 2006. Students were presented with study material at the beginning of every semester, they completed and submitted their assignments, they received feedback on their marked assignments and they sat for the examination at the end of every semester. The only interaction was via telephone or e-mail should a student have wished to make contact with the lecturer. Thus, although DE has changed (Blake & Scanlon, 2014; Shen & Linlin, 2014) from correspondence education to education where two-way communication is more noticeable through the use of technology, this was not the case in the FAC2602 Accounting module at Unisa in 2006. The lecturer/researcher hence wanted to increase two-way communication by using mobile phones (both synchronously and asynchronously) and by doing so unite lecturer and participating FAC2602 students more effectively. This would have assisted to achieve the objectives with regard to:

- supporting two-way conversation;
- resolving learning problems;
- presentation of study material;
- providing advice and suggestions;
- exchanging views;
- involving students emotionally; and
- catering for a personal conversation.

2.3 THEORETICAL FRAMEWORKS IN DISTANCE EDUCATION CONTEXT

As highlighted in section 2.2 above, different forms of DE have existed since the 1840s. However, the need for a theory of DE remained largely unfulfilled until the 1980s (Simonson, Schlosser & Hanson, 1999). Theory, including theory in the DE

context, is imperative because it directly affects the practice of the field (Simonson *et al.*, 1999). In 1986, Holmberg stated that theoretical considerations give distance educators a benchmark against which decisions can be made with confidence, and reiterated the need for theory in 1988 when stating that:

One consequence of such understanding and explanation will be that hypotheses can be developed and submitted to falsification attempts. This will lead to insights telling us what in distance education is to be expected under what conditions and circumstances, thus paving the way for corroborated practical methodological application (Holmberg, 1986).

Scholarly theories entail a systematic arranging of concepts about the phenomena of a field of investigation (Bernath & Vidal, 2007:429). Theorists can therefore be seen as model builders (Saba, 2003:4). There are basically two kinds of theories. One kind of theory is concerned with an understanding of the incident under investigation, and the second kind of theory, with the explanation and prediction of the incident (Bernath & Vidal, 2007:429). The possible functions of theory can be indicated by stating they can be descriptive, analytical or explanatory (Bernath & Vidal, 2007:430). The basic goal is thus to achieve and comprehend reality, as theory is a piece of knowledge that comprises facts, assumptions and hypotheses (Bernath & Vidal, 2007:431). This is in line with a definition by McMillan and Schumacher (1984:11) who state, “theory is an explanation, a systematic account of relationships among phenomena”. In addition, Garrison (2000:1) defines theory as “a coherent and systematic ordering of ideas, concepts and models, with a purpose of constructing meaning to explain, to interpret, to shape practice”.

In his landmark work, *The foundations of distance education* (1986), Keegan classified DE theories into three groups:

- theories of independence and autonomy;
- theories of industrialisation of teaching; and
- theories of interaction and communication.

Since then, various studies in the field of DE have considered theory building (Garrison, 2000:1; Holmberg, 1995b; Keegan, 1993b; Moore, 1973:661; 1990:10; Peters, 1993:39; Simonson *et al.*, 2012). The leading theorists in the field of DE who have developed conceptual synergies are Börje Holmberg, Charles A. Wedemeyer

and Michael G. Moore. These theorists all put the students and their interaction with others at the centre of the education process. Holmberg (1982) focusses on the student and the student's responsibility for learning, including the facilitator's contribution to the process of education (Holmberg, 1995b; Saba, 2003:4; Simonson *et al.*, 2012:48). Wedemeyer (1981) on the other hand, recognises the independence of the student, and is of the opinion that the student must take more responsibility for his or her own learning. Moore (2011:155) introduced the concept of *transactional distance* as he is of the opinion that there is a distance between the student and the facilitator, which is not just geographic, but educational and psychological as well.

In addition to these theories, models and theories presented by Desmond Keegan, Otto Peters and Randy Garrison are more concerned with how the field is organised and how it functions (Saba, 2003:4; Simonson *et al.*, 2012). Focussing on the organisational structures, Keegan (1993a) explains two general types of organisations, namely autonomous and mixed institutions. He defines autonomous institutions as free-standing organisations (schools and universities) and mixed institutions as independent study divisions of extension colleges (consultation and integrated systems). In 1994, Peters made a most important contribution by recognising the use of technology to reach students (Peters, 1994; Simonson *et al.*, 2012:45). In his theory of industrialisation of teaching, Peters sees the teaching process as gradually restructured through increasing mechanisation and automation (Simonson *et al.*, 2012:47). Birochi and Pozzebon (2011) envisage the geographic distance between students and facilitators gradually fading away because of the use of sophisticated technologies, while Garrison (2000:1) emphasises the importance of two-way communication between the facilitator and the student.

The contributions made by these theorists to the field of theoretical frameworks in DE are summarised in Table 2.1.

Table 2.1: Seminal distance education theories

Authors	Theory	Central concepts	Primary focus
Holmberg, Börje (1982)	Guided didactic conversation theory	Motivation, empathy, non-contiguous communication, student autonomy, interpersonal communication	Distance and communication
Wedemeyer, Charles A (1981)	Independent study theory	Self-directed learning, student independence	Distance
Moore, Michael G (1973)	Theory of transactional distance and learner autonomy	Transactional distance (dialogue and structure), student autonomy	Distance and communication
Keegan, Desmond (1986)	Theory of reintegration of the teaching and learning acts	Reintegration, inter-subjectivity, two-way communication	Communication
Peters, Otto (1993)	Theory of distance education as the most industrialised form of education	Industrial and post-industrial teaching	Industrialised teaching
Garrison, Randy (1985)	Theory of communication and student control	Inseparability of technology – collaborative learning, educational transaction, self-directed learning, adult education	Communication

(Adapted from Birochi & Pozzebon, 2011)

Considering these seminal theories, it is evident that the most mutual concepts are *distance* and *communication*. The theories of Holmberg (1982) and Moore (1973) have shown to be the most appropriate theoretical perspectives for studying *communication* and *distance* within the context of retention and throughput of ODL students. Holmberg's theory of didactic conversation (1982) and Moore's theory of transactional distance (1973) were thus used as theoretical frameworks for this study. These two theories are now discussed in more detail.

2.3.1 Holmberg's theory of didactic conversation

Holmberg (1982) suggests that the theoretical underpinnings of DE are fragile, and little consideration is being given to a theoretical basis when decisions are made

(Simonson *et al.*, 2012:42). Holmberg's point of departure is the formal education context whereby learning is guided and supported by non-contiguous means (Holmberg, 1986). Within this context students state their ideas and the facilitator guides them by way of explaining, correcting or redirecting those ideas (Holmberg, 1982). A sense of emotional involvement between facilitator and students is thus necessary for students to feel connected to the institution. As a result, the creation of empathy in face-to-face teaching also applies to DE (Parlakkilic, 2014). Holmberg termed this student–facilitator relationship “guided didactic conversation” (Holmberg, 1989:161; Saba, 2003:4). His theory of didactic conversation focusses on the student as it caters for an empathetic approach in DE (Bernath & Vidal, 2007:432; Holmberg, 1995b:5; Simonson *et al.*, 2012:48). Holmberg's theory further implies the creation of a feeling of connectedness promoting study pleasure and motivation, particularly if well-developed instructional materials and two-way communication exist. He argues (Holmberg, 1995a:47) that communication within a natural conversation can be understood and remembered easily and that the conversation concept can be successfully translated for use by technology and made available to DE students (Holmberg, 2003; Simonson *et al.*, 2012).

The reason for choosing Holmberg's theory of didactic conversation as one of the conceptual frameworks for this study was that the theory embraces empathy, an attribute I considered vital to delivering academic support to students. Holmberg (2003:39) has this to say:

Central to the learning and teaching in distance education are personal relations between the parties involved, study pleasure, and empathy between students and those representing the supporting organisation. Expressions of and actions testifying to empathy are instigators of motivation promotion and retention; they are thus likely to pave the way for success.

I also selected Holmberg's theory because it is the theory that explains what students expect and experience in DE. To substantiate his theory, Holmberg (2003:40) argues:

Feelings of empathy and belonging promoting students' motivation to learn and influencing the learning favourably can be developed in the learning process independently of any face-to-face contact with tutors.

Holmberg (2003) has since removed the term *didactic conversations* from his theory and now prefers to use *learning conversations* because in many cases, the adjective *didactic* is taken to indicate an authoritarian approach, the direct opposite of what was meant (Holmberg, 2003:42). His theory remains the same and is still valid (Garrison, 2000:1; Gatsha, 2010; Holmberg, 2003; Kelsey & D'Souza, 2004), hence, I used the original terminology of the theory of didactic conversation.

2.3.2 Moore's theory of transactional distance

Whilst Holmberg's theory highlights the conversational learning, Moore (1990:10) emphasises the emotional and transactional distance that students experience when they study at a distance. Moore (1973) advanced the theory of transactional distance and explains that in this case, distance is determined by the amount of communication or interaction which occurs between the student and the facilitator/lecturer. He further argues that distance is also determined by the amount of structure that exists in the design of the course, and lastly, by the autonomy to which the student exerts control over the learning procedures (Moore, 1972).

Thus, in the case of Moore's theory, if transactional distance is defined as the "psychological and communication space" (Moore, 1993:22), then transactional distance must be examined at the level of –

- (1) the interpersonal relationship between lecturer and student;
- (2) the relationship between lecturer and students; and
- (3) the mediating relationship between students and the study material (Giossos, Koutsouba, Lionarakis & Skavantzios, 2009; Starr-Glass, 2012).

Moore's theory of transactional distance may thus be illustrated as in Figure 2.2.

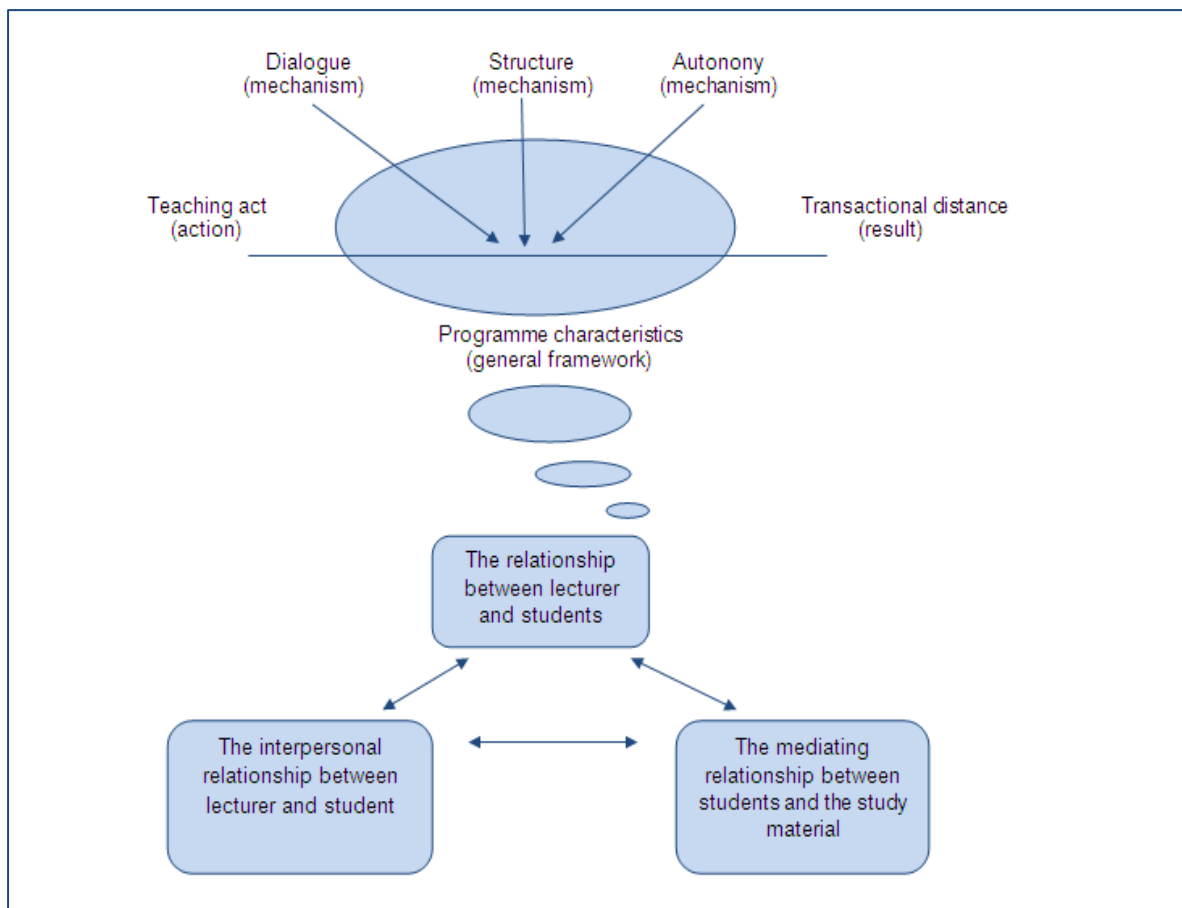


Figure 2.2: Moore's theory of transactional distance

Adapted from Giossos *et al.*, 2009

Moore's theory was especially relevant to the case study reported on here, given the potential communication gap that arises from the remoteness and geographical distance between the FAC2602 lecturer and students. Given the context of my study and the attributes of the participating FAC2602 students, I filtered my analysis of data collected (refer Chapter 5) using both Holmberg's and Moore's theories, for an understanding of the participating FAC2602 students' perceptions and experiences to lessen the transactional distance and increase the didactic conversation utilising the application of mobile phones. In the present study, the theories held that I had to expect that a feeling of personal relationship between facilitator/lecturer and natural conversation would enhance academic performance (retention and throughput) of DE students. The rationale was that, to achieve effective learning, the theories underscored the importance of motivation in the attainment of study goals, and an atmosphere of friendly conversation favoured feelings of personal relations

necessary for enjoying study at a distance. However, there are many more factors that may have an effect on students' retention and throughput rates and these are discussed in more detail in section 2.4.

2.4 FACTORS INFLUENCING TEACHING AND LEARNING

Although prominent theorists (such as Garrison, 1985; Holmberg, 1983; Keegan, 1986; Moore; 1973; Peters, 1993; Wedemeyer, 1981) have analysed the common elements of DE in the past, there are various other factors (some of which are discussed below), that may also affect teaching and learning in the DE context. Ultimately, these factors too have an effect on students' retention and throughput. Various local and international research findings with regard to these factors have been published (Dille & Mezack, 1991:24; Koen, 2007; Prinsloo & Subotzky, 2009; Ross & Powell, 1990:10; Sadler & Erasmus, 2003; Simonson *et al.*, 2012; Subotzky & Prinsloo, 2011:177; Tinto, 2006:1). However, in the present study, I focussed primarily on research results directly related to the South African context of the selected case. In this regard, the findings of Prinsloo and Subotzky (2009) are particularly relevant. These authors identify the following factors that may have an effect on student retention and throughput:

- demographic factors such as age, gender and race;
- different models of student learning;
- self-authorship (own reflections);
- students' ways of knowing and ways of learning;
- the effect of the curriculum in the context of accounting education;
- facilitator and student perceptions regarding success and failure;
- the role of motivation, retention and stress in student success;
- poor academic results prior to entering the institution;
- student perceptions regarding the module/course and their success;
- personality types;
- matriculation exemption and the level of engagement by students and the number of assignments submitted and passed;
- confidence and over-confidence;
- financial and family problems;
- not having clear career goals;

- reading skills and prior experience in mathematics;
- poor social integration;
- the effect of students' locus of control; and
- the tensions that arise between differences between the life worlds of students, higher education as system and the discipline-specific discourses.

Another South African study (Koen, 2007) identifies the following seven collective factors, namely:

- institutional milieu (social climate, physical setting, social and academic spheres);
- household environments (socio-economic group, educational past, domestic obligations, work responsibility and financial circumstances);
- personal situations (academic ability, motivation, commitment, desire to finish and other attributes);
- organisational variables (appointment policies, financial allocations, departmental structures, intellectual environment and institutional resources);
- socio-political factors (allocation of state resources and scholarships, higher education legislation and regulation);
- academic performance factors (progress with a thesis, full-time or part-time study, faculty affiliation); and
- research factors (teaching and supervision, problems inherent in research, language and student attributes).

Subotzky and Prinsloo (2011:181) furthermore summarise the ever-expanding literature relevant to the Unisa context, as follows:

- International models are only partially applicable to the specific African, developing-country ODL context of Unisa. Much of the literature focusses on contact environments in developed countries. While there are undoubtedly common universal factors, clearly Unisa should consider the particularly complex and challenging developing-country socio-economic factors shaping individual and institutional attributes and behaviours within the sharply stratified South African social order.

- In ODL, where most students study part-time and where there are non-traditional, non-academic factors involved – especially work-related and domestic responsibilities – these are likely to create greater barriers to success than in contact settings.
- Student success is determined by a complex set of factors (Tinto, 1975:89). This is the outcome of the interaction between personal, institutional and broader contextual factors.

Subotzky and Prinsloo (2011:177) emphasise that specifically South Africa and Unisa have a unique complex set of factors. These factors are of special importance as the present study acknowledges the diverse challenges and situations faced by South African students.

These factors as identified by Subotzky and Prinsloo (2011) (which are not always controllable by the facilitator) can and may affect student success. Although various factors may affect student success, a more significant understanding of the unique nature of DE in terms of retention is necessary (Woodley, 2004:47). Notwithstanding the extensive list of factors that may contribute to the understanding of retention and the throughput rate of DE accounting students, I have limited the present study to the following factors deduced from the theories of Holmberg (1982) and Moore (1973):

- supporting two-way conversation;
- resolving learning problems;
- presentation of study material;
- providing advice and suggestions to the students;
- exchanging views;
- involving students more emotionally; and
- catering for a personal conversation.

The abovementioned factors will be discussed in more detail in paragraphs 2.4.1 to 2.4.7 and emphasis will be placed on the theoretical considerations of Holmberg (1982) and Moore (1973).

2.4.1 Two-way conversation

One of the objectives of the present study was to understand the participating FAC2602 students' perceptions and experiences of the application of mobile phones to facilitate two-way conversation. A major concern of being a DE student is that of isolation from other students, facilitators and the DE institution itself (Moore, 2007:7) – the so-called *transactional distance*. To address this issue of loneliness, DE students should be encouraged to have some form of personal interaction (with others in the group). This can be either student-to-student or student-to-facilitator. Thorpe (2002:105) believes that the quality of the interaction between students and their peers, and students and their facilitators, may enhance and even influence reactions to study. This is explained by Holmberg's theory of didactic conversation (1982) which refers to the need for personal relations and empathy between students and those supporting them. According to Holmberg's theory, a facilitator who makes contact with students helps to alleviate the fears and anxieties brought on by isolation. It also promotes self-belief on the part of the student and it makes students feel they are part of and belonging to a group of people who care (Prinsloo, Slade & Galpin, 2012; Qakisa-Makoe, 2005:56). Heydenrych (2009:34) is of the opinion that the complete learning experience of ODL students is dependent on sufficient interaction between student and facilitator, and Astin (1997:647) found that interaction with facilitators and staff as well as a connection with the institution increases student satisfaction.

Although communication is a field of study in its own right, the DE theorists mentioned in section 2.3 (such as Garrison, 1985; Holmberg, 1983; Keegan, 1986; Moore; 1973; Peters, 1993; Wedemeyer, 1981) deal specifically with communication within the context of DE. Their communication-related concepts emerging from the literature are summarised in Table 2.2.

Table 2.2: Communication-related concepts

Authors	Central communication concepts	Communication focus
Holmberg, Börje (1982)	Didactic conversation, empathy, motivation	Psychological and communication space
Wedemeyer, Charles A (1981)	Communication system or mode	Relationship between student and facilitator
Moore, Michael G (1973:661)	Dialogue and structure	Psychological and communication space
Keegan, Desmond (1986)	Learning materials, variety of techniques	Interpersonal communication, two-way communication
Peters, Otto (1993)	Self-learning, tele-learning, social intercourse	Interactive and communication forms of teaching
Garrison, Randy (1985:235)	Dialogue or debate	Two-way communication

(Adapted from Birochi & Pozzebon, 2011)

In his theory of didactic conversation, Holmberg (1982) proposes actions with regard to interpersonal communication. He is of the opinion that dialogue should be grounded in strategies such as empathy-based conversation and motivational; thus, the role of the facilitator is that of guiding the process of teaching and learning (Birochi & Pozzebon, 2011; Simonson *et al.*, 2012:49).

In Moore's (1973) view, the seminal concept of transactional distance arises through conditions and elements represented by communication and psychological spaces. The traditional distance between students and facilitators gives rise to misunderstanding between the inputs of facilitators and those of the student. Moore (1982) proposes that this distance can be bridged through distinctive procedures and instructional design and the facilitation of interaction (Birochi & Pozzebon, 2011; Giossos *et al.*, 2009; Simonson *et al.*, 2012:45; Starr-Glass, 2012).

As the present study focussed on the aforementioned two theories of didactic conversation (1982) and transactional distance (1973), the importance of increasing communication between the lecturer (myself) and the participating FAC2602 students was a focal point in this study.

2.4.2 Resolving learning problems

The second indicator influencing teaching and learning in a DE context, is to resolve learning problems. Support for resolving learning problems is an element of effective pedagogy often missing in a DE course (Bonk & Dennen, 1999:3; McCombs & Vakili, 2005:1582). Although studies support the effectiveness of DE when compared with traditional classroom instruction in terms of student achievement (Zhao, Lei, Yan, Lai & Tan, 2005:1836), students often fail to complete DE courses (Hannum, Irvin, Lei & Farmer, 2008:212). Some researchers even report that more than 50% of students do not complete on-line courses or DE programmes (Carr, 2000:A39; Roblyer, 2006:31; Rovai & Wighting, 2005:97; Simpson, 2004:79).

Moore's theory of transactional distance (1973) highlights the importance of the responsiveness of a programme to students' needs. Although Moore (1973) is of the opinion that DE students must accept a high degree of responsibility for the conduct of the learning programme, he emphasises that some adult students require help in formulating their learning objectives as students have different learning styles. The use of the 'correct' style of teaching and learning plays an important role in DE courses and facilitators must pay attention to these principles (Holmberg, 2005:68; Simonson *et al.*, 2012:224). In his report, Taylor (1977:115) explains the communication style to be used in teaching text in order to facilitate learning:

Students grasp affirmative more easily than negative statements. They understand the active voice more readily than the passive. Equally, a declarative sentence is more easily understood than an interrogative. The use of personal pronouns facilitates the transformation from abstract nouns to verbs.

Several technologies can help to facilitate interpersonal communication at a distance. An example is audio-visual technologies, which may offer a way to gain the feel of face-to-face teaching (Speece, 2012:9). However, Moore and Kearsley (1996) warn that a single technology rarely meets all educational needs, while Bates and Poole (2003:59) are of the opinion that it is the combination of various media within a single technology that gives technology its strength in teaching and learning.

In the present study, I applied mobile phones in a variety of ways to communicate with the participating FAC2602 students to lessen the transactional distance so often experienced by them in order to resolve some of their learning problems.

2.4.3 Presentation of study material

The third indicator influencing teaching and learning is the presentation of study material. According to Holmberg's theory of didactic conversation (1982), the mode of learning in a DE environment needs to be predominantly behaviourist, cognitive and constructivist (Simonson *et al.*, 1999). When the present study commenced, DE at Unisa relied mainly on printed study material that did not always provide for these modes of learning. Even DE institutions that utilise the internet as a learning platform have been shown to push content to students electronically, but they fail to provide students with additional support for learning as facilitators tend to ignore the human element (Thorpe, 2002:105). Hannum *et al.* (2008:211) ascribe the absence of support to students (a typical example of lack of didactic conversation) as illustrated by the above examples as one of the reasons for high student dropout from DE and ODL courses. This section illustrates that irrespective of the availability of quality study material, the lack of didactic conversation caused by transactional distance, may influence students' success.

The question is thus, how can the presentation of study material positively improve the teaching and learning of accounting students in a DE environment? According to the literature, the solution lies in interactive technology-mediated study material. Interactive technology-mediated study material has been shown to create a richer environment for learning by focussing on connection, interaction, exploration and discovery, rather than the one-way transmission of information (Bourne, 1998:70; Oliver & Goerke, 2007:171; Peters, 2000:1; Simonson *et al.*, 2012; Waddoups & Howell, 2002:1). Moreover, interactive technology-mediated courses may reduce the isolation that so many DE students experience and allow greater personalisation of the learning experience and thus may facilitate high-quality facilitator-to-student interactions (Birch & Volkov, 2007:291; Evuleocha, 1997:127; Forbes, Khoo & Johnson, 2012; Waddoups & Howell, 2002:1). Berger and Braxton (1998:103) confirm this viewpoint and note that students' satisfaction has a significant positive effect on the retention of students.

In 2006 when the study commenced, the study material in the FAC2602 module consisted of a printed study guide and tutorial letters. No interactive technology-mediated material was used in any of the Accounting modules at Unisa. This study thus wanted to incorporate mobile phones (an interactive technology) into print-only study material to support students, as facilitators at DE institutions were (and still are) constantly challenged to increase the effectiveness of their teaching. An important aim of facilitators in adopting and integrating educational technology should be to improve student learning outcomes including cognitive and social outcomes (Eastman & Swift, 2001:25). The opportunity to improve learning outcomes, by providing a more engaging and interactive learning environment by using multimedia elements, may attract facilitators to adopt and integrate technology into their courses (Ebersole & Vorndam, 2003:15; Starr-Glass, 2012). As technologies should be utilised to improve students' learning outcomes, the application of these technologies must be implemented in such a way as to provide advice and suggestions to students.

2.4.4 Providing advice and making suggestions

The fourth indicator influencing teaching and learning is the provision of advice and suggestions to students. Before facilitators can provide advice and suggestions to students, they need to understand what students want to know. According to Holmberg's theory of didactic conversation (1982), DE promotes students' independence and freedom of choice as well as a student's individual learning activities. Nevertheless, learning must be guided and supported by non-contiguous ways (Simonson *et al.*, 1999). Motteram and Forrester (2005:281) found that DE and ODL students had concerns about managing their workloads, keeping up with readings and maintaining sufficient motivation to be successful. The issue of time and self-pacing is playing an important role in student retention in DE (Anderson, Upton, Dron, Malone & Poelhuber, 2015; Kim, 2004), and students often cite a lack of time, time management difficulties, timely feedback and isolation as important reasons for dropout (Angelino, Williams & Natvig, 2007:1; Stanford-Bowers, 2008:37). According to Spady (1970:77), the dropout process is best explained by an interdisciplinary approach involving an interaction between the individual student and the institution in which the student's attributes are exposed to influences,

expectations and demands from a variety of sources. Understanding retention does not imply understanding persistence, as there are many complexities involved. As Tinto (2006:5) states, “Leaving is not the mirror image of staying. Knowing why students leave does not tell us, at least not directly, why students persist.”

By providing advice, suggestions and student support (the didactic conversation), facilitators can try to retain students and support them in such a way that they can be successful. Didactic conversation is a process of mediating between the student and the learning materials (Moore, 1973:661). DE courses should reflect the need to have strong social support as contact with other students (or alternatively a facilitator) during the course tends to increase the number of students completing the course (Passey, 2000:45). O’Rourke (2009:8) however warns that DE requires considerable planning to arrange student support, and facilitators should be flexible and reinvent themselves in order to provide the advice and suggestions necessary for meaningful didactic conversations.

Considering the theoretical frameworks of Holmberg (1982) and Moore (1973), the mobile phone may be an appropriate technology to provide advice and suggestions to students and by doing so increase the didactic conversation and lessen the transactional distance.

2.4.5 Exchanging views

Related to the provision of advice and suggestions, the fifth indicator influencing teaching and learning is that of exchanging views. Students want facilitators to be responsive to their students’ needs. Schullo, Hilbelink, Venable and Barron (2007:331) establish that on-going, regular interaction between facilitators and students in DE courses by using synchronous systems improves attitudes, encourages earlier completion of coursework, improves performance, allows deep and meaningful learning opportunities, and increases retention rates. The perception of Schullo *et al.* (2007:331) is supported by an earlier work of Collis (1996), who claims that interaction and a sense of contribution can be improved by using synchronous systems as these tools enhance student motivation and engagement. Pan and Sullivan (2005:30) indicate that “just-in-time clarification and information” enabled by synchronous communication add value to students’ learning. This is

further supported by McBrien, Jones and Cheng (2009:4) who add that synchronous communication, which supports two-way interaction, has the power to increase dialogue more than one-way methods of communication.

Even though much research (Arkorful & Abaidoo, 2014; Benshoff & Gibbons, 2011; Park & Bonk, 2007) has been conducted on the benefits of synchronous learning in DE courses and even if research indicates interactive dialogue to be a crucial component of DE environments (Moore, 1989:1; 1990:10; Simonson *et al.*, 2012:166), only 31% of institutions in the United States offering DE courses in 2006–2007 used synchronous internet-based technologies (Stewart, Harlow & DeBacco, 2011:358) and only 23% made use of two-way interactive videos (Stewart, Harlow & DeBacco, 2011:358).

Although the use of synchronous tools in DE is a relatively new phenomenon (Dammers, 2009:17), internationally, universities and institutions have been exploring their potential for enhancing participation and interaction (Jowallah, 2014; Themelis, 2014). Much of the earlier research has made use of technologies such as synchronous on-line messaging (Spencer & Hiltz, 2003), teleconferencing (Grant, 2007) and videoconferencing (Karal, Çebi & Turgut, 2011), but in recent years, various higher education institutions (HEIs), offering courses and qualifications through DE, have increased offering these using the internet (Falloon, 2011:187; Simonson *et al.*, 2012). These studies have focussed mainly on the possibility of using synchronous tools to lessen the sense of isolation many students experience when studying at a distance, and promoting interaction (Gosmire, Van Osdel & Morrison, 2009; Hrastinski, 2008:51; Yang & Liu, 2007:171).

According to Moore's theory of transactional distance (1989:1), there are three types of interaction in DE:

- student–student interaction;
- student–instructor/facilitator interaction; and
- student–content interaction.

Student–student interaction refers to interaction between students in small groups or among individual students (Moore, 1989). In DE courses this type of interaction barely exists. Two-way video- and audio-conferencing can assist with synchronous

interaction as well as discussion forums and e-mail messaging as part of asynchronous interaction (Moore, 1989:2). Moore continues to explain that student–facilitator interaction must be used by the facilitator to stimulate a student or at least keep the student interested in the course and motivate the student to learn. Student–content interaction is described by Moore (1989:2) as the process of intellectually interacting with the content that results in changes in the learner’s understanding, the learner’s perspective, or the cognitive structures of the learner’s mind. This may include using study guides, watching videos and/or interacting with technology (Moore, 1989).

The present study aimed to include mobile phones both as asynchronous and synchronous tool, to facilitate the exchange of views between participating FAC2602 students and the lecturer to increase the didactic conversation.

2.4.6 Involving emotionally

Considering that students are not passive receivers of education, but active participants who are positioned in specific socio-economic, capital, habitus, attribution, locus of control and self-efficacy circumstances which have an effect on their motivation and locus of control (Prinsloo & Subotzky, 2009; Subotzky & Prinsloo, 2011:189), the sixth indicator (involving students emotionally) is especially relevant to this study.

Sincero (2012:online) defines emotion as “the conscious and subjective experience that is characterised by mental states, biological reactions and psychological expressions”. In addition, Sincero is of the opinion that there are three links between emotion and motivation, namely –

- both activate or energise behaviour;
- emotions often go together with motives; and
- basic emotions have motivational properties.

This is in line with theorists such as Thayer, Newman and McClain (1994:910) who explain that emotion is related to motivation as people (in this case students) tend to do things that one hopes will lead to happiness and satisfaction, or as Bradley

(2000:602) describes it, “both emotion and motivation are fundamentally related to action”.

In addition, Maslow (1970) describes motivation as a psychological process where behaviour is directed towards a goal based on an individual’s needs. This was especially relevant to this study. If the mobile phone could provide a motivating stimulus or incentive, to generate a need or desire that causes a student to act (Williams & Williams, 2011:1), the participating FAC2602 students would hopefully react on the stimulus. Furthermore, self-efficacy is related to motivation in that if students believe they have the capability to perform a task and that performance would then lead to a positive result, they would be motivated to perform (Bandura, 1989:729). Additionally Hurd (2000:61) claims that for DE students, the demanding nature of self-instruction together with the shift in the locus of control from facilitator to student, implies that only those students who maintain their level of motivation are likely to succeed.

Motivation is hence a major factor in a student’s study efficiency and its effect on students’ success has been explored by various authors (Koen, 2007; Pizzolato, 2004:425; Robotham & Julian, 2006:107; Yorke, 2004:19). Motivation is essential for learning and performance, especially in a technology-mediated environment where students must take an active role in their learning (Lee, 2000:367). Motivation is optimised when students are exposed to a large number of motivating experiences on a regular basis (Debnath, 2005:168; D’Souza & Maheshwari, 2010:99; Palmer, 2007:38).

Keller (1999:7) argues that, although motivation is personal, student motivation can also be affected by external factors. Hurd (2000:61) states that demotivation among students is caused by factors related to the distance learning situation, difficulty in assessing personal progress, and perceived inadequacy of feedback. In research conducted by Morgan and Tam (1999:99), four categories of persistence barriers that may have an effect on a students’ motivation were identified:

- situational barriers arise from a student’s particular life circumstances (such as a changed employment situation, changed marital status or having a baby);

- institutional barriers are difficulties students experience with the institution (such as admission requirements, course pacing and limited support services);
- dispositional barriers are personal problems that affect students' persistence behaviour (such as their attitudes, confidence, learning styles and motivation); and
- epistemological barriers are impediments that are caused by disciplinary content or the relative perceived difficulty of that content.

Studies have shown that motivation is important in DE courses (Rice, 2006:425; Simpson, 2002; 2004:79) and, although literature confirms that motivation is an important factor in dropout rates of students in DE and ODL institutions (Berge, 2001; Perraton, 2000), retention rates have always been lower in DE when compared with traditional face-to-face education (Simpson, 2004:79). Some have criticised DE for its lack of personal contact (Frank, Reich & Humphreys, 2003:57) and noted the sense of isolation students feel in DE courses (Abrami & Bures, 1996:37; Abrami, Bernard, Bures, Borokhovski & Tamim, 2011:82). These high dropout rates can be improved through the use of mentors and tutors (Harrison, 2002:178), blended approach² (Rowley, Bunker & Cole, 2002), motivational messages (Visser, Plomp, Amirault & Kuiper, 2002:94) as well as other means of student support to improve performance and retention.

There are however two sides to a coin when it comes to motivation in teaching and learning. On the one hand there is the student and on the other, the facilitator. Many facilitators have already embraced the opportunity to integrate multimedia into their courses, and thereby provide a more engaging and interactive learning environment for their students (Ebersole & Vorndam, 2003:15). Pragmatic motivations for the adoption and integration of technologies include the desire of facilitators to respond to student needs for greater access, flexibility and convenience (Ebersole & Vorndam, 2003:15; Kesim, 2014; Maguire, 2005). Indeed, meeting the unique needs of DE students, many of whom are working full-time and/or raising families, is of concern to many facilitators. A key motivating factor for facilitators' participation in

² In this context, the concept *blended approach* refers to the blending of technology and traditional classroom training as defined by Rowley et al. (2002:26). The aim of any blended learning approach, according to Osguthorpe and Graham (2003:228), is the harmonious balance between on-line access to knowledge and face-to-face human interaction. For purposes of this study, blended learning and/or blended instruction refers to a blend of on-line technology and face-to-face instruction.

providing additional support to their DE students is to provide greater flexibility for students in terms of place, mode and time of study (Kesim, 2014; Schifter, 2000:43; 2002). There are also some facilitators who are driven by humane motivations to do what makes life easier for their students (Wolcott & Betts, 1999:34). Particularly, communicating effectively and with ease with students via electronic means, independent of time and place is perceived by many to be a real advantage (Ebersole & Vorndam, 2003:15; McCorkle, Alexander & Reardon, 2001:16).

Some facilitators, on the other hand, feel personally motivated to use technology as they enjoy the intellectual challenge of developing and trialling new and innovative ideas as they gain personal satisfaction and self-gratification (Howell, Williams & Lindsay, 2003; Lee, 2001:153; Maguire, 2005). The application of technologies may also appeal to some facilitators because of the excitement of doing something new, different or innovative (Schifter, 2000:43; Weston, 2005:99). However, some facilitators have expressed concerns about the time it takes to develop and maintain courses involving technologies as well as the subsequent effect on their workload (Jones & Kelly, 2003:81; O'Quinn & Corry, 2002; Schifter, 2000:43). Resistance to change has been identified as a major impediment to technology adoption and integration (McCorkle *et al.*, 2001:16). Fear of change, unwillingness to take risks, hesitance of deviating from well-established instructional practices and a lack of guarantee about the benefits of technology may well discourage some facilitators from adopting technologies (Weston, 2005:99). In the end, the extent to which a facilitator's attitude towards integrating technology in terms of relative advantage over current methods, compatibility with current practices, perceived usefulness and ease of use seems to be the primary determinant of whether a technology will or should be adopted (Davis, Bagozzi & Warshaw, 1989:982; Karatas, Ozcan, Polat, Yilmaz & Topuz 2014; McDonald, McPhail, Maguire & Millet, 2004:281).

Considering literature relating to students' emotional involvement and motivation, the present study set out to understand students' perceptions on and experiences of the use of mobile phones to involve them emotionally in their FAC2602 module. The study made use of mobile phones to provide the students with motivational messages and by doing so to lessen the transactional distance and increase the didactic conversation necessary for emotional support.

2.4.7 Accommodate a personal conversation style

As research highlights the importance of regular interaction to promote success in DE (Moore, 1991; Palloff & Pratt, 1999; Su, Bonk, Magjuka, Liu & Lee, 2005), institutions are constantly challenged to improve their teaching practices. New and innovative technologies offer new solutions for the seventh indicator relevant to this study, which focusses on a personal conversation between facilitators and students in DE institutions. Over the years, DE pedagogy emerged as a result of the capacity for both synchronous and asynchronous interaction between students and facilitators (McKerlich, Riss, Anderson & Eastman, 2011:324). Garrison and Vaughan (2008) however assert that students want interaction that is purposeful and meaningful. On-line learning cannot easily replace the advantages of personal contact and the need of students to connect verbally with their facilitators in real time. Muilenburg and Berge (2001:7) claim that interactions are necessary for course satisfaction and Münzer (2003:91) explains that, as social individuals, students need interaction for motivational reasons.

To recapitulate, research (DeShields, Kara & Kaynak, 2005; Subotzky & Prinsloo, 2011; Tinto, 1975) suggests that a range of factors can influence student retention in higher education. Some factors operate at the level of the individual student (motivation, ability and other personal characteristics and circumstances), others at institutional level (quality of advice, guidance and general quality of provision) and yet others operate at supra-institutional level (financial and other socio-economic factors) (Hall, 2001; Tinto, 2006:1). The facts suggest that these factors operate differently for students of different ages (Prinsloo & Subotzky, 2009) and that different factors influence early leavers and later leavers (Prinsloo & Subotzky, 2009). Younger students are more likely to make a poor choice of study programme and are likely to blame programme difficulty (Worley, 2007), while more mature students are more likely to leave because of external circumstances (Prinsloo & Subotzky, 2009). While the evidence is not conclusive, there is a strong suggestion that specific forms of intervention can assist students who are at risk of withdrawing from their course to stay and complete it successfully (Hall, 2001).

As it is evident that DE has been changing and DE students need to feel connected to the course and the institution (less transactional distance), the present study

incorporated mobile phones and their functions to assist students with the teaching and learning of the FAC2602 course (more didactic conversation). By focussing on Holmberg (1982) and Moore's (1973) DE theories the present study aimed to resolve some of the aforementioned challenges these DE students so often encounter.

2.5 ADOPTION AND INTEGRATION OF TECHNOLOGY

The previous section revealed all the factors that influence teaching and learning at a DE institution, which requires the adoption and integration of technology. Consequently, the use of on-line learning, or e-learning, has become increasingly commonly used by DE and ODL universities (Bates, 2005; O'Donoghue *et al.*, 2001:511). However, technology seems to reduce the transactional distance between student and facilitator, as it enables students to access education at any time and from any place. As a result, DE has increased educational opportunities to the benefit of especially developing countries (Dhanarajan, 2001:61).

Seely Brown and Duiguid (2000) have shown that technologies offer new ways of producing, distributing and consuming academic material. Internationally, technological support for teaching and learning takes many forms, including computer-assisted instruction by drill and practice, intelligent tutoring systems, multimedia simulations and electronic games (De Freitas, 2006; Gardner, 1983; Garris, Ahlers & Driskell, 2002). The advances of technologies over the years offered new paradigms for university teaching and learning (Scanlon, McAndrew & O'Shea, 2015). These advances led to the development of technology-mediated DE courses including technology-mediated Accounting courses.

2.5.1 The development of technology-mediated distance education courses

Technology has been adopted by many university instructors and facilitators with the intention of enhancing the learning environment (Apostolou *et al.*, 2010:145; Rodriguez, 2011:540). There have been many media-comparison studies, beginning in the early 1900s. According to Thompson, Simonson and Hargrave (1996), these studies, which also employed a technical perspective, sought to compare one medium to another or to conventional instruction to determine which is 'better' for student learning. The early 1980s saw a period of intense debate on the validity of

media-comparison studies (Reeves, 2006), which were criticised for wrong assumptions, lack of methodological rigour and a lack of consistent findings (Thompson *et al.*, 1996). The debate reached a high point with Clark (1983:445) who provided the following well-known analogy comparing the use of instructional media to a truck that delivers groceries:

The best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in nutrition ... Only the content of the vehicle can influence achievement.

This analogy has come to be known in educational technology circles as the 'mere vehicles' argument. Cobb (1997:21) states that Clark's (1983) 'mere vehicles' analogy is probably the most widely quoted and debated statement in educational technology research. Cobb (1997) further asserts that early research, comparing instructional television to face-to-face instruction, was confounded by the effect of novelty, and the same novelty effect is also attributed to early research in the area of computer-based instruction. In this study, I also made use of mobile phones as a 'vehicle' to facilitate two-way conversation, to resolve learning problems, to provide advice and suggestions and to exchange views.

Many of today's younger students have grown up in an electronic-rich world and are familiar with the use of technology on a daily basis. These students want innovation, interactivity and mobility in their studies. Pugalee and Robinson (1998:78) state that students are comfortable with technology, and it is therefore imperative that facilitators capitalise on knowledge about students' preferences. Such knowledge can stem from measuring student perceptions on the use of technology.

Various forms of technology, also sometimes referred to as 'multimedia', have been widely implemented by facilitators in the on-campus or face-to-face context, including the use of PowerPoint, video content and access to the Web in technology-enabled classrooms (Apostolou *et al.*, 2010:145; Rodriguez, 2011:539; Watson *et al.*, 2007:1; Zywno, 2003:59). To a lesser extent, some facilitators have developed interactive multimedia or CD-based materials to supplement their on-campus training programmes (Evans & Gibbons, 2007:1147). Ragan, Boyce, Redwine, Savenye and McMichael (1993) advise facilitators to consider the findings of seven major reviews

(139 studies) with regard to educational multimedia. Moore, Burton and Myers (1996) list the major findings of Ragan *et al.* (1993) as follows:

- multimedia is at least as effective as conventional forms and has substantial cost benefits and efficiency;
- frequently, multimedia instruction is more effective than conventional instruction; and
- multimedia is more efficient in terms of learning time than is conventional instruction.

Apart from the aforementioned, Ragan *et al.* (1993) also suggest that the high level of interactivity and student control contribute positively to the effectiveness of multimedia presentation. Learning environments can become personalised, and teaching staff can enhance pedagogical techniques by using tools to extend student engagement beyond class time and to increase the quality and quantity of participation in on-line courses (Grover & Stewart, 2010:7).

However, a number of individual factors may influence the decision to adopt technology. Facilitators may adopt technology in their modules to make their subject more interesting or because they perceive using technology will improve their teaching as students will be favourably receptive, leading to a reputation as a good teacher (Peluchette & Rust, 2005:200; Spodark, 2003:14). Facilitators may adopt technology as a means to help students with learning tasks and to promote an active learning environment (Spodark, 2003:14) but lack of time to develop instruction using technology is also a major impediment to its use (Peluchette & Rust, 2005:200). Even though facilitators are challenged to develop effective delivery methods that move beyond 'read and click' while enhancing the learning of all students, many are still reluctant to integrate technologies into their courses (Rodriguez, 2011:540).

A blended approach to DE that provides flexible options may thus be more appealing to today's digital generation student. Although the present study focussed on mobile phones, advocates of social media (Coombs, 2010; Grover & Stewart, 2010) already believe that the wide acceptance of social media sites (such as Twitter, Second Life and blogs) outside the higher education environment establishes a setting easily transferable to e-learning, which has the potential to transform higher education as a

whole (Hoffman, 2009). Hoffman (2009) also argues that case study research demonstrates benefits, including retention, student engagement, sense of control and ownership when using social media. Technologies are freely accessible, easy to incorporate and have a minimal learning curve to master for the younger generation of students (Rodriguez, 2011:540).

Technological changes mean that traditional approaches to DE will not meet the needs of distance students in the future (Jochems, Van Merriënboer & Koper, 2004; Karatas *et al.*, 2014). Educational institutions have an obligation to their students to best prepare them for the future by fostering their collaborative communication competencies (Rodriguez, 2011:540). Between 2000 and 2009 considerable research has been conducted into the use and adoption of technology (Apostolou *et al.*, 2010:145; Blake & Scanlon, 2014; Jebeile & Abeysekera, 2010:158) and many of these studies focussed on the perceptions of users of the new technologies. Limited research findings however reported on the perceptions of students in DE and ODL institutions in developing countries.

Understanding the problems DE students encounter remains essential in any distance learning course (Carswell, Thomas, Petre, Price & Richards, 2000:30), such as:

- dealing with distance – isolation, minimal lecturer–student contact, minimal student–student contact,
- dealing with asynchronous learning – help or feedback is not immediately available, and
- managing studies and coping with, for example, their work, family matters and other responsibilities.

In addition to the aforementioned, DE students in developing countries may encounter more complex problems when compared to DE students in developed countries. According to Darkwa and Mazibuko (2000), the main delivery method in the poorest African countries in 2000 was the radio, while others were able to rely on satellite broadcasts supplemented by print and video materials. Although the circumstances may have changed during the last fifteen years, integration of emerging technologies remains difficult for countries that lack the connectivity.

Many DE institutions, including Unisa, are looking for ways to improve their current practices enhancing didactic conversation through technology integration to enrich student learning (Hutchings & Quinney, 2015; Sessoms, 2008). Emerging technologies have an influence on new modes of teaching and new ways of learning in DE (Beldarrain, 2006:143; Scanlon, Ferguson, Sharples, Cross, Fenton-O’Creevy, Fleck & Waterhouse; 2013.). Facilitators thus need to base their decisions of integrating technology into current practices on the best interests of the student (Beldarrain, 2006:146), and should examine how new technologies can enrich DE courses and lessen the transactional distance and improve the didactic conversation.

Educational technology as a mere vehicle may not result in sustained and meaningful learning (Gulbahar, 2007:943; Weston, 2005:99). The success of the implementation of these technologies will be determined by the extent to which it improves the didactic conversation and lessen the transactional distance. Facilitators need to be sufficiently educated and motivated in the use of technology for DE (Moser, 2007:66; Surry, Ensminger & Haab, 2005:327).

2.5.2 The development of technology-mediated Accounting courses

Accounting education has not escaped the global trend to technology-enhanced education. As the changing business environment incorporates information and communication technology into almost all aspects of business, the business sector expect CAs and accountants to be competent in the use of technology (Wessels, 2005:87). Especially, as a result of the needs of the relevant professional bodies for technology-competent graduates (Wessels, 2005:91), HEIs need to identify the most applicable technology for accounting education (Watson *et al.*, 2007:26).

In the subject domain of Accounting, the integration of technology is becoming a central issue for facilitators (Concannon, Flynn & Campbell, 2005:503). Efforts to incorporate technology in face-to-face classes or to offer courses on-line have not yet produced much reliable evidence on the educational effectiveness of different methods or resources (Belias, Sdrolias, Kakkos, Koutiva & Koustelios; 2013; Watson *et al.*, 2007:26). Thus, research with regard to the effect of technology on accounting students’ performance remains important. Innovative teaching methods, although recognised as desirable, have not yet been widely adopted by accounting facilitators

(Adler, Milne & Stringer, 2000; Belias *et al.*, 2013). The reason for integrating computer-aided learning technology (or any other technology for that matter) into an Accounting course should be to enhance the quality of learning (Boyce, 1999:191).

Literature indicates that the use of information technology (IT) has the potential to enhance student learning outcomes and stimulate their motivation (Jebeile & Abeysekera, 2010:158; Pugalee & Robinson, 1998:78). Salimi (2007) is of the opinion that accounting facilitators need to design courses that would provide effective teaching and learning in the DE environment by creatively using new technologies. Though various research projects have explained and analysed the integration of different technologies in accounting education (Ahadiat, 2008:123; Basioudis & De Lange, 2009:13; Bryant & Hunton, 2000:129; Jebeile & Abeysekera, 2010:158; Moustafa & Aljifri, 2009:111; Roberts, Kelley & Medlin, 2007:423; Smolira, 2008:90), very limited research has been done on the use of technologies (and more specific mobile phones) in accounting education in developing countries. In the following sections, I will focus on the mobile phone technology I used in this study.

2.6 MOBILE TECHNOLOGY

Although the term *mobile technology* encompasses all types of mobile devices, the mobile phone was the most appropriate device for the purpose of this study. The reason being that 95.15% of the registered FAC2602 students in 2007 already had a mobile phone (Van Rooyen, 2010a:52). This section will subsequently elaborate on the international growth of the use of mobile phones, mobile learning and the selected mobile phone applications appropriate for mobile learning.

2.6.1 Growth of the use of mobile phones

Figure 2.3 confirms the use of mobile phones to exceed the use of all other media use in the world.

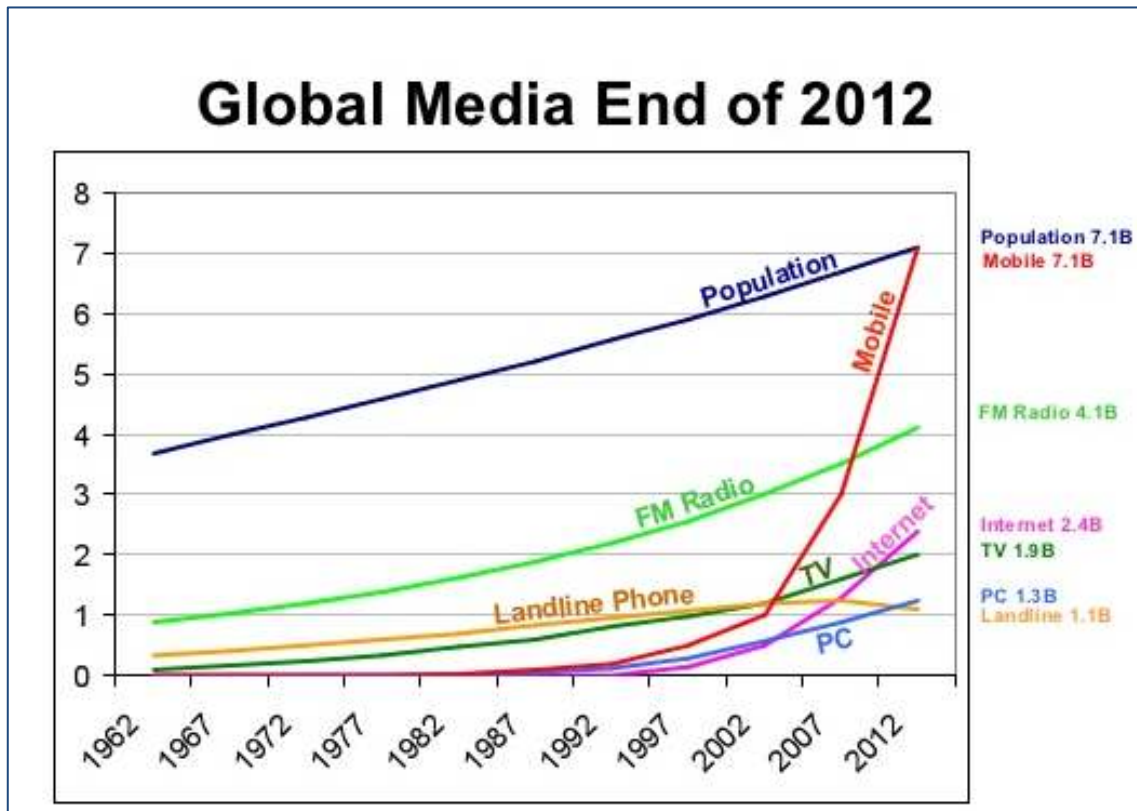


Figure 2.3: The growth of the global media industry

(Source: Ahonen, 2012)

Mobile phone ownership, especially for teens, is on the increase. In 2004, 45% of 12 to 17-year-olds in the United States of America (USA) owned a mobile phone (Lenhart, 2009:3). By 2008, the number had risen to 71% (Lenhart, 2009:3). In 2015, 46% of 8 to 14-year-olds in the USA owned a mobile phone, but in addition, 53% also had a tablet (Rowe Price, 2015). A report compiled by Kleiner Perkins Caufield and Byers³ (Meeker, 2014) estimates South African smartphone users at 20 million, displaying a growth of 32% in 2013 when compared to their findings in 2012. It is evident from the aforementioned that mobile technology is here to stay and with regard to the use of technology in DE, Collis and Moonen (2002:217) say, “You can’t *not* do it.” Squire (2009:70) even goes as far as stating, “it is a safe bet that mobile phones will be the first multimedia, networked computer technology to reach one-to-one penetration”. Mobile phone use in DE can be exported to developing and developed areas around the globe as mobile diffusion is spreading at a dramatic rate

³ Kleiner Perkins Caufield and Byers is a venture capital firm located in California, USA. The firm partners with entrepreneurs to turn disruptive ideas into world-changing businesses and has helped pioneering companies like Amazon, Google, Lending Club, Nest, Twitter, Uber, and Mandiant.

with the introduction of cheaper handsets and better services (Motlik, 2008). Keegan (2005:65) also proclaimed that the future of DE is wireless as there had never been a technology that has infiltrated the world as quickly as mobile technology. Keegan states that facilitators must now develop pedagogical environments for these mobile devices.

2.6.2 Mobile learning

The purpose of this section is to provide a conceptual framework for assessing mobile learning as a vehicle to increase didactic conversation and lessen transactional distance. Various authors have tried to define mobile learning (occasionally referred to as 'm-learning') (Sharples, Taylor & Vavoula, 2005; Traxler, 2006). O'Malley *et al.* (2005) define mobile learning as any sort of learning that happens when the student is not at a fixed, predetermined location, or learning that happens when the student takes advantage of the learning opportunities offered by mobile technologies. Kim, Holmes and Mims (2005:54) define mobile learning as technology that provides continuous accessibility to users anytime, anywhere without using wire or cable to connect to the internet. Traxler and Kukulska-Hulme (2009) define mobile learning as a personal, anytime, anywhere way to learn and to access educational material. Koole (2009) has proposed a framework (Figure 2.4) for understanding mobile learning.

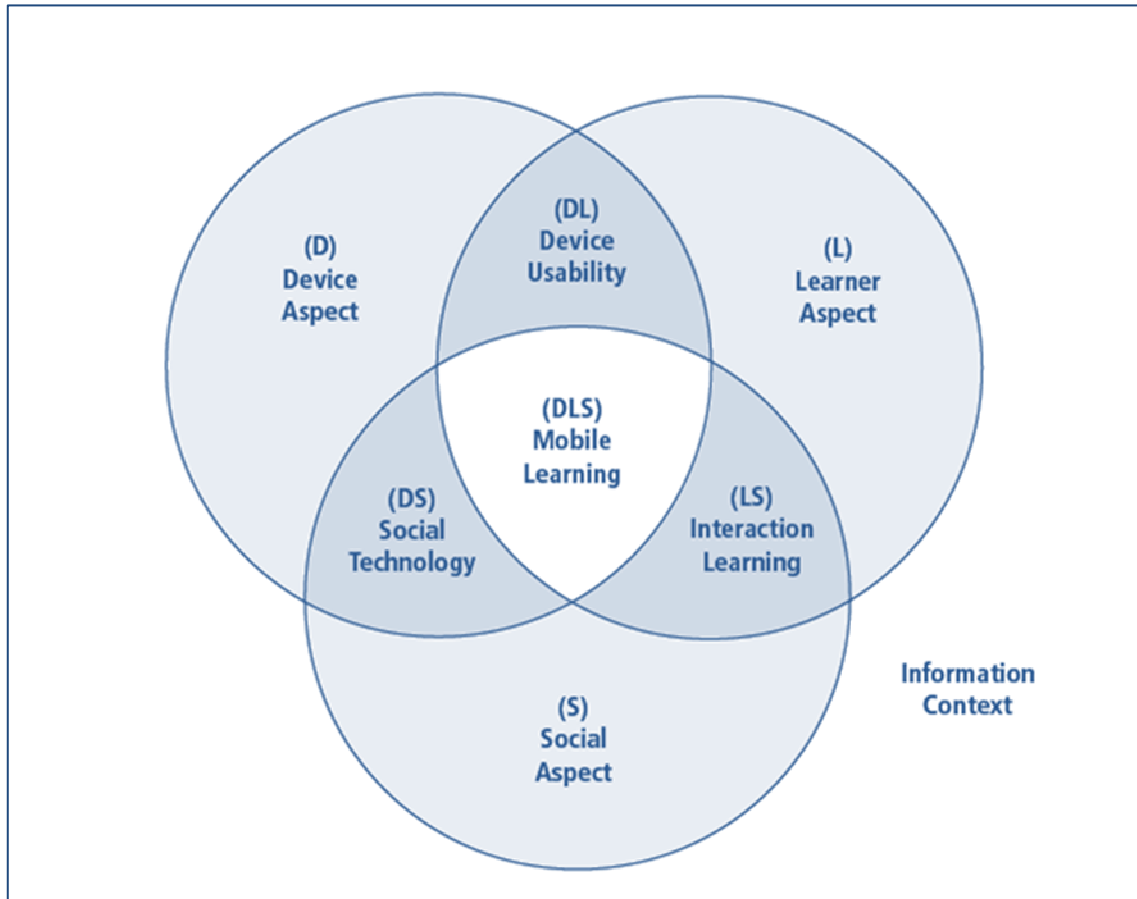


Figure 2.4: Mobile learning framework

(Source: Koole, 2009)

The labels in Figure 2.4 can be explained as follows:

- device aspect – size, weight, input and output capabilities, file storage and retrieval;
- learner aspect – prior knowledge, memory, context and transfer, emotions and motivations;
- social aspect – conversations, co-operation and social interactions;
- social technologies – device networking and connectivity;
- interaction learning – interaction and learning communities;
- device usability – portability, information availability, psychological comfort and satisfaction; and
- mobile learning – information access and selection, mediation as well as knowledge navigation.

The world of education and training is divided into two halves, namely conventional education (traditional or face-to-face) and DE. Mobile learning is regarded as a subdivision of DE and is a rich form of education and training provided on mobile phones/devices (Keegan, 2005:66; Narayanansamy & Ismail, 2011:9; Zawacki-Richter, Brown & Delpont, 2007). Mildrad (2003:151) also defines e-learning as “learning supported by digital electronic tools and media”, and mobile learning as “e-learning using mobile devices and wireless transmission”. Stone (2004:146) elaborates by defining mobile learning as a “special type of e-learning, bound by a number of special properties and the capability of devices, bandwidth and other characteristics of the network technologies being used”. As mobile learning is very closely related to e-learning (Cavus & Ibrahim, 2009:78), it is understandable that the term *mobile learning* is increasingly being applied to the use of small, portable, handheld electronic devices (for instance mobile phones) used for educational activities (Jones, Scanlon & Clough, 2013; Narayanansamy & Ismail, 2011:9; Stead, 2005:153; Traxler & Leach, 2006:98).

Mobile phones allow people to communicate, and communication is a vital element in DE (Dabaj, 2011; Louw, 2005). The diverse group of DE students in the South African context have one thing in common – a mobile phone (Louw, 2005:104). According to Sandars (2006:549), the high level of mobile phone usage among undergraduate students suggests that they are unlikely to avoid the use of mobile phones. Dhanarajan (1996) is of the opinion that a course is much more than a package of study materials and the students must be supported in various ways. They may be distant from their teaching institution, but they must not be isolated. Louw (2005) comments that one of the most effective means of support in the distance learning environment is to make contact with the student – anything that will bring the facilitator and the student closer together so that there can be a “meeting of minds” (Louw, 2005:103). Louw is further of the opinion that if students receive an SMS from the university at which they are enrolled, they would probably feel excited about being part of this new adventure called ‘learning’. Louw (2005:104) goes on to say that a DE institution should:

- help its students by minimising the effects of isolation;
- minimise the dropout rate; and

- improve the students' learning experience.

There is little data on the use of mobile technology in accounting education. Studies note problems with technology, such as poor battery life or small screens, but they still seem to enjoy using mobile phones (Sandars, 2006:551). According to Zawacki-Richter *et al.* (2007), innovative facilitators should consider adopting mobile learning because mobile technologies afford new opportunities for both teaching and learning. In a technology-mediated study positive feedback was received from auditing students on the use of technology tools (Lillie, 2008:267).

Mobile technologies enable people to communicate regardless of their location. As mobile phone networks extend to rural areas (Barker, Krull & Mallinson, 2005:17; Brown, 2004; Sharples *et al.*, 2005) they allow people in rural communities not only to make phone calls but also to enjoy the benefits of mobile services such as text and multimedia messaging. Not only does mobile support have the potential to improve students' throughput rates and enhance the quality of the learning experience (Gregson & Jordaan, 2009:225), but research also confirms that students find mobile learning fun (Pieri & Diamantini, 2009:193). Besides, students in mobile learning project trials have indicated that they not only enjoy the content, but they also love the collaboration (Colley & Stead, 2004:57). It was thus obvious from the literature that the participating FAC2602 students could benefit if mobile phones were used in the module; however, the available functions of mobile phones had to be utilised effectively. The present study therefore focussed on mobile phone functions such as SMS, Mxit and podcasts available on mobile phones to assist FAC2602 students. These functions were selected due to their availability, affordability and accessibility to 63% of the inhabitants on the African continent (International Telecommunication Union, 2013).

2.6.3 SMSes

The first mobile phone function this study concentrated on was SMSes. HEIs use mobile devices and SMSes to supply their students with information about timetable changes, lecture times, assessment deadlines, examination results and other urgent administrative details (refer Keegan, 2005:67; Trifonova, 2003). In addition to administrative support, research by Barker *et al.* (2005:17) as well as Stone, Briggs

and Smith (2002:147) along with Cavus and Ibrahim (2009:78) confirms wireless technologies in education to have a positive effect on motivation, which results in benefits for students. Persuasive SMS reminder messages have been used in health, advertising and education courses and were found to be useful (Maheshwari, Chatterjee & Drew, 2008:258; Trappey & Woodside, 2005:382; Wickramanayake & Schlosser, 2006:29.1). Goh, Seet and Chen (2011:624) also found persuasive SMS messages to be a viable and effective approach for maintaining, improving and enhancing students' self-regulation strategies. In this latter case, it was found that the SMS was easy to implement and it also provided a more immediate response than e-mail.

Over the centuries, various instructional technologies have been included in distance learning to reach more remote physical locations (Prewitt, 1998:187), but the quality of the education (and support) remains dependent on the delivery system. With the increasing availability of mobile devices, there has been a shift in higher education from delivering information and study material in the printed medium only towards the use of mobile devices (Gardner, 2014). Although many educationalists see great potential for the use of mobile devices, there are very few successful implementations to consider as best practice (Cavus & Ibrahim, 2009:79).

The University of Pretoria started using SMSes for support in 2002 in three paper-based DE programmes (Keegan, 2005:68). In a study conducted by Horstmanshof (2004), the two-way exchange of messages between tutors and students was noted as being effective. A research project undertaken at the University of Cape Town has given some insight into the way mobile devices can be used effectively at a minimum cost to assist facilitators in supporting their students (Ng'ambi, 2005:119). The educator and students who participated in the study at the University of Cape Town found the popularity of SMS messaging among students provided opportunities to exploit the possibilities of using SMSes for teaching and learning further (Ng'ambi, 2005:116). In an experiment on the use of SMS to support the learning of new English words at the Near East University in North Cyprus, students expressed their satisfaction with and enjoyment of learning with the help of their mobile phones and SMSes (Cavus & Ibrahim, 2009:88).

Visser's (1990) embedded single-case exploratory study concluded that motivational messages handed to students in the form of a hand-written card could enhance learning by motivating students. Visser and Keller (1990:467) further studied the efficacy of motivational messages with adult students in Mozambique, also with positive results. Visser (1998) took the concept of motivational messages a step further to encourage students to persist in correspondence courses. She found that students who received the motivational messages had reduced dropout rates and increased satisfaction. In all studies, motivational messages were generally found to improve student motivation, retention, satisfaction and performance. Although Visser (1998) found the use of a motivational message handed to students in the form of a hand-written card to have a positive effect on retention and satisfaction of correspondence students, she concluded that instruction was too expensive and time-consuming to continue with the project. According to Hollands (2006), sending text messages has become the 'cool way to communicate' and the ubiquitous abbreviations and accompanying lack of punctuation now come automatically to many of the younger generation. Song and Keller (2001) found significantly higher levels of attention, relevance, motivation and effectiveness in a group of students who received motivationally adaptive instruction when compared to the group of students who did not receive the motivationally-adaptive computer-assisted instruction. Using a mobile phone to support learning is practical at Unisa as almost all students have access to such phones. It is also relatively cheap – an SMS costs less than 20 cents to reach a student through the University's Learning Management System (LMS).

2.6.4 Social media technologies

Social media technologies such as blogs, podcasts, wikis and social networks have seen a remarkable increase in adoption rates, in particular among the younger generation (Romero-Frías & Montaña, 2009). Social media technologies, the so-called Web 2.0 tools, connect people and facilitate exchange of information (Peytcheva-Forsyth, 2014; Redondo, 2015). Social networking sites, such as Facebook, have proved to be exceptionally popular among students (McCarthy, 2010:729; Romero-Frías & Montaña, 2009; Selwyn, 2011; Vermeulen, 2012; Zanamwe, Rupere & Kufandirimbwa, 2013:8). The social media are also associated

with an increased tendency for people to multitask and to rely on the reshuffling of daily activities and obligations (Subrahmanyam & Šmahel, 2011).

This continued growth in social networking sites presents challenges to the future nature of higher education provision and practice (Selwyn, 2011). As “digital natives” (Prensky, 2001:1) who spend their entire lives surrounded by and using computers, video games, mobile phones and tools of the digital age, Prensky maintains that today’s students think and process information differently from their predecessors. In addition to Facebook, Junco, Heiberger and Loken (2011:119) found Twitter to have a positive effect on college students’ engagement and results, as social networking sites create positive feelings regarding learning experiences (Hung & Yuen, 2010:703). Resulting from this, educational networking is defined as the use of social networking sites for educational purposes (Holcomb, Brady & Smith, 2010). These educational networking possibilities have the potential to improve student learning as the networks enrich the learning environment (Conole, 2013; Goldfarb, Pregibon, Shrem & Zyko, 2011). However, Conole (2010:141) highlights that pedagogical, organisational issues and technology itself are the reasons for the slow acceptance of the use of technology in teaching and learning. Policy, resources, infrastructure and culture influence are thus vital in the acceptance process (Ungerer, 2012). Säljö (2010:56) is of the opinion that digital technology does not serve as an “independent variable” that can simply be introduced to enhance learning and performance in an educational environment.

The arrival of social networking sites has been met with mixed reaction in academic circles in developing countries (Zanamwe *et al.*, 2013). This resulted in heated debates on whether or not social networking sites should be used in educational environments as part of student teaching and learning (Zanamwe *et al.*, 2013:8). Social networking sites can benefit students who are now able to access content from leading facilitators and researchers around the world through wikis, on-line videos and podcasts (Siemens & Weller, 2011).

Africa is the world’s fastest developing e-learning market (Bates, 2013). In 2010, mobile phone subscriptions in Africa reached 45 per 100 people (Adam, Butcher, Tusubira & Sibthorpe, 2011) and this proportion continues to rise due to very high demand and falling costs. This was evident as in 2013 there was 564 million mobile

connections in sub-Saharan Africa (a 65% penetration rate) and it was estimated that this will grow to 947 million (a 91% penetration rate) by 2020 (GSMA, 2014:6). Developing countries in Africa have been quick adopters of mobile phones, and internet users in Africa are using their mobile phones to access the internet (GSMA, 2014). Reports in Nigeria indicate that mobile phones are the primary access device to the internet, and about 36% of Tanzanian internet users access e-mails via mobile phones against 31% doing so through their computers (Adam *et al.*, 2011). The growth of mobile subscription in six countries in sub-Saharan African is dominated by Nigeria, South Africa, Tanzania, Ethiopia, Kenya and the Democratic Republic of Congo that together account for over half of the subscribers in the region (GSMA, 2014:10). Vermeulen (2012) found that Mxit remains South Africa's most used social networking site with 10 million active users. In 2014, the number declined to 5 million active monthly users, but in addition, Mxit is already present in Nigeria, Indonesia and India (GSMA, 2014:16). Facebook has almost 5 million registered users in South Africa, and BlackBerry Messenger (BBM) around 3.3 million. Although Twitter has 1.1 million registered users, only 405 000 are active users (Vermeulen, 2012). In 2014, there were nearly 10 million active Facebook users and 10.6 million WhatsApp users in South Africa, while 45% of the population used Facebook Messenger and 18% made use of WeChat⁴ (Writer, 2014:online).

Romero-Frías and Montaña (2009) found Spanish students in an international Accounting course positive with regard to the use of social networking sites. In their research project, social networking sites were used to support students' engagement and to develop various competences vital to accountants. Social networking sites allow individuals to create and express themselves on-line, to author their own content and to share that content with others (Vaccari *et al.*, 2015). Digital literacy is therefore an important component of autonomy in an on-line environment (Jeffrey, Hegarty, Kelly, Penman, Coburn & McDonald, 2011). As a result, Romero-Frías and Montaña (2009) see autonomy as a precondition for critical thinking and planning, decision-making and self-management skills.

⁴ Facebook Messenger and WeChat are mobile messaging applications, similar to WhatsApp. These three mobile-oriented services are ranked as top social media applications in some of the world's biggest economies (Kemp, 2015:online).

In a study conducted at five Zimbabwean institutions, Zanamwe *et al.* (2013:8) found that social networking sites improve students' technology proficiencies, enhance their social skills and help them to communicate in new ways with new people. Results indicated that Zimbabwean students connect to the internet using their laptops and smart phones. The social networking sites used by students in Zimbabwe in the study included mainly Facebook, Myspace, Twitter and MXit (Zanamwe *et al.*, 2013:12). Interesting to note was the fact that 76.6% of the respondents in the Zimbabwean study indicated that social networking sites should be used in higher education. In contrast to this, Blattner and Lomicka (2012) warn that students' familiarity with social networking sites does not automatically mean they have the skills to use such knowledge and skills in an educational context.

2.6.5 MXit

The second mobile phone function on which this study focussed was MXit. Students have integrated social networking sites into their daily routines, using MXit, BBM, WhatsApp, Facebook and Twitter on a regular basis (GSMA, 2014). People (including FAC2602 students) can communicate electronically on mobile phones with other users with whom they share a connection, and view and comment on their list of communications with other members of the group (Boyd & Ellison, 2007:210). Boyd and Ellison (2007) further provide evidence that the topic of the most conversations on these social network sites is education. In addition, research findings show that American students spend around 94% of their time during a typical week on social networking sites (Higher Education Research Institute, 2007). In South Africa, the engaged social media users on average sign in five times a day and spend 105 minutes a day on the network (World Wide Worx, 2015:3).

Technologies of the 21st century (and their applications and functions) bring challenges for HEIs, and many are responding by experimenting with and implementing these new applications (Uğur, Akkoyunlu & Kurbanoglu, 2011:5). One of these applications is MXit. MXit can be classified as a synchronous learning tool as students and facilitators collaborate in real time (Butgereit, 2007). MXit is an inexpensive instant messaging software application developed in South Africa that runs on mobile phones, using General Packet Radio Service (GPRS), and on personal computers (PCs) (Van Rooyen, 2010b:52). Founded in 2003 by Namibian-

born software developer Herman Heunis, MXit has since attracted more than 15 million users in the developing world (Heunis, 2009). Although MXit users in South Africa have decreased from 10 million in 2012 to 5 million in 2014 (refer section 2.6.4), MXit allows users to send and receive one-on-one text messages to and from other users. As messages are sent via the internet and not via SMS, the network cost per message is one cent while SMSes cost approximately 75 cents each (MXit Lifestyle, 2011). Currently, MXit is a free mobile social application (MXit Lifestyle, 2014). The fact that MXit users can 'talk' to each other while incurring a minimal cost encourages younger users to make use of this technology. In 2011, 75% of MXit users were between the ages of 19 and 25 (World Design Capital, 2011:online), while in 2014, 25% of the users were between the ages of 13 and 17 compared to only 48% between the ages of 18 and 24 (Mzekandaba, 2014:online).

MXit is no longer only used for communication among teenagers; the use of MXit as a medium for children to learn in a fun and interactive manner is beginning to surface in South Africa. In 2009, the South African Department of Education launched a pilot project using MXit that delivered mathematics tutorials to 260 Grade 10 students from six selected schools in South Africa (Vecchiatto, 2009). Researchers from the Cape Peninsula University of Technology investigated the perceptions of tertiary students regarding the use of MXit in education and found that, although lecturers almost never use the facility, it is definitely an opportunity worth exploring (Vosloo, 2008). At the end of 2011, the FunDza project (Nelson Mandela Metropolitan University, 2012) made use of MXit to assist learners at the Bethelsdorp High School to get access to books. The Ukufunda Virtual Schools project (DBE, 2014) in South Africa was introduced on 12 September 2014 to address inequalities in the school system and to raise education standards.

2.6.6 Podcasts

The last mobile phone function on which this study concentrated was podcasts. The word *podcast* is a hybrid of 'iPod' (a portable multimedia player from Apple) and 'broadcast' and is thus a method of distributing audio files across the internet using really simple syndication (RSS) feeds (Ralph, Head & Lightfoot, 2010:13). An RSS feed contains an index of items in the series, including title, date, description and the detail of the multimedia enclosed (i.e. the link to the file, its size and the content

type). Unisa makes use of Audacity free software (available from <http://audacity.sourceforge.net/>), which supports both the generation and distribution of podcasts on the producer side, and tools for the user allowing them to download the podcasts to mobile devices. The user downloads the audio files from a website and plays them using a media player (Ng'ambi, 2008:10), a computer or portable player (mobile phones, MP3 players) (Salmon, Mobbs, Edirisingha & Dennett, 2008). Podcasts can also be downloaded to a CD should a student not have access to a portable player.

Podcasting, a form of asynchronous learning, has been used by various HEIs (Brown & Green, 2007:3) and research has found that converting traditional lectures to podcasts enhances teaching and learning (McGarr, 2009:309). Podcasts have been incorporated in a variety of ways to meet various learning objectives. These include podcasts to record face-to-face lectures (McGarr, 2009:309; McKenzie, 2008; Van Zanten, 2008), recording of tutorials (Tynan & Colbran, 2006), supplementary materials (Bell, Cockburn, Wingkvist & Green, 2007:1; McGarr, 2009:309) and to provide feedback to students on assessments (Maag, 2006:9; McGregor, Merchant & Butler, 2008:8). Students' reaction is generally positive and they typically perceive podcasts to have enhanced their learning, irrespective of the form of podcasting (Forbes *et al.*, 2012; Maag, 2006:9; Soong, Chan, Cheers & Hu, 2006).

Pedagogic findings highlight various potential benefits with the use of podcasts (Beldarrain, 2006:139; Campbell, 2005:32). The main perceived benefit is that podcasts appeal to the 'digital natives' (Prensky, 2001:1) as the younger generation uses technologies on a daily basis. In addition, research has highlighted the fact that students have different learning styles (visual, auditory and kinaesthetic) (Gilakjani & Ahmadi, 2011; Özbaş, 2013). Some of these learning styles are not always favoured by traditional learning methods (Ralph *et al.*, 2010:13). Podcasts not only appeal to auditory learners; it also gives students an opportunity to re-attend class. So to speak (Ralph *et al.*, 2010:13:15). The relative ease of recording, editing and uploading as well as the easy access to podcasts for the student makes podcasting a convenient and flexible tool to use (Harvey, 2008). Podcasting also has the advantage of allowing the facilitator and the student to time-shift the teaching (Muppala & Kong, 2007). Students can listen to the podcasts whenever and wherever they want to. In

addition, podcasts enable students to think deeper and allow them to articulate their understanding of ideas and concepts (Ng'ambi, 2008:9). McGarr (2009:309) is of the opinion that when podcasting is used, it should be adopted to solve educational problems and improve the existing experience of students.

Podcasts also assist DE students as it helps to reduce the effects of isolation (Lee & Chan, 2007:1302) and research found favourable student attitudes towards the benefits of podcasts (Huntsberger & Stavitsky, 2006:397; Lee & Chan, 2007:1302; McGarr, 2009:309). Focussing on Holmberg (1982) and Moore's (1973) DE theories, the present study used mobile phones and the SMS, Mxit and podcast functions with the objective to lighten the academic journey of prospective CAs at an ODL institution in South Africa and by doing so to increase their retention and throughput rates.

2.7 CONCEPTUAL FRAMEWORK

As discussed in section 2.3, theory can be defined as an organised body of concepts, generalisations and principles that can be subjected to investigation (Gay, Mills & Airasian, 2006:35). Understanding theory makes it possible for researchers to speak the same language and steer research by helping practitioners determine where their study assimilates with other studies and facilitates collaboration within the field (Moore & Kearsley, 1996:199). According to Moore (1990:10), research not grounded in theory is wasteful and reduces the ability to resolve additional problems in different times and different places. The establishment of a theoretical foundation is essential to guide researchers and facilitators in making the appropriate decisions to meet the needs of HEIs and the students they serve (Garrison, 2000:1).

The theories of Holmberg (1982) and Moore (1973) provide a conceptual framework for understanding student retention and throughput in this study. The main focus of the present study was therefore to utilise these theoretical frameworks and to explore the experiences and perceptions of the participating FAC2602 students at Unisa.

The present study was founded on Holmberg's theory of DE, which was published in 1982. Börje Holmberg's theory of guided didactic conversation (1982) focusses on students and their responsibility for learning, based on the assumption that real learning is primarily an individual activity. The theory emphasises the importance of

the relationship between the facilitator and student and cites student–facilitator dialogue as the critical defining aspect of DE (Garrison & Anderson, 2003:35; Moore & Kearsley, 1996:202).

Holmberg (1989:162) elucidate his theory as follows:

Distance education is based on motivated deep-learning as an individual activity. Learning is guided and supported by non-contiguous means that activate students. This constitutes the teaching component of distance education.

As individual study requires a certain amount of maturity, self-discipline, and independence, distance education can be an application of independent learning at the same time as it is apt further to develop study autonomy. Central to the learning and teaching in distance education are personal relations, study pleasure, and empathy between students and those representing the supporting organisation.

Feelings of empathy and belonging can be developed in the learning process independently of any face-to-face contact with tutors. They are conveyed by students' being engaged in decision making; by lucid, problem-oriented, conversation-like presentations of learning matter that may be anchored in existing knowledge; by friendly, non-contiguous interaction between students and tutors, counsellors, and other staff in the supporting organisation; and by liberal organisational-administrative structures and processes.

Moore began making significant theoretical contributions as a doctoral student when he introduced his original theory of DE in 1972, namely the theory of transactional distance (Moore, 1973:661). In his two well-known articles, "Learner autonomy: The second dimension of independent learning" (1972) and "Towards a theory of independent learning and teaching" (1973), transactional distance is determined by three key factors:

- the dialogue or interactions between the student and the facilitator;
- the structure or responsiveness of the DE programme to the student; and
- the self-directedness or autonomy of the student.

Based on the review of Holmberg's (1982) theory of didactic conversation and Moore's theory of transactional distance (1973), a provisional framework for understanding students' perceptions and experiences of the application of mobile

phones in the teaching and learning of the FAC2602 module is presented in Figure 2.5.

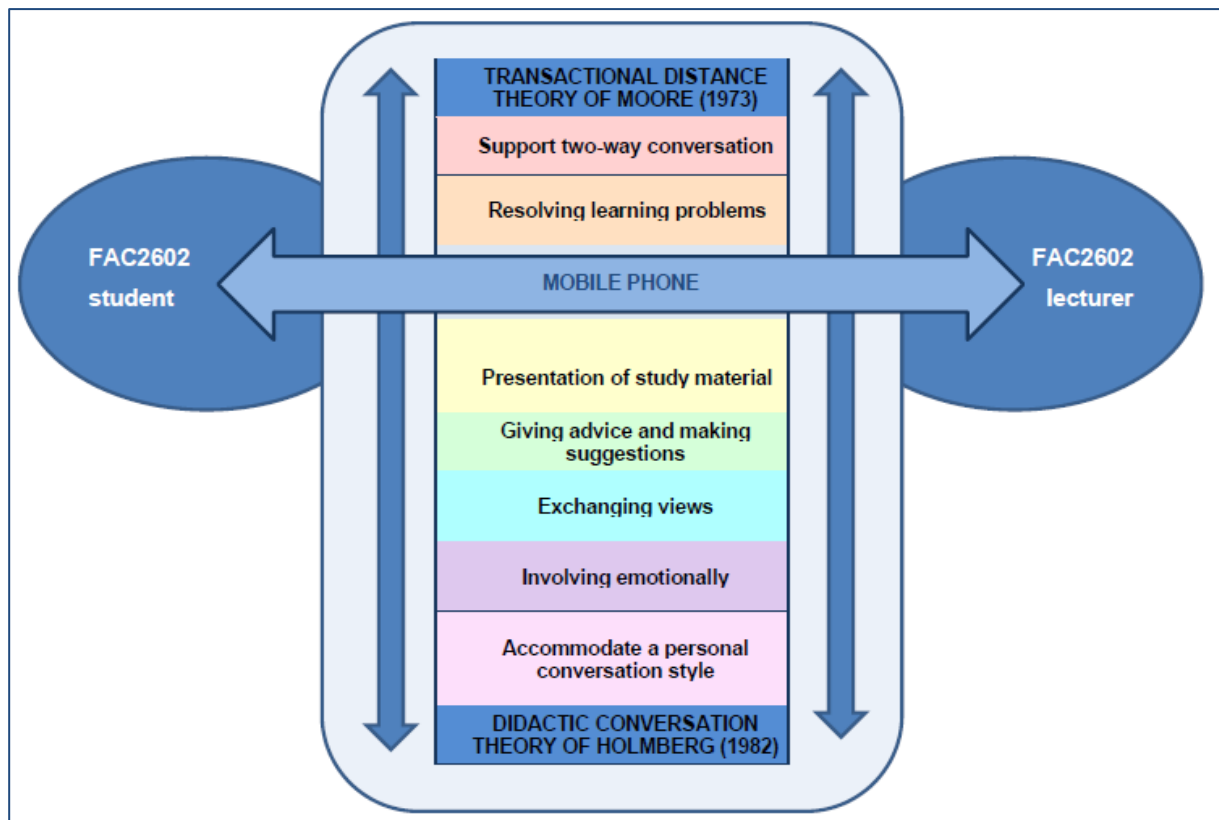


Figure 2.5: A provisional framework for understanding the use of mobile phones to facilitate interaction between lecturer and students in the FAC2602 module

(Author's own compilation)

2.8 CHAPTER CONCLUSION

Literature provides substantive evidence that there have been significant changes in DE since the early 1800s. Technology is now widely used by institutions to bridge the transactional distance so often experienced by DE students. Guided by various DE theories, the literature reviewed for the present study focussed specifically on Holmberg's theory of didactic conversation (1982) and Moore's theory of transactional distance (1973). A discussion of the numerous factors influencing teaching and learning followed (refer section 2.4) and the adoption and integration of technology into DE courses and specifically Accounting courses were reviewed (refer section 2.5). Then, focussing on mobile technology, the application and integration of mobile phones and specifically SMSes, Mxit and podcast functions in courses were discussed (refer section 2.6).

Limited research on students' perceptions and experiences on the use of mobile phones to assist with the teaching and learning of accounting has been conducted, especially in the African context where access to technology and the internet is often problematic. Although appropriate literature supports the effect of technologies on student retention and success, the available literature gave no clear indication as to the influence of mobile phone interventions on accounting students' throughput rates.

After a thorough review of the available literature, the chapter concluded by providing a provisional conceptual framework for understanding accounting students' retention and throughput rates, encompassing the theories of Holmberg (1982) and Moore (1973). Chapters 3 and 4 will report on the research process. Chapter 3 will present the research design and methods used to investigate the research questions concerning the application of mobile phones to integrate the conversation characteristics needed to assist with the retention and throughput of accounting students. The mobile phone intervention project is explained in detail in Chapter 4.

CHAPTER 3

RESEARCH DESIGN AND METHODS

“I never teach my pupils. I only attempt to provide
the conditions in which they can learn”
(Albert Einstein, 2011:online)

3.1 INTRODUCTION

In the previous two chapters, the background and theoretical perspectives applicable to this study were explained. As the aim of the study was to apply the DE theoretical frameworks of Holmberg (1982) and Moore (1973) to understand the low retention and throughput rates of the FAC2602 students at Unisa, data was required to determine whether the application of mobile phones in the teaching and learning of FAC2602 did indeed increase the didactic conversations (cf. Holmberg, 1982) between the students and the lecturer and by doing so lessened the transactional distance (cf. Moore, 1973). In this chapter, the research design and methods appropriate to this study are explained.

The chapter commences with a description of the research scope and philosophy setting applicable to this study, after which the research design and methods most appropriate to answer the research questions are explained. The chapter concludes with a discussion about the limitations and strengths of this study as well as the ethical considerations applicable. A visual presentation of the layout and structure of Chapter 3 is provided in Figure 3.1.

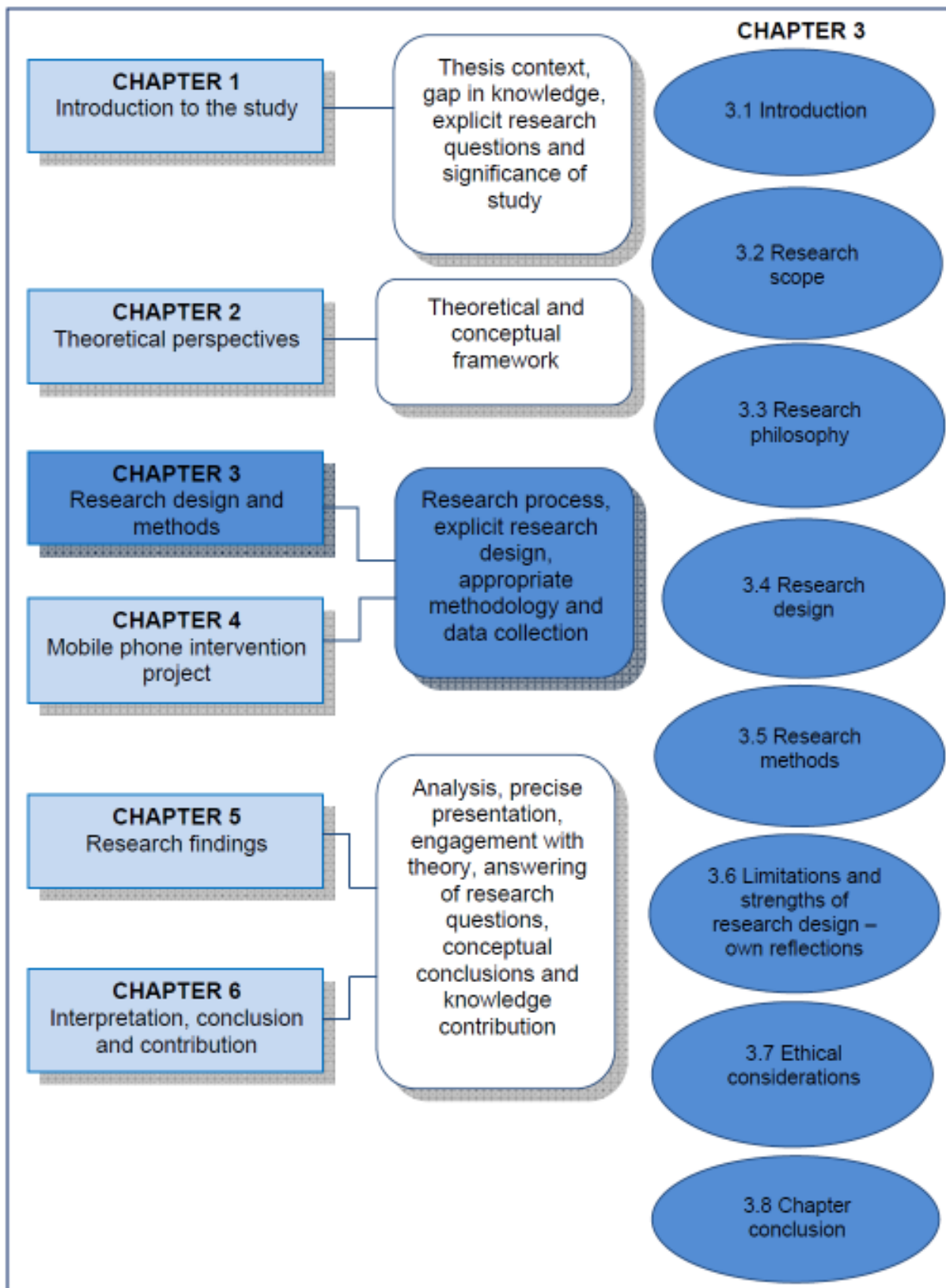


Figure 3.1: Structure of Chapter 3

Compiled after considering the components of doctorateness identified by Trafford and Leshem (2008)

3.2 RESEARCH SCOPE

The research process comprises several activities and is a “systematic process of collecting, analysing and interpreting information (data) in order to increase our understanding of a phenomenon about which we are interested or concerned” (Leedy & Ormrod, 2010:2). The rationale for the present research originated from the low retention and throughput rates of the FAC2602 students. The literature reviewed in Chapter 2 inter alia revealed that DE students need contact with the institution/facilitator (to lessen the transactional distance) and support (to improve didactic conversation) in order to be successful in their studies. The DE theories of Holmberg (1982) and Moore (1973) provide a theoretical framework for understanding student retention and throughput. The present study aimed to determine whether the application of mobile phones in the teaching and learning of FAC2602 facilitated quality didactic conversations and lessened transactional distance. The research questions that had to be answered are again presented in Table 3.1.

Table 3.1: Research problem statement and research questions

Research problem statement: To which extent does the application of mobile phones in the FAC2602 module at Unisa improve the didactic conversation, lessen the transactional distance and increase student retention and throughput rates?
1. To which extent can mobile phones support two-way conversation?
2. To which extent can mobile phones be utilised to increase flexibility in resolving learning problems?
3. How can mobile phones be utilised to present study material?
4. Are mobile phones appropriate when giving advice and making suggestions?
5. How can mobile phones be utilised to exchange views?
6. How can mobile phones be used to involve students emotionally?
7. To which extent can mobile phones accommodate a personal conversation style?
8. Does the mobile phone intervention have an effect on retention and throughput rates?
9. How do students perceive and experience the mobile phone intervention?

(Author's own compilation)

3.3 RESEARCH PHILOSOPHY

Before I could evaluate the students' experiences and perceptions on the use of mobile phones, I had to consider various key research concepts. Firstly, I had to investigate the main philosophical characteristics differentiating existing research paradigms. Mertens (2010:7) defines a paradigm as a way of looking at the world. A paradigm encompasses ethics, ontology, epistemology and methodology (Lincoln, Lynham & Guba, 2013:189). These concepts are central to all social research and relate to the nature of knowledge and the development of that knowledge (Coe, 2012; Kalof, Dan & Dietz, 2008; Laughlin, 1995:63; Saunders, Lewis & Thornhill, 2009). The methodological approach used by any researcher is underpinned by and reflecting specific ontological and epistemological assumptions (Grix, 2002:179). In Table 3.2 Hay (2002) summarises the key concepts related to research design.

Table 3.2: Key concepts related to research design

Key concepts	Question to answer
Ontology	What is out there to know?
Epistemology	What and how can we know about it?
Methodology	How can we go about acquiring that knowledge?
Methods	Which precise procedures can we use to acquire knowledge?
Sources	Which data can we collect?

(Adapted from Hay, 2002:64)

The aforementioned concepts have been applied in the present study as described below:

Ontology

Ontology is the starting point of all research after which a researcher's epistemological and methodological positions follow (Grix, 2002:177). Blaikie (2000:8) suggests that ontological claims are "claims and assumptions that are made about the nature of social reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other". Blaikie (2000:8) goes on to imply that ontological assumptions are concerned with what we believe constitutes social reality. The ontological dimension of the present study was thus the

learning experience as a proxy of the social reality of FAC2602 students. The focus however was on their learning experience in using mobile phones as a means of communication.

Epistemology

Epistemology, on the other hand, is concerned with the theory of knowledge, especially with regard to the methods, validation and “the possible ways of gaining knowledge of social reality” (Blaikie, 2000:8). Knowledge is not static, but is forever changing. When reflecting on theories and methods, researchers need to reflect on their paradigmatic assumptions and preferences as well as the related theories and methods (Grix, 2002:177). The importance of research paradigms in the accounting sciences has been recorded in various scholarly documents (refer Ahrens *et al.*, 2008:840; Kaidonis, Moerman & Rudkin, 2009:285; Kakkuri-Knuuttila, Lukka & Kuorikoski, 2008:298; Laughlin, 1995:63; Lukka, 2010:110). The shift in accounting education research from positivist to subjective thinking (Laughlin, 1995:63) and also from quantitative to qualitative research (Parker, 2012:54) become noticeable in the 1970s. This subjective thinking and qualitative research in accounting education research are supported by Becker (2008 in Ahrens *et al.*, 2008:842) who is of the opinion that critical interpretive research in accounting can assist by finding theories and data, which may in likeness be applied to the field of accounting education. Hopper, Otley and Scapens (2001:263) also want accounting “research ... attempting to integrate and consolidate the variety of theories and methodologies which have emerged in recent years”.

Epistemologically, the present study constituted an integration of theories and methods of two separate disciplines, namely the accounting sciences and the education studies. As the study was concerned with accounting students’ learning experiences and perceptions, I had to consider two contrasting epistemological orientations namely the positivist paradigm (positivism) and the interpretivist paradigm (interpretivism) (Bryman, 2001:12; Grix, 2002:178). Positivist researchers seek to acquire law-like generalisations by conducting ‘value-free’ research to measure social phenomena (Neuman, 2011; Wahyuni, 2012:71). These authors also believe that different researchers observing the same phenomenon and using the

same methods will generate similar results and reach the same conclusions (Creswell, 2009).

Conversely, an interpretivist paradigm, also called the phenomenological approach, subscribes to what is called constructivism, and aims to understand people (Babbie & Mouton, 2001:28; Wahyuni, 2012:71). This paradigm involves taking people's experiences as the essence of what is real to them in their natural settings. The central assumptions of interpretivism (Stahl, 2014:2) embrace that knowledge –

- is gained through social constructions;
- does not have predefined dependent and independent variables;
- focusses on sense making in complex and emerging situations; and
- attempts to understand phenomena through the meanings assigned to them by individuals in situations.

Interpretivists therefore aim to “piece together people's words, observations and documents into a coherent picture expressed through the voices of the participants” (Trauth & Jessup, 2000:54). Geertz (1973:9) summarises the data collected in an interpretive study as “what we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to”. When taking people's experiences as the essence of what is real for them in their natural setting (Creswell, 1994; Leedy & Ormrod, 2001) and applying it in an interpretive research paradigm, it is necessary to interact with the people and listen to their voices in order to gain an in-depth understanding of their perceptions and experiences. People's perceptions, opinions and experiences are explored using methods such as semi-structured interviews or focus groups, so that fewer people take part in this type of research compared to the positivist approach (Creswell, 2005; Patton, 1990). Table 3.3 highlights the aforementioned differences between positivist and interpretivist paradigms.

Table 3.3: Differences between positivist and interpretivist paradigms

Positivist paradigm	Interpretivist paradigm
Experimental methods	Non-experimental methods
Deductive approach	Inductive approach
Objectivity	Subjectivity
Detachment	Participation
Quantitative data to determine significance of results (refer section 3.5.1)	Qualitative data to give meaning to results (refer section 3.5.1)
Constructing evidence	Searching for evidence

(Adapted from Gatsha, 2010:69)

The epistemological concern of the research problem statement (Table 3.1) is the understanding of the learning experience of accounting students through the didactic conversation theory of Holmberg (1982) and the transactional distance theory of Moore (1973). The present research was thus concerned with the selected students' perceptions, opinions and experiences which required the application of methods which fell primarily within the interpretivist paradigm.

Methodology

The selection of an appropriate research design and methodological approach (refer section 3.4) in order to solve the research problem as stated in Table 3.1 is directly related to the theoretical perspective derived from the theories of Holmberg (1982) and Moore (1973). This combined theoretical perspective was used as suggested by Eisenhardt (1989:532) as:

- an initial guide to design and collect data (section 3.4 and 3.5);
- part of an iterative process of data collection and analysis (section 3.5); and
- the final interpretation of the results (section 3.5).

3.4 RESEARCH DESIGN

A research design is defined as the logical sequence that connects the empirical data to the initial research questions of a study and ultimately the conclusions of the study (Yin, 2003:20). It can also be explained as the blueprint of research, namely –

- which questions to study;
- which data is relevant;
- which data to collect; and
- how to analyse the results (Yin, 2003:21).

The blueprint common to a case study research design is very suitable for an educational setting. The components include:

- the questions of a study;
- the propositions of a study;
- the unit(s) of analysis of a study;
- the logic linking the data to the propositions; and
- the criteria for interpreting the findings (Yin, 2003:21).

Focussing once more on the research questions (Table 3.1) and the provisional conceptual framework (Figure 2.5) relevant to this study, my reasons for choosing an explanatory single-case study design (Yin, 2009:219) are authenticated by Yin's (2003) four reasons for choosing a case study design, namely:

- nature of research questions – according to Yin (2003), case studies are favourable when 'how' and 'why' questions are being asked. This was in line with my own research questions as I wanted to know 'how' the students experienced and perceived the use of mobile phone interventions in the FAC2602 module;
- nature of event – Yin (2003) suggests that case studies are favourable when contemporary events are investigated and when behaviour cannot be controlled. Education (including accounting education) is also a field in which the researcher and participants often have little control over events. When conducting the study at hand, I had no control over the behaviour of the students in the FAC2602 module at Unisa, an ODL institution in Africa, and the aim of the study was to obtain/investigate their experiences and perceptions;
- nature of phenomenon – according to Yin (2009:219), case studies allow for a holistic study of a phenomenon. In this research, I applied the DE theories of Holmberg (1982) and Moore (1973) to answer the research questions. Student retention and throughput constitutes a contemporary phenomenon in any

academic institution and are also relevant to accounting students' teaching and learning; and

- unique case – this holds true for FAC2602, an Accounting module at Unisa, an ODL institution in South Africa, with its own syllabus and where no mobile phones have previously been used in the presentation of the module. This rationale was also the reason why I considered and labelled my case study a single-case study, as I focussed on one specific Accounting module at Unisa.

In addition to the above four reasons, I have selected this design to gain an in-depth understanding of the particular situation and its meaning to the students involved (Yin, 2009:18). This design was well suited to this topic as it provided me with an in-depth and accurate portrayal of the participating FAC2602 students' experiences and perceptions on the integration of mobile phones in the module.

By selecting the explanatory single case-study research design, I have followed the successful examples of other scholars to observe and interpret the participants' experiences and perceptions that might escape researchers using other methodologies (Fraenkel & Wallen, 2006; Hamilton & Corbett-Whittier, 2013:39; Merriam, 1998; Miles & Huberman, 1994:25). Students registered for the FAC2602 module from 2006 to 2012 were selected for this explanatory single-case study.

One of the advantages of a case study design is the close collaboration between the researcher and the participants, while enabling participants to tell their stories (Crabtree & Miller, 1999). Yin (2009) believes the researcher's interests lie in the process rather than in the outcomes, in context rather than in a specific variable, and in discovery rather than in confirmation. Through their stories, the participants were able to describe their views of reality and this enabled the researcher to understand the participants' actions better (Lather, 1992:87). The participating FAC2602 students helped me to answer my research questions by sharing their experiences and perceptions on the use of mobile phones in the module with me.

In addition, there are two key approaches that guide case study design. One is proposed by Robert Stake (1995) and the second by Robert Yin (2009:219). Both seek to ensure that the topic of interest is well explored and that the essence of the phenomenon is revealed. Stake (1995) mentions the intrinsic, instrumental and

collective type of case studies, while Yin (2009:219) identifies the exploratory, explanatory and descriptive case studies. I deemed an explanatory case study a valuable means to study the integration of mobile phones into an Accounting module at Unisa. This explanatory single-case study was analysed by relying on the theoretical propositions outlined in the review of the literature. The propositions helped me to focus my attention on certain data, to ignore other data and to organise the entire case study.

However, one of the common pitfalls associated with case study design is that there is a tendency for researchers to attempt to investigate a question that is too broad or a topic that has too many objectives for one study (Baxter & Jack, 2008). In order to avoid this problem, I followed the suggestions by Yin (2009) and Stake (1995) by placing boundaries on the case study for my research by restricting my selected case to students registered for the FAC2602 module between 2006 and 2012. These boundaries had to ensure that the study remained in scope and indicated what would and would not be studied in the research project. Schramm (1971) describes the essence of all types of case study, is that it tries to illuminate a decision or a set of decisions: why they were taken, how they were implemented and with which results. Research experts (Creswell, 2005; Patton, 1990; Yin, 2009:219) agree that it is important for the researcher to have a detailed research design in place.

3.5 RESEARCH METHODS

Case study as a research design comprises an all-encompassing method covering the logic of design, data collection techniques and specific approaches to data analysis (Yin, 2003). Another advantage is that a case study relies on multiple sources of evidence (Yin, 2009:14). The researcher collects detailed information using a variety of procedures (which in the present study comprised quantitative and qualitative data) over a sustained period (Merriam, 1998; Yin, 2003). This ensures that the issue is not explored through one lens but rather a variety of lenses which allows for multiple facets of the phenomenon to be revealed and understood (Baxter & Jack, 2008:544).

3.5.1 Research approach

I used a mixed-method research approach in this study to answer the research questions. Johnson and Onwuegbuzie (2004:17) define mixed-method research as:

the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study.

Mixed-method research thus entails a procedure of collecting, analysing and mixing/integrating both quantitative and qualitative data at some stage of the research process within a single study (Creswell & Plano Clark, 2011:54; Plano Clark & Creswell, 2008:21). When used in combination, quantitative and qualitative methods complement each other and provide an absolute picture of the research problem (Creswell & Plano Clark, 2011:26; De Vos *et al.*, 2011:434; Plano Clark & Creswell, 2008:164; Yin, 2009:63). The mixed-method research approach enabled me to address a range of confirmatory and explanatory questions with both the quantitative and qualitative approaches simultaneously and therefore to verify theory.

In addition, my study followed a sequential mixed-method approach, consisting of two distinct phases (Creswell & Plano Clark, 2007:81; De Vos *et al.*, 2011:441; Plano Clark & Creswell, 2008:180). In the explanatory sequential design, the quantitative (numeric) data are collected and analysed first, while the qualitative (text) data are collected and analysed second in sequence (Creswell & Plano Clark, 2011:82). Following up the quantitative results with a qualitative data collection helps to explain and elaborate on the quantitative results obtained in the first phase.

Figure 3.2 is a diagram depicting the mixed-method explanatory sequential research approach followed in this study.

Phase	Procedure	Product
Case selection	Purposeful selection	2012 FAC2602 students
Quantitative and qualitative data collection	Web-based questionnaire	Numeric and text data (first semester of 2012)
Quantitative and qualitative data analysis	Data screening Factor analysis Frequencies SPSS software Coding and thematic analysis Statistical analyses of examination results Atlas.ti software	Descriptive statistics Codes and themes
Qualitative data collection	Web-based questionnaire Documents Statistical analyses of examination results Personal journal	Text data (second semester of 2012)
Qualitative data analysis	Coding and thematic analysis Atlas.ti software	Codes and themes
Integration of quantitative and qualitative results	Interpretation and explanation of the quantitative and qualitative results	Discussion Implications Future research

Figure 3.2: Visual model of the mixed-methods explanatory sequential research approach followed in the study

(Author's own compilation)

Furthermore, I also gathered qualitative data (open-ended questions) from my first questionnaire (refer Appendix A). I then wanted to obtain an even deeper understanding of my participants' perceptions and experiences and therefore I used a second questionnaire (refer Appendix B), which contained only open-ended questions. A more comprehensive description of the questionnaires used in this study will be given in section 3.5.3.2.

The quantitative data obtained during the first phase of the research assisted me to confirm my own perceptions and provided me with a general picture of the research project, while the qualitative data and its analysis acquired during the second phase of the research refined and explained the phenomenon (of student retention and throughput) in more detail. The priority in this study was given to the qualitative approach (Creswell & Plano Clark, 2011:65; De Vos *et al.*, 2011:436), because the study focussed on the in-depth experiences and perceptions of the students regarding the use of mobile phones to assist with the teaching and learning of accounting. Qualitative data from multiple sources (such as web-based questionnaires, documents, statistical analyses of examination results and a personal journal) was collected, and the quantitative and qualitative phases were connected by making use of an explanatory sequential design (cf. Creswell & Plano Clark, 2011:82). The results of the quantitative and qualitative phases obtained from the FAC2602 students (the unit of analysis) are integrated during the discussion of the outcomes of the study (refer Chapters 4 and 5).

3.5.2 Unit of analysis

The unit of analysis or the participants of this study were the lecturer (the researcher) and my students registered for the FAC2602 module between 2006 and 2012.

The reasons for selecting this group of students as a case and purposeful sample were as follows:

- at the time of the study, I had been a lecturer on the FAC2602 module for more than 15 years, the content of the module was familiar to me and I was also aware of the problems the FAC2602 students often encountered during their studies;

- students registered for this second-year Accounting module (FAC2602) between 2006 (2nd semester) and 2012 (2nd semester) were selected as a purposeful unit of analysis (refer Table 3.2); and
- FAC2602 is a compulsory module for the BCompt degree and all the students enrolled for the degree were thus included in the sample.

As per Table 3.2, it is evident that the first mobile phone interventions (SMSes) commenced during the 2nd semester of 2006, MXit was included as from the 2nd semester of 2008, the CDs and podcasts as from the 1st semester of 2010, and the DVD was distributed to the students during the 2nd semester of 2011.

3.5.3 Data collection techniques

A hallmark of case study research is the use of multiple data sources, a strategy which also enhances data credibility (Patton, 1990; Yin, 2003). Case study research is unique compared to other qualitative approaches, as within case study research, researchers can collect and integrate quantitative survey data, which facilitates reaching a holistic understanding of the phenomenon being studied.

During the present study, the data was collected throughout the research project (refer Table 3.4). The sources of data for this particular study were: two questionnaires (refer Appendix A and B respectively), documentation (e-mails, discussion forums), statistical analyses of examination results and my personal journal. As an interpretive approach is characterised by taking human (student) interpretation as a starting point (Creswell & Plano Clark, 2011:65), the evidence provided by these data sources was converged and analysed to provide me with feedback from the participating FAC2602 students regarding their experiences and perceptions of the use of mobile phones in the teaching and learning in an Accounting module at Unisa, an ODL institution in South Africa. In addition, the retention and throughput rates of the FAC2602 students were also obtained from these examination files and the results of various analyses of this data will be included in Chapter 5.

Table 3.4: Link between unit of analysis, mobile phone interventions and data collection sources

Year	Semester	Number of registered students	Mobile phone intervention	Data collection sources
2006	2	2 679	SMSes	E-mails, discussion forum, personal journal, statistical analyses of examination results
2007	1	3 275	SMSes	E-mails, discussion forum, personal journal, statistical analyses of examination results
2007	2	2 963	SMSes	E-mails, discussion forum, personal journal, statistical analyses of examination results
2008	1	2 978	SMSes	E-mails, discussion forum, personal journal, statistical analyses of examination results
2008	2	3 056	SMSes, MXit	E-mails, discussion forum, personal journal, statistical analyses of examination results
2009	1	3 077	SMSes, MXit	SMSes, e-mails, discussion forum, personal journal, statistical analyses of examination results
2009	2	3 307	SMSes, MXit	SMSes, e-mails, discussion forum, personal journal, statistical analyses of examination results
2010	1	2 575	SMSes, MXit, podcasts, CDs	SMSes, e-mails, discussion forum, personal journal, statistical analyses of examination results
2010	2	3 220	SMSes, MXit, podcasts, CDs	SMSes, e-mails, discussion forum, personal journal, statistical analyses of examination results
2011	1	3 200	SMSes, MXit, podcasts, CDs	SMSes, e-mails, discussion forum, personal journal, statistical analyses of examination results
2011	2	2 655	SMSes, MXit, podcasts, CDs, DVD	SMSes, e-mails, discussion forum, personal journal, statistical analyses of examination results
2012	1	3 243	SMSes, MXit, podcasts, CDs, DVD	SMSes, e-mails, discussion forum, personal journal, statistical analyses of examination results Questionnaire 1
2012	2	2 732	SMSes, MXit, podcasts, CDs, DVD	SMSes, e-mails, discussion forum, personal journal, statistical analyses of examination results, pilot study, Questionnaire 2

(Author's own compilation)

3.5.3.1 Pilot study

Two colleagues in the Department of Financial Accounting as well as my supervisor assessed and evaluated the questionnaires that were developed for this study before I administered the questionnaires. In addition, the clarity of the second questionnaire (refer section 3.5.3.2) that was developed, was also checked with a pilot study. The pilot study was conducted in November 2012 using five FAC2602 students. I considered these students well informed for the purpose of the pilot study. I selected these students purposively as I had various e-mail contacts with them during the second semester of 2012.

There was a 100% return rate for the questionnaire in respect of the pilot study. All the items appeared to be in order. The questionnaire was then made available to the other registered FAC2602 students on 22 November 2012.

3.5.3.2 Questionnaires

Questionnaires are frequently used to collect personal information and to obtain data for specific purposes (Creswell & Plano Clark, 2011:186). Babbie (2007:246) defines a questionnaire as “a document containing questions and or other types of items designed to solicit information appropriate for analysis”. In addition, a questionnaire may also contain as many statements as questions if the researcher is interested in determining the extent to which the respondents hold a particular attitude or perspective (Babbie & Mouton, 2001:233). Thus, the objective of a questionnaire is to obtain facts and opinions about a phenomenon from people who are informed about the particular issue (De Vos *et al.*, 2011:186).

The fact that I had more than 2 000 registered students per semester and the vast distances between the FAC2602 students and myself made interviews and focus group research inappropriate as I could not interview every student. If I used interviews and focus groups as data collection tools in the study I would have targeted a small number of students. I tried my best to include all my students in my mobile phone project, so I wanted each one to have an opportunity to share his or her perceptions and experiences with me and the only way that I could achieve this was by making use of among other things on-line questionnaires which I posted on *myUnisa*, an on-line student academic portal.

Grinell and Unrau (2008:298) propose three main types of electronic questionnaires, namely the e-mail survey, the web-based survey and, lastly, the computerised interactive voice response. In the present study, I made use of two web-based questionnaires (refer Appendix A and B). Questionnaire 1 (Students' perceptions on the use of technologies at Unisa) was made available to students between 2 June 2012 and 6 August 2012, and Questionnaire 2 (Students' perceptions on the use of mobile phones to lessen transactional distance and increase didactic conversation) was available on *myUnisa* between 22 November 2012 and 22 December 2012. The questionnaires were developed considering the factors influencing the success and failure of DE students, as identified by previous research (refer section 2.4). The questionnaires were posted on the *myUnisa* internet site; thus, all the participants had access to the questionnaires. Questionnaire 1 (refer Appendix A) contained 47 questions, including various Likert-type items and five open-ended items, entailing that I received both quantitative and qualitative responses. The first eight questions covered demographic information, and the balance of the questions focussed on the use of technology in the FAC2602 module. The open-ended questions invited qualitative responses with regard to participants' perceptions on the use of technologies as teaching and learning tools at Unisa.

There were four open-ended questions in Questionnaire 1, and these questions are reflected in Table 3.5. Participants' feedback on these four questions provided me with their experiences and perceptions on the use of mobile phones to lessen the transactional distance and to increase didactic conversation.

Table 3.5: Open-ended questions in Questionnaire 1

Questions
Q18a – What is your opinion on the use of technologies such as e-mail and podcasts as teaching and learning tools at Unisa?
Q41 – What are your perceptions with regard to the use of technologies in the FAC2602 module?
Q43 – What would you change with regard to the use of technologies at Unisa?
Q44 – What are your perceptions on the use of social media (Facebook, Twitter, BBM, WhatsApp and MXit) in academic support?

Data gathered from the first questionnaire assisted me to confirm my perceptions at that point. The feedback also assisted me to develop an additional questionnaire for use during the second semester of 2012 that could provide me with in-depth feedback regarding the perceptions and experiences of the FAC2602 module after mobile phones had been used to assist with teaching and learning in the module.

Questionnaire 2 (which was piloted – refer 3.5.3.1) contained 11 open-ended questions (refer Appendix B). These 11 questions were derived from the two theories of Holmberg (1982) and Moore (1973) and the research questions (refer Table 1.3). The link between the theories and the research questions is explained in Table 3.6.

Table 3.6: Link between research questions and questions included in Questionnaire 2

To which extent does the application of mobile phones in the FAC2602 module at Unisa improve the didactic conversation, lessen the transactional distance and increase the retention and throughput of these students?	
Research questions	Corresponding question in Questionnaire 2
1. Support two-way conversation?	Q2 – Mobile and social media technologies include podcasts as well as MXit, WhatsApp, Twitter and Facebook. In your opinion, which role can these play in a module with special reference to two-way conversation between a student and a lecturer?
2. Resolving learning problems?	Q3 – Mobile and social media technologies include podcasts as well as MXit, WhatsApp, Twitter and Facebook. In your opinion, which role can these play in a module with special reference to solving students' learning problems?
3. Presentation of study material?	Q1 – Mobile phones were used in the FAC2602 module to send/receive SMSes, to download/listen to podcasts and to communicate (e.g. phone calls, MXit, Twitter and Facebook). What are/were your perceptions on the use of mobile phones in the FAC2602 module at Unisa?
4. Giving advice and making suggestions?	Q4 – Mobile and social media technologies include podcasts as well as MXit, WhatsApp, Twitter and Facebook. In your opinion, which role can these play in a module with special reference to advice and suggestions within the student–lecturer relationship?
5. Exchanging views?	Q6 – As you reflect back on the FAC2602 module, how did mobile phones assist with the communication between student and lecturer?
6. Involving emotionally?	Q5 – From your perspective, how can the use of mobile phones involve students emotionally?
7. Accommodate a personal conversation style?	Q7 – In your view, how did the use of mobile phones in the FAC2602 module take your personal communication style into consideration?

The last four questions included in Questionnaire 2 required general feedback on the use of mobile phones in the FAC2602 module and at Unisa, and are included in Table 3.7. The questions were structured to provide me with the participants' perceptions and experiences of mobile phones to assist with lessening transactional distance and increasing didactic conversation.

Table 3.7: General questions included in Questionnaire 2

Questions
Q8 – How did the various mobile phone functions in the FAC2602 module help with your studies?
Q9 – Which of the mobile phone and social media technologies (e.g. podcasts, SMSes, Mxit, Twitter and Facebook) used in the FAC2602 module had the greatest effect on your studies? Why?
Q10 – In your opinion, how should lecturers use mobile phones in future to assist FAC2602 students?
Q11 – Would you recommend the use of mobile phones in other modules at Unisa? Please elaborate.

For both Questionnaire 1 and Questionnaire 2, Unisa's IT staff assisted me to download the responses from the web-page surveys into an Excel document. I used the statistical package SPSS to analyse the quantitative data and Atlas.ti for the qualitative data. The data analysis process will be explained in more detail in section 3.5.5. Results from the two questionnaires were analysed and will be discussed in Chapters 5 and 6 hereafter.

3.5.3.3 Documents

Yin (2003) states that documents or documentary information is likely to be relevant to every case study topic. In the present study, data sources were e-mail correspondence and discussion forums. Documentation as a data source, can provide specific details to substantiate information from other sources (Yin, 2003:85). As I started with some of the mobile phone interventions in 2006 already, e-mails received by myself, in respect of student experiences and perceptions on the use of the mobile phones, were printed and kept in a file. The same applied to posts on the FAC2602 discussion forum on *myUnisa*. Throughout the collection period, students were aware of the fact that the discussion information might form part of my study.

These documents were linked to the research questions and theoretical propositions, and will also be included in Chapters 4 and 5.

3.5.3.4 Statistical analyses of examination results

The usefulness of records can vary from one case study to the next. For some studies, records can be so important that they become the object of intensive quantitative analysis. In other studies, records may only be of passing relevance (Yin, 2003:89). Statistical analyses of examination results of the FAC2602 module from 2006 to 2012, which provided another valuable data source, were obtained from the FAC2602 examination files. The data were quantitative as the data consisted mainly of student numbers, retention rates and examination results.

3.5.3.5 Personal journal

Data collection in this study was unavoidably influenced by my own assumptions and values. I had to acknowledge my bias openly during the research process, and I also had to contemplate how these might have affected what I did, which data I collected and how I interpreted the results (Leedy & Ormrod, 2010:2). I kept a personal journal throughout the study (2006 to 2012) in which I documented my own reflections in order to consider these later and to detect any biases that I might have had. In addition, I also used the journal to plan intervention content, actions and dates per semester (refer Chapter 4 for more detail). My impressions and experiences (both positive and negative) on the mobile phone interventions, feedback I received verbally from students and the extent to which these influenced the study, were also captured. Entries of this personal journal will be included in both Chapters 4 and 5 where relevant and appropriate.

3.5.4 Reliability and validity of data

As mentioned previously, the mixed-method approach used in this study also comprised qualitative data analysis. A critical issue with qualitative research is to determine the reliability and transparency of results to ensure the findings can be trusted (Carson, Gilmore, Perry & Gronhaig, 2001). Yin (2003) argues that results from a case study design should be trustworthy, credible, confirmable and dependable. He proposes adhering to a case study protocol (Yin, 2009:45), and the

use of a case study database will facilitate reliability (Yin, 2009:41). According to Yin (2009), there are three objectives for building the reliability and trustworthiness of a qualitative study. The first objective deals with transparency. This requires the researcher to explain and document the research events so that other people can examine them. This examination can result in criticism, support or changes, but others should be able to undertake a similar check (De Vos *et al.*, 2011:422; Lincoln & Guba, 1999). The second objective refers to the methodological steps of the research. This entails allowing enough freedom for new findings, unforeseen events and cross checking of procedures and data (De Vos *et al.*, 2011:421; Yin, 2009). The final objective is that qualitative research should be based on an explicit set of evidence (De Vos *et al.*, 2011:423; Yin, 2009).

In this study, the quality of the data was improved by the researcher being methodical and maintaining quality control over the analysis procedures (cf. Creswell & Plano Clark, 2011:179). Transparency was achieved by using schematic layouts of the research process throughout the thesis (cf. Creswell & Plano Clark, 2011:108). The mobile phone interventions will be explained in detail in Chapter 4, and the feedback from students will be included in the thesis where appropriate. The methodological steps followed in this study are also explained thoroughly in Chapters 3 and 4. Thus, the set of evidence that forms part of this study is accessible to the reader.

The data collected in this case study was measured against the original theory surrounding the reasons for retention and effective methods for retention as outlined by research. Therefore, the findings of this study support the theories presented in cases similar to this one (Gatsha, 2010; Koen, 2007; Wetzel, O'Toole & Peterson, 1999). Given the nature of qualitative research, the objective was not to generalise (cf. Creswell & Plano Clark, 2011:174). Yin (2003) argues that, for single case studies, the possibilities to generalise arise primarily from methodological rigour (analytical generalisation) with generalisations being made to theory rather than to populations. Despite the nature of the present study, the findings arising from this case study may be generalised both to prior theory (Yin, 2003) and to other ODL institutions that are looking for ways to use mobile phones in ODL courses.

3.5.5 Data analysis

Data analysis involves making sense of the data collected (cf. Creswell & Plano Clark, 2011:205; De Vos *et al.*, 2011:248). Data analysis involves sifting data to determine individual responses and then putting the results and findings together, representing it in tables and figures as well as drawing conclusions from it. Data analysis requires one to explain the conclusions drawn in words that provide answers to the research questions (Creswell, 2005).

In the present study, I used both quantitative and qualitative data. The qualitative data complemented the quantitative data (cf. Creswell & Plano Clark, 2011:81).

3.5.5.1 Quantitative data analysis

A relevant statistical software package, SPSS, was used to interpret the quantitative data. In Chapter 5, the data is presented in the form of percentages, frequencies, descriptive statistics, bar charts and diagrams to verify data and to draw conclusions. All identifying information was removed from the records to protect the identity of the participants.

3.5.5.2 Qualitative data analysis

Qualitative data analysis involves the non-numerical organisation of data in order to discover patterns and themes in the open-ended questions and documents (De Vos *et al.*, 2011:404). As in any other qualitative study, the data collection and analysis in the present study occurred concurrently. The type of analysis engaged depends on the type of case study (Yin, 2009:18). Yin (2003) briefly describes five techniques for analysis: pattern matching, linking data to propositions, explanation building, time-series analysis, logic models and cross-case synthesis. The data from the present case study was analysed using the explanation building technique (cf. Yin, 2009). This was perfect for an explanatory single-case study as the present study started without an open-ended research question (refer section 1.5) and the data collected during the study assisted me to build an explanation for the findings (refer Chapters 5 and 6).

The goal of the present study was to analyse the case study data by building an explanation about the case (Yin, 2003:120). The review of literature outlined several

theoretical propositions regarding the reasons for student retention and throughput as well as incorporation of technologies to assist them with their studies. The data from the open-ended questions and the other documents were analysed qualitatively using Atlas.ti. I read through the available data several times, reflecting on the meanings. There were a total of 287 primary documents (questionnaires, e-mails and discussion forum comments). All the primary documents can be viewed on the CD included at the back of this thesis. I then developed 366 codes using exact words in the primary documents or words that were appropriate in describing what the students meant. Grinnell and Unrau (2005:410) refer to this primary task as “first-level coding”, identifying and labelling relevant categories and applying these codes to the data.

Yin (2003) notes that one important practice during the analysis phase of any case study is the return to the propositions. There are several reasons for this:

- this practice leads to a focussed analysis when the temptation is to analyse data that is outside the scope of the research questions;
- exploring rival propositions is an attempt to provide an alternative explanation of a phenomenon; and
- engaging in this iterative process, the confidence in the findings is increased as the number of propositions and rival propositions addressed are accepted or rejected.

I therefore sought links between the data and the research questions. I regrouped the data I had coded into 25 families or themes, for example communication, conversation style, advice and suggestions, presentation of study material, and invitation to exchange views. Yin (2003) contends that once the data had been compared to the theoretical propositions, the codes and families may be revised. I constantly referred to the original purpose of the inquiry and the possible alternative explanations. Data was also analysed in direct relationship to the research questions. I then repeated the process of coding using Atlas.ti. After completing the coding process, I asked an independent coder at Unisa, from a different subject field, to review and evaluate my interpretation, understanding and coding process.

The results of the qualitative data analysis provided insight into the perceptions and experiences of the participating FAC2602 students on the use of mobile phones. The feedback and results are included in Chapters 4 and 5, and a copy of the Atlas.ti coding is included on the CD at the back of this thesis for further perusal.

As explained earlier, I made use of SPSS, a statistical software package, and Atlas.ti, a software package that can assist with coding and analysis of qualitative data. Throughout the data analysis processes, I regularly consulted with peers and experts in the data analysis field to evaluate my procedures. The final products were also compiled with their input and expertise to extract the most suitable graphics and diagrams.

Referring back to the key concepts related to research design as explained earlier in section 3.3, I can now update Table 3.2 to Table 3.8.

Table 3.8: Key concepts related to research design and this study

Key concepts	Questions to answer	Related to this study
Ontology	What is out there to know?	Multiple realities were constructed by individuals. Considering the theories of Holmberg (1982) and Moore (1973) to assist with teaching and learning, the participating FAC2602 students experienced and perceived the use of mobile phones in the module differently.
Epistemology	What and how can we know about it?	As the FAC2602 students and I were interactively linked in this case study, the answers to the research question were created as the study proceeded. The participating students provided me with their views and this helped to develop knowledge to these phenomena through a process of interpretation of their experiences and perceptions.
Methodology	How can we go about acquiring that knowledge?	Single-case study research design
Methods	Which precise procedures can we use to acquire it?	Mixed-method explanatory sequential research approach made use of multiple data sources
Sources	Which data can we collect	Two questionnaires, documents, statistical analyses of examination results and a personal journal

(Adapted from Hay, 2002:64)

3.6 LIMITATIONS AND STRENGTHS OF THE RESEARCH DESIGN – OWN REFLECTIONS

The participants in this research were Financial Accounting students who at that stage lived in South Africa, Africa and various other countries. From the 328 864 students registered at Unisa in 2011, 91.5% were from South Africa, 7.9% from Africa and the balance of 0.6% from the rest of the world (DISA, 2012). Although this study intended to reach every registered FAC2602 student in 2012 with the mobile phone intervention, there was no guarantee that this had been achieved. There was also no guarantee that every student had an opportunity to provide me with his or her views, experiences and perceptions. It is often true that case study research does not provide scientific generalisations to a population or universes, but case studies are generalisable to theoretical propositions (Yin, 2003:10). My intention was not to generalise; hence, I have provided a description of the participants of this study in section 3.5.2.

Although I enjoyed the study tremendously, the nature of the research has indeed been time-consuming. Extensive time was spent in 2013 and 2014 to capture and analyse the data and to complete the thesis. During data collection and analysis, I was aware of the possible limitations due to my bias emanating from my experiences as a DE student myself and as a DE lecturer. As the lecturer on the FAC2602 module at a DE/ODL institution in South Africa I have my own beliefs on student support as I have experienced student support (or the lack thereof) in the past in various capacities.

The study was also characterised by some strengths. The fact that the study focussed on student support, in a large institution in South Africa, where students often have limited internet access, meant that the outcomes of this study can be utilised by various other facilitators at Unisa, in South Africa, on the African continent and even worldwide where internet access also creates challenges with on-line student support.

3.7 ETHICAL CONSIDERATIONS

As human beings were the objects of this study, mutual trust, acceptance and cooperation between all parties involved were extremely important. Ethical issues are pervasive, as data may never be obtained and used at the expense of human rights (De Vos *et al.*, 2011; 116). It is thus of the utmost importance that research should bring no harm to its participants (Babbie, 2007:27). Participation should also be voluntary at all times and no one should be forced to be part of the study (Rubin & Babbie, 2005:71). Obtaining informed consent from participants implies that they will be informed about the goal of the research, the expected duration of their involvement, and the possible advantages of the project (Yin, 2009:73). The researcher may never deceive the participants by deliberately withholding information from them, there must be no violation of their privacy and they must be informed with regard to them receiving compensation (if any) (De Vos *et al.*, 2011:116–121). The participants must also realise that the findings of the research will be made available to the reading public in written form (De Vos *et al.*, 2011:126).

At all times during my research project, I was aware of my position as the lecturer on the FAC2602 module. Before I began any data collection processes, I informed all my students with regard to their confidentiality and anonymity. Consent letters (refer Appendix A and B) were also displayed on-line at the beginning of the web-based questionnaires and the students had to agree to be part of the study before they could commence answering the questions. I indicated to them that no traceable identification methods would be used during data collection and I ensured them that no participants would be adversely affected in any way. I also pointed out that their feedback could assist other FAC2602 students in future to be more successful in their studies. Finally, I indicated to the students that I would use the data collected for my own doctoral studies. I therefore endeavoured to adhere to widely accepted ethical considerations (cf. De Vos *et al.*, 2011:115) for social science research such as voluntary participation, informed consent, safety of participation, privacy, confidentiality, anonymity, trust and withdrawal of participants at any stage of the research project. In addition, ethical clearance for this research project was also formally obtained from Unisa (refer Appendix C).

This research adhered to the professional standards of conduct known to educators (cf. De Vos *et al.*, 2011:25). I did not coerce responses from participants. All data collected were factual and in its original form. I did not in any way impose upon formal instructional time of the respondents. Names and personal information were deleted from documents and other records, and identities were coded when documenting responses as well as other documents.

3.8 CHAPTER CONCLUSION

Chapter 3 described the research design and methods, which were followed in this research study. This explanatory sequential mixed-method single-case study utilised the theoretical framework of Holmberg's theory of didactic conversation (1982) and Moore's theory of transactional distance (1973) to understand the low retention and throughput rates of the FAC2602 students at Unisa. The motivation for collecting the quantitative data from a questionnaire and statistical analyses of examination results was to complement the qualitative data collection methods. Following this, the limitations and the strengths of the study were described and the ethical considerations pertaining to this research were presented.

The next chapter, Chapter 4, will describe in detail how the mobile phone intervention project was undertaken in the FAC2602 module to facilitate quality didactic conversations to lessen the transactional distance between the students and the lecturer. In Chapter 5, the findings of the research project based on the evidence of the data collected using the research design and methods described and justified in Chapter 3, will be presented.

CHAPTER 4

MOBILE PHONE INTERVENTION PROJECT

“Instruction does much; but encouragement everything”
(Johann Wolfgang von Goethe, 2011:online)

4.1 INTRODUCTION

In the previous chapter, the research design and methods for this study were described. This chapter will explain in detail how the research project unfolded as the mobile phone intervention project was put into action to increase the didactic conversation between the lecturer (the researcher) and the FAC2602 students to lessen the transactional distance, and by doing so to assist with the improvement of retention and throughput of these students. The chapter describes the various mobile phone interventions and provides qualitative reflections by both the researcher and the students who participated in this intervention.

As previously emphasised, three mobile phone interventions were considered for this study in 2006, namely SMSes, Mxit and podcasts. Thorough planning was needed before each intervention could be implemented. Keeping in mind that students register for the FAC2602 module twice a year, January and July respectively, meant that mobile phone interventions had to be designed and ready for implementation at the beginning of every semester. Another consideration was the content of the module. Most often, there are changes in the Accounting syllabus that have to be incorporated in the wording of and/or script for the SMSes and the podcasts/CDs.

As explained previously in Table 3.4, the SMS project commenced in 2006, the Mxit intervention in 2008, while the podcasts were only ready for uploading on myUnisa in 2010. The SMS and Mxit interventions were thus incorporated into the FAC2602 module from 2006 to 2012, while the podcasts and CDs were only included from 2010 to 2012. The reason for producing a DVD in addition to the mobile phone intervention will become evident in this chapter.

All the relevant steps applicable to the planning and the implementation of every mobile phone intervention will be discussed in this chapter and reference to the Universal Instructional Design (UID) (Elias, 2011) principles for mobile learning in DE will also be included. A visual presentation of Chapter 4 is provided in Figure 4.1.

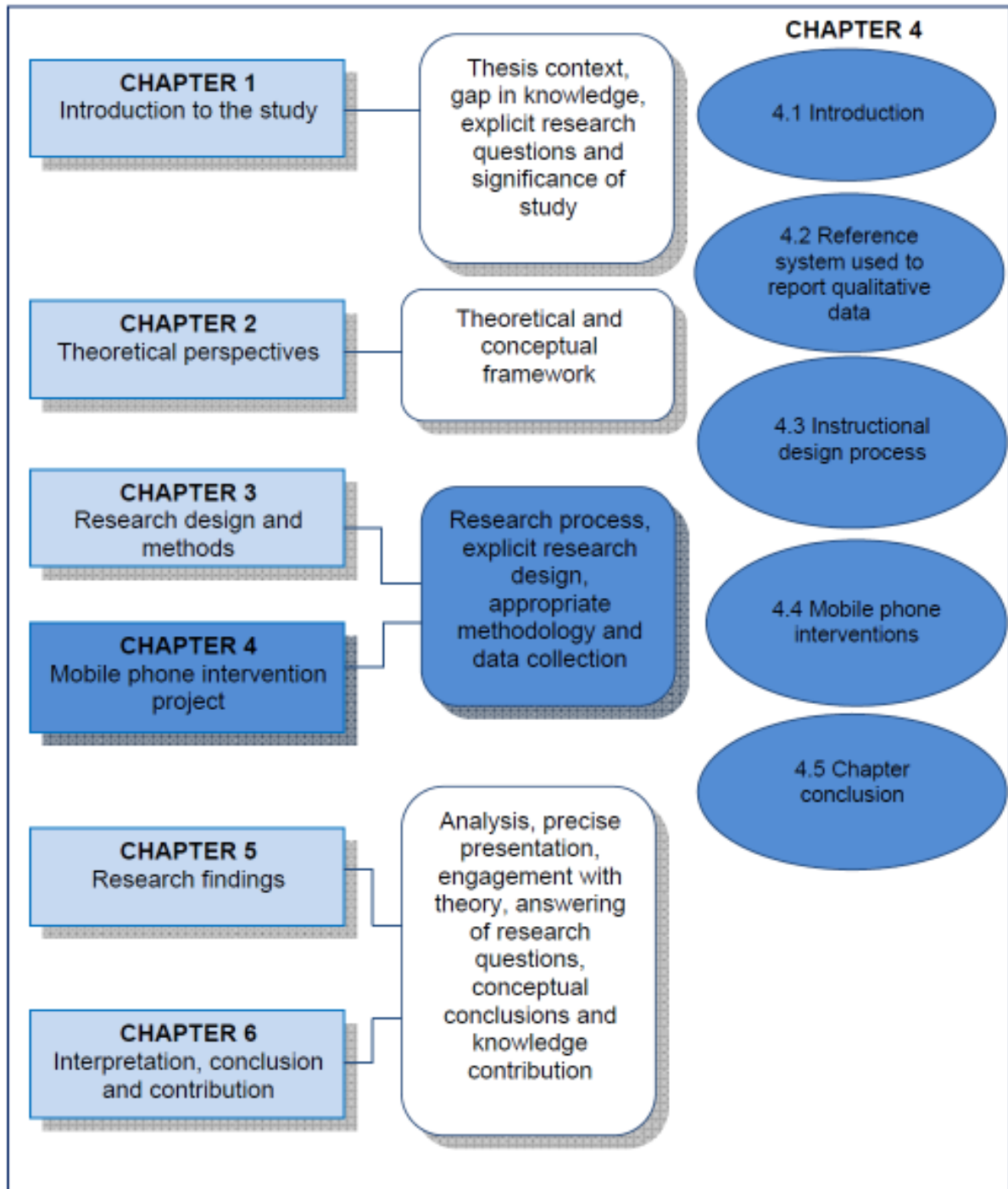


Figure 4.1: Structure of Chapter 4

Compiled after considering the components of doctorateness identified by Trafford and Leshem (2008)

4.2 REFERENCE SYSTEM USED TO REPORT QUALITATIVE DATA

Although the majority of the findings from this research project will be incorporated into Chapter 5, some of the participants' feedback is already incorporated into this chapter. Table 4.1 indicates the reference system that will be used in this study to report on qualitative findings.

Table 4.1: Reference system used to report on qualitative findings

Example:	P83: Q1.328
Where P83 represents the primary document number	
Where Q1 represents the type of primary document	
Where 328 represents the number allocated to the participant	

(Adapted from Friese, 2014:172)

The qualitative data was represented by a total of 287 primary documents (P1 to P287). Table 4.2 indicates the type of primary documents included in this study, the reference used when referring to these documents and well as the year in which the documents were obtained.

Table 4.2: Primary documents used in this study

Primary document	Abbreviation to be used	Date collected
Discussion forum feedback	DF	2006–2012
E-mails from students	E-mail	2006–2012
Questionnaire 1	Q1	2012
Pilot study Questionnaire 2	QS PS	2012
Questionnaire 2	Q2	2012
SMSes received	SMS	2006–2012

(Author's own compilation)

The extracts from the participating FAC2602 students' feedback are given as verbatim quotes and the grammar, punctuation and spelling errors have not been corrected. The students were informed that their feedback would be used as part of the study, and they all gave their consent (also refer to section 3.7).

4.3 INSTRUCTIONAL DESIGN PROCESS

As this study focussed on the use of mobile phones in a DE Accounting module, the UID principles (Elias, 2011) for mobile learning, which were developed to build flexibility of use into both the instructional design and the operating function, were considered. The UID principles are appropriate and useable to the widest range of students (Burgstahler, 2012; Connell *et al.*, 1997; Scott, McGuire & Shaw, 2003:369). Tanya Elias (2011:143) adapted these UID principles for mobile learning to make them more appropriate to DE environments. This study therefore followed the UID principles for DE mobile learning, disclosed in Table 4.3, as suggested by Elias.

Table 4.3: Universal instructional design (UID) principles for DE mobile learning

UID principles	DE mobile learning recommendations
Equitable use	<ul style="list-style-type: none"> – Deliver content in the simplest possible format – Use cloud-computing file storage and sharing sites
Flexible use	<ul style="list-style-type: none"> – Package content in small chunks – Consider unconventional assignment options – Leave it to students to illustrate and animate courses
Simple and intuitive	<ul style="list-style-type: none"> – Keep code simple – Use open-source software
Tolerance for error	<ul style="list-style-type: none"> – Scaffold and support situated learning methods
Low physical and technical effort	<ul style="list-style-type: none"> – Use available SMS readers and other mobile-specific assistive technologies
Community of students and support	<ul style="list-style-type: none"> – Encourage multiple methods of communication – Group students according to technological access and/or preferences
Instructional climate	<ul style="list-style-type: none"> – Push regular reminders, quizzes and questions to students – Pull in student-generated content

(Adapted from Elias, 2011:148)

Although Elias' DE mobile learning UID principles focus especially on a comprehensive design, which allows for all educational materials to be delivered to students via a mobile device, I still considered these principles appropriate to my study as the UID principles and recommendations were consistently in line with the aims of my study. In the next sections, I will discuss the seven UID principles as they

are explained by Elias (2011:147), and give details regarding their relevance to this study.

4.3.1 Equitable use

The first UID principle is equitable use, which emphasises that the course content must be useful and available to all students, even those with different abilities and in unlike locations (Elias, 2010:1). The content must also be accessible in such a format that it caters for the different categories of devices. Although some mobile learning projects have overcome the problem of different categories of mobile devices by distributing a specific mobile device to students (Bradley, Haynes, Cook, Boyle & Smith, 2009), this was never my intention in this study. The reason being, firstly, that if students make use of their own mobile phones they would be familiar with the features of the device (Herrington, Herrington & Mantei, 2009) and secondly, they would prefer to learn on their own mobile phones (Bradley *et al.*, 2009). In addition, mobile phones are relatively cheap and are becoming increasingly powerful (Kukulska-Hulme, 2005:1).

To overcome the possible problems of students having different types of mobile devices, I had to consider using the content in the simplest possible format. Mitchell (2002:online) identifies the “simplicity of use, relatively low cost and the asynchronous nature” of SMSes as part of its exceptional success. In addition, Issham, Rozhan and Siti (2010:10) found that students accept SMS learning because of it being “safe, easy, effective and usable to help them in their studies”.

Another concern was the small storage capacity of most mobile phones. In a study conducted at a South African high school, only 33% of the learners had access to mobile phones with a substantial internal and flash-card memory (Kreutzer, 2009). This resulted in these learners regularly deleting some of the older content on their phones to make room for the new material. Elias (2011:149) recommends the use of external storage sites such as cloud-computing to solve the problem. However, the quality and availability of smartphones in South Africa (refer sections 2.6.1 and 2.6.4) may assist to alleviate problems currently encountered by mobile phone users.

As my study focussed especially on SMS notifications, I did not anticipate the size of the SMSes to be a problem. However, I was worried that the storage capacity the

podcasts would occupy could create a problem. To overcome this problem, I decided to supply every student, when they registered for the FAC2602 module, with three CDs, which had all the podcast tracks on them. A student could thus either download the podcasts from the *myUnisa* site to their mobile phones/devices or, instead, they could make use of the three CDs. As internet access and slow download speeds might also have been a constricting factor to some students, supplying students with the CDs solved this problem.

4.3.2 Flexible use

According to the second UID principle for mobile learning, the course design had to accommodate a variety of individual abilities, preferences, schedules, levels of connectivity and choices of methods of use (Elias, 2010:4). SMSes offer fast transmission of information to students who do not have access to a computer or a classroom.

The first option (applicable to this study), which allowed for flexible use was identified by Bradley *et al.* (2009:281) who packaged the content of the learning material in small bits/chunks and spread the text over several screens. This was necessary as the SMS system with its 160-character limit requires content to be brief. A second option was to investigate unique ways to use the multimedia features on these devices to compensate for the hardware shortcomings (Elias, 2011). Finally, facilitators could also leave it to students to find a way to make contact with the facilitator. This can include video clips and SMSes from the student to the facilitator (Elias, 2011:150). The second and third options were never considered during this study as I wanted the interventions to be uncomplicated, and thus short SMSes were the answer.

Mobile learning has the potential to bring the learning out of the classroom (lessen the transactional distance) to the remote student (Elias, 2011:150), and this was precisely what I intended to do with my mobile phone interventions.

4.3.3 Simple and intuitive

The third UID principle refers to simple and intuitive content. Elias (2010:5) is of the opinion that unnecessary complexity should be eliminated and the course content

design must be simple and intuitive. SMSes remain the simplest mobile delivery system, but to share other multimedia content would require access to multimedia messaging systems (MMS).

In the present study, the best option was to keep students' interfaces simple by ensuring they contained only information that could fit on a small mobile phone screen. The code had to be kept simple, as this had to help to minimise the file size and increase the download speeds. The last possibility was to make use of open-source products that were already available on the internet (Elias, 2011:151).

I never considered using mobile phones to supply students with full module content, except for the content on the podcasts. Keeping my SMSes short had to ensure the content of the SMSes was displayed correctly on the students' mobile phones.

4.3.4 Tolerance for error

According to the fourth UID principle, students (and facilitators) should be allowed to edit their posts. Errors in software operations should also be tolerated. As students may sometimes access their course materials via their mobile devices, it is important to supply them with just-in-time training and support as and when required (Elias, 2011:151).

As most (if not all) students are familiar with mobile phones and their functions, I did not anticipate any problems with regard to the SMSes. The problems students might have had with the download of podcasts from *myUnisa* were solved by Unisa supplying them with the three CDs. Regarding the use of MXit, I was of the opinion that supplying students with the basic MXit registration detail in an SMS would assist them to register on-line at <http://get.mxit.com/>.

4.3.5 Low physical and technical effort

The fifth UID principle emphasises that mobile learning must be developed to require only a low technical and physical effort. Answering long essay-type test questions on a mobile device would be tedious and perhaps even impossible. SMS reader software is freely available to students who are visually impaired, who are auditory impaired or who are studying while driving (Elias, 2011:152).

The present study never envisioned to make use of high technical devices and functions. As highlighted in section 1.3.2, I wanted to make the learning experience accessible, affordable and beneficial to all the FAC2602 students.

4.3.6 Community of students and support

According to the sixth UID principle, student support should be facilitated through the development of groups and support from appropriate tools and thus students should be encouraged to use a variety of communication tools (SMSes, e-mail and instant messaging). Students may also be grouped together along these lines (SMS group, e-mail group and instant messaging group) as this will reduce students' sense of 'missing out' (Elias, 2011:152).

The discussion forum on *myUnisa* fulfils this role as students can air their views on the forum, leave their contact details and form study groups with other students in their area. It was also interesting to note from participants' feedback, that students actually did form study groups through BBM, Mxit and WhatsApp:

I found BBM very useful, and also found the group to be inspiring and supportive (P48: Q1.284).

Well the blackberry messaging is quite helpful especially with interaction with other students (P83: Q1.328).

I created 5 bbm groups for my modules this semester; I lead 150 students and found that it helped me a great deal (P92: Q1.339).

It so much helpful, since it really makes it easier for us to communicate with lecturers and our fellow students, whom are in the same modules (P196: Q1.462).

MyUnisa discussion forum is good. You can create your own study group from there if you want to (P42: Q1.277).

MyUnisa discussion board was a great help, easy to access from any mobile phone device/Smartphone (P226: Q2.30).

It was already evident from the aforementioned feedback that the participating FAC2602 students found the 'community of students and support' helpful to lessen the transactional distance they so often experience as the didactic conversation was more evident.

4.3.7 Instructional climate

The seventh UID principle focusses on the facilitators' influence in mobile learning course delivery as opposed to course design. Facilitators can send regular SMSes to interact with students in various ways and these can include reminders, requests, quizzes and questions (Ramos & Triñona, 2010). As facilitators push content to students, they can continuously pull in student-generated content (SMSes, e-mail and instant messaging) from students. This will foster an inclusive environment that supports learning, which is valued by students (Elias, 2011:152).

Relating to the mobile phone functions used in this study, Table 4.3 is updated as Table 4.4 to indicate the possible solutions as it relates to this study.

Table 4.4: UID principles for DE mobile learning and the application in this study

UID principles	DE mobile learning recommendations	Application in this study
Equitable use	<ul style="list-style-type: none"> • Deliver content in the simplest possible format • Use cloud-computing file storage and sharing sites 	<ul style="list-style-type: none"> • SMSes, MXit, podcasts, printed tutorial letter • CDs with podcast tracks
Flexible use	<ul style="list-style-type: none"> • Package content in small chunks • Consider unconventional assignment options • Leave it to students to illustrate and animate courses 	<ul style="list-style-type: none"> • One SMS weekly • Various podcast tracks • MXit communication • Podcasts and tutorial letter • SMSes from students to lecturer
Simple and intuitive	<ul style="list-style-type: none"> • Keep code simple • Use open-source software 	<ul style="list-style-type: none"> • Short 160-character SMS to students • Podcasts and tutorial letter
Tolerance for error	<ul style="list-style-type: none"> • Scaffold and support-situated learning methods 	<ul style="list-style-type: none"> • Make sure SMS and podcast content is correct • Provide students with information regarding use of SMS, MXit and podcasts

UID principles	DE mobile learning recommendations	Application in this study
Low physical and technical effort	<ul style="list-style-type: none"> • Use available SMS readers and other mobile-specific assistive technologies 	<ul style="list-style-type: none"> • SMS function is available on all phones • Students can download podcasts or use CDs
Community of students and support	<ul style="list-style-type: none"> • Encourage multiple methods of communication • Group students according to technological access and/or preferences 	<ul style="list-style-type: none"> • Used different types of SMSes, MXit, e-mails, discussion forums and podcasts • Students can decide which communication tool they prefer to use
Instructional climate	<ul style="list-style-type: none"> • Push regular reminders, quizzes and questions to students • Pull in student-generated content 	<ul style="list-style-type: none"> • Weekly SMS to students with different content • Include questions to students in podcasts • SMSes, e-mails, discussion forums, MXit communication from students

(Author's own compilation)

It is evident from the above that the application of mobile phones in this study incorporated all the UID principles in a unique way relevant to the context of the study and the content of the Accounting module to assist with didactic conversation and to lessen the transactional distance.

4.4 MOBILE PHONE INTERVENTIONS

The three mobile phone interventions related to this study, namely SMSes, MXit and podcasts, are explained in detail in the following three sections. Qualitative feedback from the participating FAC2602 students as well as notes from my personal diary will be included as well.

4.4.1 SMS interventions

In 2006, the first mobile phone intervention commenced by using SMSes to communicate (increasing didactic conversation) with the FAC2602 students on a weekly basis.

4.4.1.1 SMSes to students

The SMS-to-student intervention was aimed at giving advice and making suggestions to students by providing information related to their studies. Another objective was to incorporate a more personal conversation style between the lecturer and the students and to involve the students emotionally (to encourage and motivate them).

4.4.1.1.1 Planning phase

The FAC2602 module is a semester module, and a semester generally runs over 15 weeks (from close of registration to the start of the examination period). The SMSes were compiled by taking the total pages of the FAC2602 study guide (thus indirectly the course content) and dividing the total number of pages by 15. However, the difficulty level of the topics, the number of pages per topic and the assignment due dates were also considered when these SMSes were compiled, which resulted in a total of 12 SMSes per semester (refer Table 4.5). SMS language (ubiquitous abbreviations and limited punctuation) (refer Table 4.7) was used to compile the SMSes and because of a limitation on the number of characters per SMS, only 160 characters or fewer were used per SMS. The SMSes were sent to students (always including the FAC2602 code) on a Monday morning to inform the students which section of the study material they had to cover during the particular week. Every semester the SMSes were updated to incorporate relevant assignment and examination dates.

4.4.1.1.2 Implementation phase

The 12 SMSes were compiled and sent to students every semester as from the second semester of 2006. At the beginning of every semester, the content of the SMSes was altered to incorporate the correct dates relevant to the particular semester. SMSes sent during the first semester of 2012 are included in Table 4.5.

Table 4.5: SMSes sent to FAC2602 students during first semester of 2012

SMS number	Date sent	Wording of SMS
1	24/1/2012	Welcome to FAC2602! Lecturers will SMS every week with workload for that week.Start 30/1.No text book for this module
2	30/1/2012	FAC2602.Let's do pages 1-22 of guide this week.Do all exercises-do not just read thru text.1 st compulsory assign.due 2/3
3	06/2/2012	FAC2602.This week work thru pages 23-57 of guide.Do and submit 1 st assignment thru myUnisa.Hope ur still on schedule!!
4	13/2/2012	This week work thru pages 58-71. Ur not on your own-there are 2500 FAC2602 students doing this module with u.
5	20/2/2012	FAC2602. Topic A, study unit 6 this week. Family and friends proud of u. Catch up if u r behind schedule now!!
6	27/2/2012	FAC2602. Next 2 weeks Topic A, study unit 7. Due date first assignment 2 March! Remember practise various calculations!!
7	12/3/2012	FAC2602. Topic A, study unit 8 next 2 weeks. Do and submit 2 nd assignment and submit. Due date 30/3
8	26/3/2012	FAC2602. Topic A, study unit 9 next 2 weeks. Work carefully thru this study unit - difficult but important.
9	10/4/2012	FAC2602. Next 2 weeks Topic B.Note difference between direct and indirect methods. Both are important. Well done so far!
10	23/4/2012	FAC2602.Do revision.WORK thru Q1-Q14 in tut 102.Do not look at answer b4 Q completed.Mark.Must complete within time
11	30/4/2012	Work thru 2 previous FAC2602 exam papers these last 2 weeks + 1 question from each topic every day.Success very close!
12	14/5/2012	Good luck with FAC2602 exam Wednesday. Do all questions! Show all calculations. U've come a long way-u can do it!!

Every semester, the first SMS was sent a week after registration had closed for students and the last SMS was sent a few days before the FAC2602 examination was written.

4.4.1.1.3 *Perceptions and experiences of participants and lecturer on SMS intervention (SMS to student)*

To support the findings of every mobile phone intervention, verbatim quotes from students are included here to support the findings. Throughout this report, extracts are direct quotes and the grammar, punctuation and spelling errors have not been corrected. I also include notes from my personal journal where applicable.

Lecturer/researcher

I think sending SMSes to students will definitely help them. It was so quick to plan and compile the SMSes. Now I must put a reminder on my phone to send the SMS every Monday. Even when I am attending the conference in Portugal in March, I can just quickly access the Unisa website and send the SMS. Do not think it will cost that much. I really think this was a great idea (Personal journal dated 10/1/2012).

Had a few young students in my office today, who wanted me to help them with intra-company transactions in consolidated statements. They were also telling me they enjoy the SMSes they receive every week. I felt so part of their study experience! (Personal journal dated 5/4/2012).

Students

I highly appreciate the SMSs as they help me to keep on track and prepare especially if told that the topic is a little bit too complicated (P5: DF5.2).

I think all modules should use the sms's they are very helpful, they are motivating and keeping me on track and I'm sure by exam time I'll be all ready for my distinctions (P5: DF5.6).

Yha! Guys the lectures sms's are inspiring they really keep us strong even though I am behind their schedule (P6: DF6.6).

Just a note to say thank you for the weekly SMS's, your support is highly appreciated (P7: E-mail1.1).

Sms's, because they told me the pace I should be moving with on weekly basis (P205: Q2.11).

The communication was good through the Sms's and it allowed me to be on track with the syllabus as areas of study during a particular week will be highlighted and if one is behind schedule an encouragement of catching up was given (P217: Q2.22).

Considering some of the responses from the participating FAC2602 students and referring back to the research questions, I can now report that the SMSes to students during the intervention helped to increase the didactic conversation as the SMSes provided advice and suggestions (timing, work load, study methods) to the students (research question 4 Table 1.3). The SMSes involved students emotionally (motivation) and catered for a personal conversation style (SMS language and informal conversations) (research questions 6 and 7). However, the intervention did not assist with supporting two-way conversation (research question 1) and the resolution of learning problems (research question 2) as students could not reply to me by sending me a reply SMS. Students got information from me (one-way conversation), but there was still a need to use mobile phones to support two-way conversation, as this would assist to lessen the transactional distance.

4.4.1.2 SMSes to lecturer

There was indeed a need for the participating FAC2602 students to communicate with the lecturer via the mobile phone. Various FAC2602 students to whom I spoke in 2007 and 2008 indicated they would like to communicate with me by sending me an SMS (two-way conversation).

4.4.1.2.1 Planning phase

The Unisa system had to be upgraded to make provision for a student to send an SMS to a lecturer. On 13 October 2008, a request was therefore sent through by the Chair of the Department of Financial Accounting to the Information and Communication Technologies (ICT) project manager at Unisa requesting a pilot project during the first semester of 2009 on the FAC2602 module. The purpose of the project was to determine whether it was possible for students to send an SMS to me (the lecturer) from their mobile phones. The SMS would then be converted into an e-mail that would appear in my e-mail inbox and I would reply to this SMS via the Unisa e-mail system. The reply would appear as an SMS message on the participant's mobile phone.

4.4.1.2.2 *Implementation phase*

Approval for the pilot project to determine whether it was possible for students to send an SMS to the lecturer from their mobile phones was obtained from the ICT project manager at Unisa, and the Unisa SMS system was adapted and changed accordingly. SMSes sent by students were received by the Unisa system from the mobile phone network provider via Unisa's IP address (internet protocol address – the unique number identifying each domain name on the internet [Martin, 2006:107]). The SMSes were placed into an 'incoming' queue on the Unisa main database and the Unisa system would periodically check these SMSes and compare the message to predefined 'regular expressions' also known as 'character filters'. In this case, the FAC2602 module code was the predefined character filters. For creating an SMS communication bridge between the students and myself, the process created an e-mail containing the SMS request, and was the sent to my mailbox.

The e-mail also contained a link to a web page on which when clicked, allowed me to respond. The response was then queued in the database, with the originating mobile phone number. An automated process read this queue and sent the response to the mobile phone network provider via its IP address, which forwarded the response to the student.

The Unisa system was adapted slightly to include a character counter as the maximum message length of a reply SMS was set at 160 characters. The system was tested until December 2008, and students who registered for the FAC2602 module during the first semester of 2009 were notified on 27 January 2009 that they could send an SMS to their FAC2602 lecturer.

Three random examples of such SMSes, which were received by me, are included in Figure 4.2. Personal details of student numbers, e-mail addresses and contact numbers have been deleted. The SMS language used by these students is still detectable in the messages.

Incoming SMS Received:4/3/2009 10:38:50 AM

FAC2602 XXXXXXXX What r e main differences btwn finance leases and operating leases

Student Info at this cell number:

Student No.: XXXXXXXX

Home phone : XXXXXXXXXX

Work phone :

e-mail : XXXXXXXX@mylife.unisa.ac.za

Cell No. : XXXXXXXXXX

[You can reply per SMS to the student here](#)

Incoming SMS Received:4/6/2009 8:44:42 AM

FAC2602 XXXXXXXX On topic D r we expected 2 write the whole calculation or just an answer in the exams Dumi

Student Info at this cell number:

Student No.: XXXXXXXX

Home phone : XXXXXXXXXX

Work phone : XXXXXXXXXX

e-mail :

Cell No. : XXXXXXXXXX

[You can reply per SMS to the student here](#)

Incoming SMS Received:4/18/2009 2:36:20 PM

FAC2602 XXXXXXXX Hi In tutorial letter 102 page 38 Hw did u get the ordinary dividend in the statement of changes under retained earnings Im getting R6250

Student Info at this cell number:

Student No.: XXXXXXXX

Home phone : XXXXXXXXXX

Work phone :

e-mail : XXXXXXXX@mylife.unisa.ac.za

Cell No. : XXXXXXXXXX

[You can reply per SMS to the student here](#)

Figure 4.2: Copies of SMSes sent from students' mobile phones to lecturer's e-mail

When a student sent an SMS to me, the SMS would appear as received from smsRobot@unisa.ac.za with a subject heading of SMS Robot Mail in my e-mail inbox shortly after it had been sent by the student. I could then reply to the SMS by typing an answer into the 'Your reply' block (refer Figure 4.3). An example of a layout of such an SMS reply block to a student is displayed below in Figure 4.3.

Vrooyaa@unisa.ac	252	1978195	220500	
------------------	-----	---------	--------	--

Your personnel number: 1978195
 Department : FINANCIAL ACCOUNTING (252)
 Budget Code : 220500

To Student No. :

FAC2602 4567890 Hi In tutorial letter 102 page 38 How did u get the ordinary dividend in the statement of changes under retained earnings Im getting R6250

Your reply:

Message Length (must be less than 160)

Figure 4.3: Copy of SMS sent to student's mobile phone

4.4.1.2.3 *Perceptions and experiences of participants and lecturer on SMS intervention (SMS to lecturer)*

During the research project, feedback from participants was collected and I also made regular notes in my personal diary. The verbatim quotes from participants are included to support the findings and the extracts are all verbatim quotes (grammar, punctuation and spelling errors have not been corrected).

Lecturer/researcher

It was worth it. Although it took some explanations and patience from my side, the system seems to be in place. We did the first check of the student to lecturer SMS this morning and it worked!!! (Personal journal 28/11/2008).

Was quite shocked to actually receive the first SMS from a student!! Never thought this will ever work (Personal journal 3/4/2009).

Students

I think the sms method was perfect (P218: Q2.23).

Sms's because it came through on my phone and could read it immediately (P219: Q2.24).

I personally the Sms's where of great help as it is instant (P223: Q2.28).

Sms's. They came at no cost, not disturbing my activities unlike a phone call, and I could read and save them (P248: Q2.50).

Considering the responses from the participating FAC2602 students and referring back to my research questions, I can now report that the combination of the two SMS interventions (lecturer-to-student and student-to-lecturer) did indeed help to answer research questions 1, 2, 4, 6 and 7 (refer Table 1.3). A combination of SMSes to and from students thus assisted with supporting two-way conversation (didactic conversation):

- to enable the resolving of learning problems (students could ask questions and lecturer could provide answers);
- to provide advice and suggestions to the students (various techniques and calculations could be explained);

- to involve students emotionally (by encouraging and motivating them); and
- to cater for a personal conversation (short informal discussions could take place using SMSes).

However, another mobile phone function was still needed to resolve learning problems even more effectively and which could also incorporate the exchanging of views in a more efficient way than SMSes only.

4.4.2 MXit intervention

As the MXit function on mobile phones allows for instant messaging or communication between people, I was hoping that the participating FAC2602 students would be interested in using this function to communicate with me, the lecturer. This would help to increase the didactic conversation between the students and myself at a nominal cost to the students.

4.4.2.1 Planning phase

I bought a subscriber identity module (SIM) card, to obtain a unique mobile number to be used for MXit purposes. After activating the SIM card, I registered for MXit mobile on a mobile phone by opening the WAP (Wireless Access Protocol) browser on the mobile phone and typing in www.mxit.com/wap. After completing the MXit mobile registration on the mobile phone, I downloaded MXit PC from <http://www.mxit.com> onto my notebook. This enabled me to communicate with the FAC2602 students via MXit from my notebook. I preferred to use my notebook as the screen size was much larger and I could type faster on my notebook when compared to the small screen and keypad on a mobile phone.

4.4.2.2 Implementation phase

After the planning had been done and the MXit tested, I sent an SMS to all the registered FAC2602 students. The SMS included the MXit number, and I invited the students to connect with the lecturer via MXit. I gave the relevant MXit times through to the students on a weekly basis. I assisted the students mostly at night (between 19:00 and 23:00) as many of Unisa students work during the day and study at night. I decided not to make use of MXit groups as I was of the opinion that students do not

always ask questions in a group environment (this is also confirmed by participants' perceptions in Chapter 5).

During the second semester of 2008 and both semesters of 2009, I recorded the number of students who registered on MXit. Table 4.6 gives the number of registered FAC2602 students and the number of students who registered on MXit to communicate with me.

Table 4.6: MXit registration

Period	Registered FAC2602 students	Registered MXit students
2 nd semester 2008	2 806	234 (8.34%)
1 st semester 2009	2 817	242 (8.59%)
2 nd semester 2009	3 006	279 (9.28%)

Although the number of students who actually participated in the MXit intervention seem low, texting and communicating with on average 10% of these students at a time was quite daunting as the two-way conversations are instantly and every participant expected me to answer as quickly as possible. For this reason, I decided to increase my available time for questions on MXit, to allow students to ask questions over a longer period of time (including during the day) and that resulted in fewer students being active on MXit at a given time.

MXit language is different from the traditional English language as users also make use of SMS language (refer Table 4.7). The participating FAC2602 students also made use of this language when communicating with me and Table 4.7 gives a few examples of abbreviations used in MXit messages:

Table 4.7: MXit language

MXit abbreviation	English word or phrase
Hw r u, hru	How are you
Gtg, g2g	Got to go
n	And
brb	Be right back
b4	Before
cos, coz, bcoz	Because
gr8	Great
plz	Please
thx, tnx	Thanks
4 u 2 c	For you to see

As participants started to invite me to communicate with them via MXit, I accepted their invitations. Figure 4.4 shows how MXit appeared on my notebook screen.

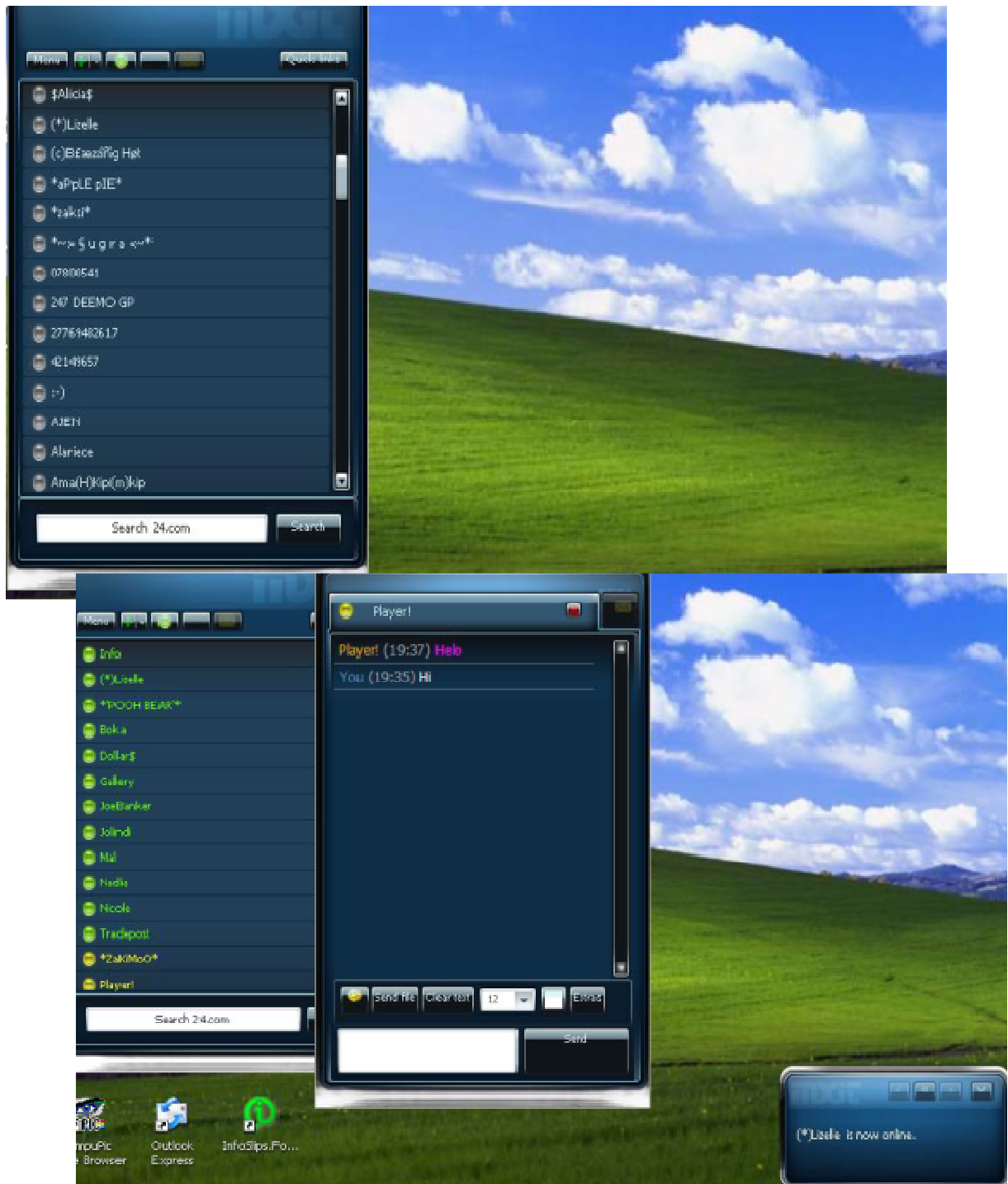


Figure 4.4: MXit as it appears on a notebook screen

The top screen shot in Figure 4.4 shows a list of some of the registered MXit students. MXit users mostly do not use their family name on MXit; they prefer to register with an alias. The participants' names on the MXit screen appeared either in

green (on-line), yellow (on-line but not currently taking part in a conversation), red (on-line but busy) or grey (off-line), which were indications of their presence.

The bottom screen shot is the 'chat' screen where the conversation between participant ('Player 1') and myself ('You') is displayed. Every time another participant starts a conversation, a new 'chat' screen opens. The MXit PC program will automatically display the next incoming message on the screen so that I can respond to the oldest incoming message first. A small blue screen on the bottom right-hand side of the notebook screen will appear as soon as a participant goes on-line. An example of a MXit conversation between a participant (with an alias of 'Tasneem') and myself is displayed in Figure 4.5.



Figure 4.5: A MXit conversation

I find MXit PC user-friendly as it allows a participant to ask a few questions, go off-line to work through a question after I have explained a concept and then to re-join the MXit conversation. The participants' previous questions and my replies would then still be displayed on the MXit conversation screen.

Another helpful component of MXit is the function that allows students and myself to leave messages off-line. Whenever I then go on-line, a yellow envelope on the screen will be an indication that a participant has left a message. This means that students could send messages to me anytime from anywhere at a nominal cost, and I could answer the student anytime from anywhere, which made this intervention very convenient.

Added to the aforementioned, another important function of MXIT PC is that all other programs on a computer can still function effectively while MXit is active. This means that I could still work on other documents, attend to e-mails and take part in discussion forums while assisting students on MXit.

4.4.2.3 Perceptions and experiences of students and lecturer on MXit intervention

Feedback was received from students regarding their perceptions and experiences on the use of MXit on mobile phones to increase two-way conversation between the FAC2602 lecturer and the student to lessen the transactional distance. I also made various notes and comments in my personal journal throughout this project. Feedback from students is included to support the findings and the extracts are verbatim quotes (grammar, punctuation and spelling errors have not been corrected).

Lecturer/researcher

What a hectic evening!! Never thought so many students would register on MXit at once. Luckily Leandri [my daughter] could help me to accept all the invites from the new students as I was not familiar with MXit. Afterwards we had quite a good laugh about the pandemonium that it created (Personal journal 21/7/2008).

Had another invite from somebody on MXit tonight who was obviously not a student. Started asking me who I was, where I stay, etc. Now I do understand the problems MXit can create to children that are not familiar with these types of people. No wonder there are regular reports in the news about paedophiles that connect with girls via these types of tools (Personal journal 18/8/2008).

I just loved the students' messages I saw on the discussion forum this morning. One student said, "I am now able to chat with the lecturer on mxit. It is too cheap and very helpful, and it's full of fun :-). I feel like a high school learner. Hehehe" while another student replied, "yes i have

communicated with lectures on mxit and I think they are very cool” (Personal journal 20/9/2008).

Glad to see students understand when I tell them to be patient on MXit as I am busy helping other students. Thought they might be angry because I am not assisting them quickly, but luckily the cost on MXit is low. It is hectic to assist so many students at one time; I think I had around ten online, all asking questions, at one stage tonight. But I love the interaction between myself and the students. I even feel ‘connected’ to them (Personal journal 23/9/2008).

I think the students really appreciated me being available this morning. Although it is Saturday, I know they all will be studying now as the exam date is Tuesday. Hope I contributed in a positive way as I did not want to stress them out at this late stage of their studies (Personal journal 18/10/2008).

Students

In my opinion the MXit was the best idea ever! Great course, great people! Fantastic set up! Loved it! (P281: SMS.1).

Interesting module, tutorials were totally helpful, MXit sessions were great as well. Thanks so so much lecturers. Hope the results are good (P282: SMS.1).

Excellent response and feedback; great effort for introducing my Unisa; CD’s etc and MXit (P239: Q2.42).

The feedback received from students as well as my own perceptions on the use of MXit in the teaching and learning of FAC2602 supported the research questions 1, 2, 4, 5 and 7 (refer Table 1.3). The instant communication (two-way conversation) MXit provided, between the students and myself, assisted us to resolve learning problems quickly as I could give advice and make suggestions when needed. We could exchange views in a more personal conversation style and that helped to lessen the transactional distance so often experienced by DE students.

4.4.3 Podcast and CD interventions

As explained in Chapter 1, I wanted to share the knowledge and skills I had obtained as a lecturer on the FAC2602 module with my students. Over the years, I have learned which sections of the study material posed the most problems and I have learned how to explain the difficult concepts to students in such a way they would understand. In the past, this was often confirmed by students after I had conducted a

group discussion class, when they told me, “Mrs Van Rooyen, you know exactly which sections of the study material we do not understand and then you are able to explain it to us in such a way we fully grasp the concepts.” It was thus important for me to assist more (if possible all) FAC2602 students with their studies by presenting them with the PowerPoint slides I had used at these group discussion classes together with my usual lecture. The only way I could do this was to make use of podcasts.

4.4.3.1 Planning phase

In 2010, the podcast intervention commenced. The podcasts, CDs and tutorial letter (refer below) were recorded and compiled in both English and Afrikaans. (In the sections below, I will only make reference to the English podcasts, CDs and tutorial letter). I drafted an English script, which was checked by my colleagues on the module and then edited. The content of the script was compiled to include the explanations and information I would usually provide to FAC2602 students at the group discussion classes. The PowerPoint slides used at the previous group discussion classes were updated and used to generate the content of the script. Included in the podcasts were tracks referring to inter alia:

- Introduction to the FAC2602 module

In this section, the aim and the functions of the CDs and accompanying tutorial letter were explained. The lecturers were introduced and reference was made to the weekly SMSes.

- Getting started

This section gave detail on the module content (syllabus), and students were given a summary of the tutorial letters and their content which they would receive during the semester. Also included was a short summary of how FAC2602 lecturers wanted students to work through the study material.

- Examination preparation

This section provided useful hints on time management, practice and revision tips before the examinations as well as how to set about answering a FAC2602 in the examinations.

The script for the podcasts was written in a manner to replicate a group discussion situation. Various words were highlighted in the script and were then emphasised during the recording. Short silent segments were also marked and recorded as such. This was to bring about a section where a student was asked a question to consider, and then the lecturer would give the answer – similar to a classroom situation. The script was used to record 24 podcast tracks of which the sizes varied between 1.3 MB and 6 MB. The podcast recordings were done in a recording studio at the Sound, Video and Photography Department of Unisa, which meant the sound quality of these recordings was of a high standard. The podcast tracks were checked for accuracy and sound quality by two colleagues and myself.

In addition, a tutorial letter was compiled which contained 84 figures or frames that were copied and adapted from the PowerPoint slides I used during the group discussion sessions. The CDs as well as this tutorial letter were despatched to all registered FAC2602 students.

4.4.3.2 Implementation phase

Once the 24 podcast tracks had been checked for accuracy, the tracks were uploaded onto *myUnisa* and also copied onto three CDs by the Sound, Video and Photography Department at Unisa. Figure 4.6 shows a section of the Afrikaans list of podcasts on *myUnisa*, applicable to the second semester of 2011, which students could download.

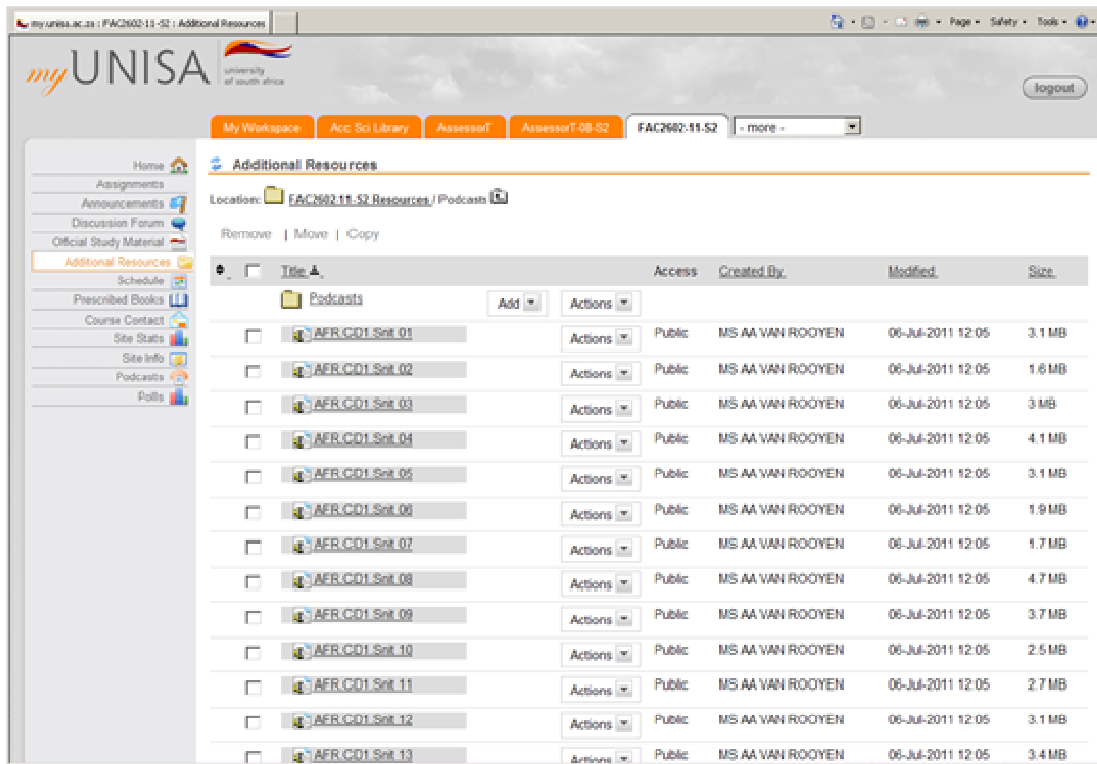


Figure 4.6: Section of the Afrikaans list of podcasts available on myUnisa

Participating FAC2602 students were given clear instructions in the tutorial letter how to use the podcasts or three CDs and the accompanying tutorial letter. They had to listen to a specific track while looking at the relevant frame(s) in the tutorial letter. Figure 4.7 is an example of one such frame (Frame 50 in the 2011 tutorial letter) students had to look at while listening to the relevant track (Track 3 of the 2011 second CD).

At acquisition section (Q2)				
	Total R	At – 75% R	Since – 75% R	Non-controlling interest – 25% R
Share capital	200 000	150 000		50 000
Retained earnings	70 000	52 500		17 500
	270 000	202 500		67 500
Investment		(252 500)		
Goodwill		50 000		
				25% x 270 000

Figure 4.7: Frame 50 from the tutorial letter used in conjunction with podcasts

While looking at frame 50 in the tutorial letter, students had to listen to track 3 on the second CD. The explanation on track 3 was:

When we calculate the 'at acquisition' section of ordinary shares we start with the share capital of the subsidiary. In Question 2, the share capital of Ben Ltd is R200 000. This goes in the total column. We are told that the total number of shares of Ben Ltd is 400 000 of which Big holds 300 000 shares. This brings the percentage interest to 75%. We calculate 75% of the share capital and that is R150 000 which goes in the 'at' column. The remaining 25% is 'non-controlling interest' R50 000. When Big acquired the interest in Ben the retained earnings was R70 000. 75% of R70 000 goes into 'at' column and the balance of R17 500 goes under 'non-controlling interest'. Our investment in the subsidiary, if you look on the trial balance, is R252 500. By deducting the R252 500 from the R202 500, you calculate goodwill. On second level accounting, you will always have a positive goodwill. That means you paid more for what you received in reserves. In third year accounting, you will get negative goodwill.

After you have done the 'at acquisition' section you can check your subtotals. Non-controlling interest should be 25% of the R270 000.

The pro forma consolidation journal entry can easily be determined after you have done this section. We want the credit item share capital out of the trial balance therefore we debit share capital of the subsidiary R200 000, debit retained earnings R70 000. We want to take out the debit investment in Ben thus credit investment Ben R252 500 and the balance of the journal is made up of goodwill (which is always debit entry) R50 000 and credit non-controlling interest R67 500".

Every year the frames and script were checked and edited for any changes that might have occurred in the syllabus. The relevant section on the podcast then had to be re-recorded. Once again, the tutorial letter and podcasts then had to go through the quality assurance process. However, the changes were only necessary in the case of changes to the study material and thus this process was not very time-consuming.

4.4.3.3 Perceptions and experiences of students and lecturer on podcasts and CD intervention

The fact that students could download the podcasts from *myUnisa* before they received the CDs in the post was very convenient for international students who sometimes have to wait a considerable time before they receive their study material in the post. A second benefit of the podcasts was the fact that should a student not

have access to a media player or computer he or she could still listen to the CDs on a CD player without having an internet connection. A third benefit of the podcast recordings is the fact that, should the content of the module change at any time (which very often happens with Financial Accounting modules), it is easy to re-record only the paragraph that needs to be updated. The master copy of the recordings is kept safely by Sound, Video and Photography Department and they can cut the old out-dated sections and replace it with the new voice recording. In effect, this means that once a script is written, the majority of the work is done and the annual updating of the content takes only a few hours. Another benefit of the podcasts was that, should a lecturer receive a call from a student regarding a specific problem area in the syllabus, it was very easy for the lecturer to refer the student to the relevant podcast track. A student could then go and listen to the track in question and phone back if he or she still had additional questions afterwards. This process was a huge help as it saved lecturers a considerable amount of time during the semester.

Feedback received from students on the use of podcasts/CDs and a tutorial to present the content of the FAC2602 module, are verbatim quotes (grammar, punctuation and spelling errors have not been corrected).

Students

I've gotten a supplementary exam for FAC2602, and had not listened to the CD during the first semester, thus I could also not comment when completing the survey.

Last night I started my revision and wanted to work through the exercises and decided at the last minute to see what is on the CD. WOW, what a great help, for the first time I really feel that I understand unrealized profits on trading stock, the CD just explained and presented the same information in a slightly different way and suddenly I totally got it (P1: DF1.1).

Another great idea from the FAC2602 team. The CDs and the additional questions helped a lot; it was like having a lecturer (P1: DF1.4).

Hi Guys. How do you find these CDs are they helping?? Because they are helping me a lot especially cash flows, now I am finishing Earnings per share, I still struggle here and there but nothing the CD does not explain. If you haven't started using them where have you been the past 3 weeks (I have had them for 3 weeks now). Guess who's playing in my car radio now (P1: DF1.8).

THANK YOU for the CD's I am also finding them very helpful. Little things are mentioned on the CDs, I would have missed them by just studying the study guide (P3: DF3.3).

I prefer CD's to podcasts as these are difficult to open; I get error messages all the time when trying to access these (P31: Q1.264).

I listened to the CD's while travelling to work every day, then because I heard how to do the work when I studied at night I understood the concept better (P269: Q2.7).

However, the need for a more visual presentation was mentioned by a student on the discussion forum in the first semester of 2011:

I have been through CD 1&2 and they were very helpful but it would have been even better if it was a DVD i.e. if there were some visuals to accompany the voice (P3: DF3.5).

Although I never intended or planned to include a DVD in this mobile phone intervention project, I decided to supplement this mobile phone intervention project with a visual presentation (video) of the tutorial letter and podcast tracks mentioned in section 4.4.3. The aim was to take the content of the tutorial letter and the voice recordings (both already in place) and combine the two to form a video presentation. The idea was that the video would visually highlight certain numbers or calculations, thus placing certain emphasis on the more important concepts of which students had to take note. I emphasised specific important areas and concepts on the podcast recordings by increasing the volume of my voice or by repeating a word.

However, the compilation of the DVD was an extreme time-consuming process (much more than was originally anticipated) and the FAC2602 lecturers had to watch the content of the video many times to make sure the content was flawless and aligned with the correct text. The first videos were only ready for distribution during the second semester of 2011.

Considering most of the responses from the participating FAC2602 students and referring back to my research questions, I can now conclude that a combination of SMSes to and from students, Mxit as well as podcasts/CDs (as well as a DVD) assisted with the learning and teaching of FAC2602. In addition, the first seven research questions (refer Table 1.3) were answered. A combination of the three

mobile phone interventions did assist to lessen the transactional distance and to increase the didactic conversation between the FAC2602 students and the lecturer. The last two research questions (8 and 9 refer Table 1.3) will be answered in Chapter 5.

4.5 CHAPTER CONCLUSION

In Chapter 4, the mobile phone intervention project with specific reference to the SMS, MXit and podcast functions were explained. Reference was made to the UID principles and how they related to this study. The design, development, planning and implementation of the various mobile phone interventions were explained in detail. Selected feedback from both some participants and myself was included to highlight important outcomes. Referring to the research questions, this chapter concludes that progress has been made to answer the research questions with the help of the implementation of the mobile phone functions. In Chapter 5, the findings from the study, taking into consideration both the qualitative and quantitative data, are discussed.

CHAPTER 5

RESEARCH FINDINGS

“True teachers are those who use themselves as bridges over which they invite their students to cross; then, having facilitated their crossing, joyfully collapse, encouraging them to create their own”
(Nikos Kazantzakis, 2014:online)

5.1 INTRODUCTION

While Chapter 4 provided a comprehensive account on the implementation of the mobile phone interventions project, this chapter reports on the findings that emerged from the quantitative and qualitative assessment of the interventions. This assessment was directed by the following research question:

To which extent does the application of mobile phones in an Accounting module at a South African open distance learning university improve the didactic conversation, lessen the transactional distance and increase the retention and throughput rates of these students?

In order to answer this question, this chapter will provide an overview and analysis of the FAC2602 students' retention and throughput rates from 2003 to 2012 (obtained from official examination statistics) in order to assess and understand the factors related to retention and throughput rates for further investigation (refer section 2.4). This chapter reports on a quantitative and qualitative analyses of the results of two self-administered questionnaires (Questionnaire 1 and Questionnaire 2), as well as a content analysis of e-mail correspondence, discussion forum documentation and the personal journal of the researcher (also the lecturer of the FAC2602 module). The results of the two self-administered questionnaires as well as the other documents will be presented and analysed in separate sections in this chapter.

A visual presentation of Chapter 5 is provided in Figure 5.1.

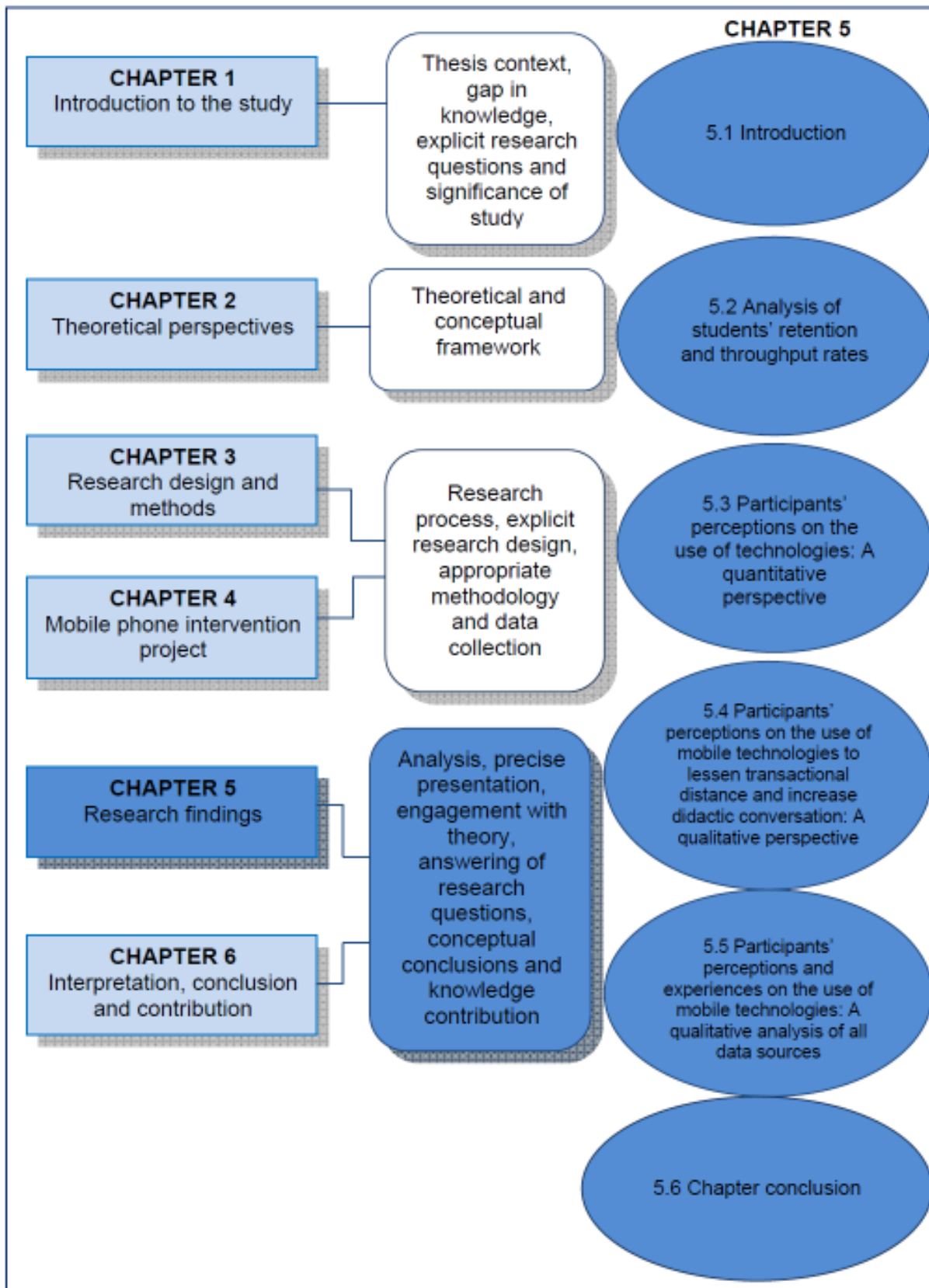


Figure 5.1: Structure of Chapter 5

Compiled after considering the components of doctorateness identified by Trafford and Leshem (2008)

5.2 ANALYSIS OF STUDENTS' RETENTION AND THROUGHPUT RATES

Although the present study set out to understand the effect of mobile phone interventions on accounting students' retention and throughput rates, previous studies (Koen, 2007; Prinsloo & Subotzky, 2009; Simonson *et al.*, 2012; Subotzky & Prinsloo, 2011; Tinto, 2006) have already identified various factors that may have an influence on DE students' retention and throughput rates (refer section 2.4). The researcher therefore abstains from proclaiming the mobile phone intervention on its own to have a direct outcome on FAC2602 retention or throughput rates.

Yet, to understand the effect of the mobile phone interventions in the present study on the FAC2602 module it was important first to investigate the FAC2602 students' retention and throughput rates before and after the mobile phone interventions were incorporated into the module. An analysis of the FAC2602 students' retention and throughput rates between 2003 and 2012 is reflected in Tables 5.1 and 5.2 respectively. Both tables firstly indicate the actual number of registered FAC2602 student per semester, followed by the number of registered students who were admitted to the examination, the number of students who wrote the examination at the end of the semester, and then lastly, the actual number of registered students who passed the examination. Thereafter these numbers are expressed as percentages.

As the first mobile phone intervention commenced during the second semester of 2006, Table 5.1 reflects a summary of the retention rates (students who wrote the examination as a percentage of students who had registered) as well as throughput rates (students who passed the examination as a percentage of students who had registered) of FAC2602 students from the first semester of 2003 to the first semester of 2006; thus, the period before the study commenced.

Table 5.1: Retention and throughput rates of FAC2602 students before study commenced

Semester and year	1st 2003	2nd 2003	1st 2004	2nd 2004	1st 2005	2nd 2005	1st 2006	Average
Number of registered FAC2602 students	2 391	2 352	2 275	2 087	2 136	2 427	2 549	2 317
Number of registered FAC2602 students admitted to the examination	2 375	2 327	2 253	2 075	2 131	2 413	2 544	2 303
Number of registered FAC2602 students who wrote the examination	1 966	1 834	1 737	1 616	1 655	1 924	1 997	1 818
Number of registered FAC2602 students who passed the examination	879	646	829	827	457	799	545	712
Percentage of registered students admitted to the examination	99.33%	98.94%	99.03%	99.43%	99.77%	99.42%	99.80%	99.40%
Percentage of registered students who wrote the examination	82.22%	77.98%	76.35%	77.43%	77.48%	79.27%	78.34%	78.46%
Percentage of registered students who passed the examination	36.76%	27.47%	36.44%	39.63%	21.40%	32.92%	21.38%	30.72%
Percentage of registered students admitted who wrote the examination	82.78%	78.81%	77.10%	77.88%	77.66%	79.73%	78.50%	78.97%
Percentage of registered students admitted who passed the examination	37.01%	27.76%	36.80%	39.86%	21.45%	33.11%	21.42%	30.92%
Percentage of registered students who wrote and passed the examination	44.71%	35.22%	47.73%	51.18%	27.61%	41.53%	27.33%	39.16%

Table 5.1 reveals that almost all (average of 99.40%) of the FAC2602 students who registered for the module at the beginning of a semester, were admitted to the examination at the end of that particular semester. Between 2003 and 2006, the Department of Financial Accounting had no admission requirements such as to submit a specific number of assignments or to obtain a certain year mark in a module. However, on average 78.46% of the FAC2602 students who registered for the module at the beginning of the semester actually wrote the examination (retention rate) – implicating that 20.94% (99.40% – 78.46%) of the FAC2602 students who registered at the beginning of the semester, did not sit for the examination. Although almost all the FAC2602 students were admitted to the examinations every semester, on average only 30.72% of the registered students were successful.

Figure 5.2 reflects these retention and throughput rates from the first semester of 2003 to the first semester of 2006. Although I have fitted a linear line (green) to the graph, it was not my intention to make use of linear regression to investigate the relationship between the relevant semester and the percentage of registered

students and to make any predictions. The only reason for making use of the linear line is to display the trend in the throughput rates of students over a number of semesters visually.

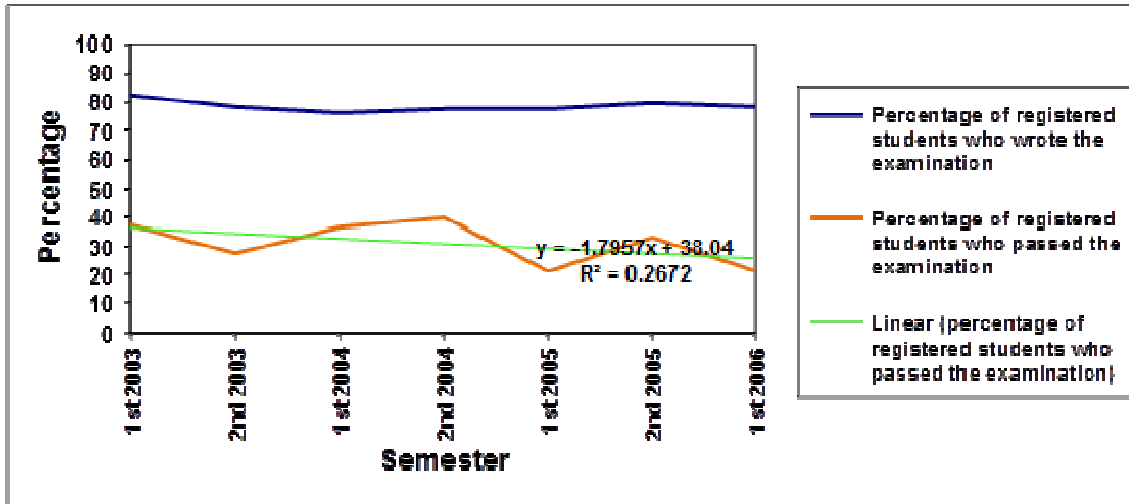


Figure 5.2: FAC2602 students' retention and throughput rates between first semester of 2003 and first semester of 2006

The retention rates (blue line) have remained fairly consistent between 2003 and 2005. However, the green line (linear) indicates a negative slope in the throughput rates (brown line) of the FAC2602 students from 2003 to 2006. Although there are various factors (which were not all considered during this study – refer section 2.4) that could have affected the throughput rates of the FAC2602 students during this period, it remains evident that there was indeed a decline in the throughput rates.

Considering that the mobile phone interventions commenced during the second semester of 2006, it was necessary to compare the retention and throughput rates of the FAC2602 students after the interventions to determine whether the interventions had any effect on the retention and throughput rates. The retention and throughput rates of the FAC2602 students from the second semester of 2006 to the second semester of 2012 were once again extracted from the examination statistics and are summarised in Table 5.2.

Table 5.2: Retention and throughput rates of FAC2602 students after the mobile phone interventions

Semester and year	2nd 2006	1st 2007	2nd 2007	1st 2008	2nd 2008	1st 2009	2nd 2009	1st 2010	2nd 2010	1st 2011	2nd 2011	1st 2012	2nd 2012	Average
Number of registered FAC2602 students	2 679	3 275	2 963	2 978	3 056	3 077	3 307	2 575	3 220	3 200	2 655	3 243	2 732	2 997
Number of registered FAC2602 students admitted to the examination	2 663	3 184	2 831	2 918	2 975	3 051	3 307	2 533	3 179	3 170	2 633	3 221	2 701	2 951
Number of registered FAC2602 students who wrote the examination	2 197	2 669	2 426	2 328	2 436	2 516	2 712	2 066	2 673	2 704	2 261	2 668	2 341	2 461
Number of registered FAC2602 students who passed the examination	720	1 055	1 256	683	1 433	586	1 206	529	1 451	1 860	946	1 229	1 050	1 077
Percentage of registered students admitted to the examination	99.40%	97.22%	95.55%	97.99%	97.35%	99.16%	100%	98.37%	98.73%	99.06%	99.17%	99.32%	98.87%	98.47%
Percentage of registered students who wrote the examination	82.01%	81.50%	81.88%	78.17%	79.71%	81.77%	82.01%	80.23%	83.01%	84.50%	85.16%	82.18%	85.69%	82.12%
Percentage of registered students who passed the examination	26.88%	32.21%	42.39%	22.93%	46.89%	19.04%	36.47%	20.54%	45.06%	58.13%	35.63%	37.90%	38.43%	35.94%
Percentage of registered students admitted who wrote the examination	82.50%	83.83%	85.69%	79.78%	81.88%	82.46%	82.01%	81.56%	84.08%	85.30%	85.87%	82.83%	86.67%	83.40%
Percentage of registered students admitted who passed the examination	27.03%	33.13%	44.37%	23.41%	48.17%	19.21%	36.47%	20.88%	45.64%	58.68%	35.93%	38.16%	38.87%	36.50%
Percentage of registered students who wrote and passed the examination	32.77%	39.53%	51.77%	29.34%	58.83%	23.29%	44.47%	25.61%	54.28%	68.77%	41.84%	46.07%	44.85%	43.76%

The retention and throughput rates from the second semester of 2006 to the end of 2012 are shown graphically in Figure 5.3.

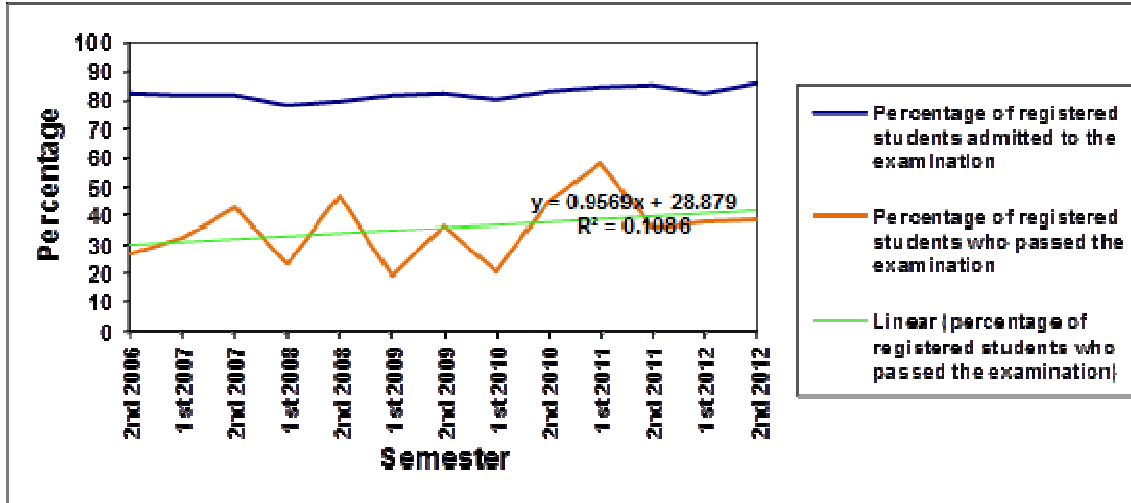


Figure 5.3: FAC2602 students' retention and throughput rates from the second semester of 2006 to the end of 2012

When comparing Figure 5.2 to Figure 5.3, it is evident that the retention rates of FAC2602 students remained fairly consistent between 2003 and 2012. However, when comparing the throughput rates of FAC2602 students before the mobile phone interventions (Figure 5.2) to the throughput rates since commencement of the interventions (Figure 5.3), the change in the slope of the linear line (green) from a downward slope to an upward slope is noticeable.

The change in the slope of the linear line can be substantiated by comparing the average retention rates of FAC2602 students before the mobile phone interventions (Table 5.1) to the average retention rates during the interventions (Table 5.2) an increase of 3.66% (82.12% – 78.46%) is observed. An increase of 5.22% (35.94% – 30.72%) in the throughput rates of the students is also detected.

The 3.66% increase in retention rates and the 5.22% increase in the throughput rates seem marginal. However, when linking it to the number of students registered for the FAC2602 module per semester it becomes evident that on average, 156 additional students can be successful every semester (2 997 Table 5.1 x 5.22%). This number can indeed have an influence on the low number of CAs in South Africa.

In addition to the aforementioned quantitative results I could get from the examination files, I wanted to obtain the accounting students' perceptions on the use of the mobile phone interventions in the FAC2602 module and I did this by way of two questionnaires (refer Appendix A and B).

5.3 PARTICIPANTS' PERCEPTIONS ON THE USE OF TECHNOLOGIES: A QUANTITATIVE PERSPECTIVE

The purpose of Questionnaire 1 (Appendix A) was to obtain participants' quantitative perceptions on the use of technologies at Unisa during the period of investigation. The questionnaire was made available on *myUnisa* during the first semester of 2012, therefore allowing all students registered for the module to answer the questions. Of the students, 203 (6.26% of the registered FAC2602 students) completed the questionnaire. Questionnaire 1 required information on the participants' personal and demographic characteristics (refer section 5.3.1) and their preferences on the use of technology in their studies (refer section 5.3.2).

5.3.1 Personal and demographic characteristics

The personal and demographic characteristics of the participants provided me with a profile of my FAC2602 students. Characteristics such as age, home language, part-time or full-time student and accounting background assisted me to understand the context and background of these students and this assisted me to interpret the research as the findings unfolded. Questions 2 to 8 of Questionnaire A covered the personal and demographic characteristics and these are summarised in Table 5.3.

Table 5.3: Personal and demographic characteristics of participants

Personal details		%	N	Findings
Q2 Age (missing = 8) ⁵	Younger than 20	1.6	3	The majority of participants (87.2%) were younger than 40.

⁵ (Missing = 8) indicates that eight of the 203 participants who completed Questionnaire 1 did not complete Q2. The percentage calculated in the next column was calculated excluding these eight missing answers. This applies to all the percentages calculated from the feedback provided by Questionnaire 1.

Personal details		%	N	Findings
	Between 20 and 29	52.3	102	Younger students are familiar with the use of technology (refer section 2.5.1). These findings are in line with information obtained in 2014, which indicated that 30% of the registered students in CAS were younger than 24 (Unisa, 2014a)
	Between 30 and 39	33.3	65	
	Older than 40	12.8	25	
Q3 Home language (missing = 11)	English	35.9	69	A substantial percentage of participants (56.7%) studied in their home tongue as the home language of 35.9% of them was English, while the home language of 20.8% of them was Afrikaans. A considerable percentage of participants (43.3%) did not study in their home language as the FAC2602 module is only presented in English and Afrikaans.
	Afrikaans	20.8	40	
	isiNdebele, Sesotho sa Leboa, Shona, isiZulu, Setswana	41.2	79	
	Other	2.1	4	
Q4 Full-time or part-time student (missing = 10)	Full-time student	20.7	40	Nearly 80% of the participants were part-time students who almost certainly worked while studying.
	Part-time student	79.3	153	
Q5 Race group (missing = 11)	Asian	2.1	4	About 50% of the participants were black compared to the 61.82% registered black students in CAS in 2014 (Unisa, 2014a). This links to the responses in Q3 where 41.2% of the participants indicated they did not study in the home language.
	Black	50.2	96	
	Coloured	7.3	14	
	Indian	7.8	15	
	White	32.1	62	
	Other	0.5	1	
Q6 Accounting in matric/Grade 12	Yes	69.4	134	More than two thirds of the participants had Accounting as a subject at Grade 12 level. This

Personal details		%	N	Findings
(missing = 10)	No	30.6	59	only had an influence on the success rate of first-year accounting students at Unisa (Papageorgiou & Halabi, 2014:220)
Q7 Have you registered for FAC2602 before or was this first registration? (missing = 12)	First registration	70.2	134	Only 29.8% of the participants were repeating the FAC2602 module.
	Repeating the module	29.8	57	
Q8 Reason for enrolling for FAC2602 (missing = 23)	Part of BCompt degree	64.4	116	There was a clear indication that the majority of participants (64.4%) were enrolled for the FAC2602 module as part of their BCompt degree.
	BCom with Accounting as major	20.0	36	
	Non-degree purposes	5.6	10	
	Other	10.0	18	

The demographic characteristics of the participants provided in Table 5.3 indicated that the majority of the FAC2602 participants were probably younger than 30, English-speaking, part-time students from the black population group, who had passed Accounting as a school subject in Grade 12, who were registered for the FAC2602 module for the first time and were enrolled for the BCompt degree.

As explained in section 1.3.2, students registering for the BCompt degree at Unisa will most probably enrol for the CTA qualification in order to qualify as CAs. The fact that most of the participants (64.4%) were enrolled for the BCompt degree and most of these (70.2%) were registered for the first time showed that these students, although studying part-time and working full-time, were fairly successful in their studies. Studying part-time nevertheless implied that these students had limited time for their studies during office hours, with a need to communicate with fellow students and facilitators after hours. Younger students were also more comfortable with the use of technology and, as most of the participants were younger than 30, the use of

mobile phones did not create any challenges to them. In addition, the home language of a large number of the participants (56.7%) was either English or Afrikaans, and the FAC2602 module is presented in both these languages.

For the purpose of this research project, the possible communication vehicles (refer section 2.5.1) for these students were regarded to be e-mail messages sent from a personal computer and SMSes from a mobile phone. The participants' access to a computer and the internet as well as a description of the access are summarised in Table 5.4.

Table 5.4: Computer, mobile phone and internet access

Computer, mobile phone and internet access		%	N	Findings
Q9 Own a computer (missing = 22)	Yes	84.0	152	A large percentage (84%) of the participants owned a computer. However, the specifications of their computers were not known.
	No	16.0	29	
Q10 Access to a computer (missing = 22)	Yes	97.2	176	An even higher percentage (97.2%) of the participants had access to a computer. This was most probably at their workplace or at an internet café.
	No	2.8	5	
Q11 Description of access to a computer (missing = 22)	Use computer whenever want to	85.6	155	A high number of participants (85.6%) could use a computer when they wanted to. However, the questionnaire did not ask them to reveal whether they could use the computer for study purposes (i.e. to print study materials).
	Book to use computer	6.1	11	
	Ask permission to use computer	7.7	14	
	No access to computer	0.6	1	
Q12 Description of internet access (missing = 23)	No access to internet	3.9	7	Although 72.2% of the participants had easy access to the internet, 27.8% of the respondents suffered limitations to their internet access on a spectrum from no access to slow access.
	Limited access – only read e-mails	9.4	17	

Computer, mobile phone and internet access		%	N	Findings
	Limited access – cannot attach large documents to e-mails	8.9	16	
	Access to internet slow – cannot download study material	5.6	10	
	Easy access to internet	72.2	130	
Q19 Own a cell phone⁶ (missing = 35)	Yes	100	168	All the participants had a mobile phone
	No	0	0	

Although 97.2% of the participants had access to a computer and 85.6% of the participants indicated they could use the computer a whenever they wanted to, nearly 28% of the participants did not have easy access to the internet. This confirmed my perception when the study commenced in 2006, namely that not all FAC2602 students had access to a computer and the internet. A study conducted at Unisa in 2011 revealed that students with no access to the internet were typically African females (73%), between the ages of 20 and 29 using an African language (Liebenberg, Chetty & Prinsloo, 2012:259). This description fitted the profile of the FAC2602 participants according to Questionnaire 1. The selection of the mobile phone as the most suitable device for this study was supported by the fact that 100% of the participants had a mobile phone implying a 100% accessibility to the device.

5.3.2 Preferences regarding contact sessions and the use of technologies at Unisa

Attendance numbers of previous group discussions and tutorial classes revealed that students did not attend these (refer section 1.3.2). Participants were asked to give

⁶ Questionnaire 1 used the terminology *cell phone*, as students were more familiar with this term compared to the term *mobile phone* used in this study.

feedback regarding contact sessions and more specifically tutorial classes and group discussion classes (Questionnaire 1, questions 26 and 27). In addition, they were also asked to provide information concerning the use of various technologies at Unisa (Questionnaire 1, questions 13 to 18, 20 to 25, 28, 31 to 38, 40 and 42). This additional quantitative and qualitative information is discussed in the following sections.

5.3.2.1 Preferences regarding contact sessions at Unisa

As the didactic conversation theory (Holmberg, 1982) and the transactional distance theory (Moore, 1973) highlight the importance of connectedness, two-way communication and interaction in a DE context (refer section 2.3), I was hoping that feedback from the participants would assist me to understand why they did not attend the contact sessions as was expected. The participants' responses to questions 26 and 27 regarding their attendance of tutorial classes and group discussion classes at Unisa are summarised in Table 5.5.

Table 5.5: Participants' preferences regarding contact sessions at Unisa

Contact sessions at Unisa		%	N	Findings
Q26 Did you attend tutorial classes for the FAC2602 module? (missing = 37)	Yes, and tutorials helped	14.5	24	It is evident that merely 21.7% of the participants attended tutorial classes aimed at helping them with the accounting concepts in the module. Of the participants, 41% could not attend any classes as they were either too far from the Unisa learning centre or no tutorial classes for FAC2602 were offered at the closest learning centre. Unisa students often stay far from the learning centres where tutorial classes are offered, which can result in high travelling costs should they want to attend these classes on a weekly basis.
	Yes, but tutorials did not help	7.2	12	
	No, could manage on my own	25.3	42	
	No, nearest centre too far	22.9	38	
	No, FAC2602 tutorials available	18.1	30	

Contact sessions at Unisa		%	N	Findings
	No, did not know about the classes	12.0	20	
Q27 Did you attend any Unisa group discussion classes in the past? (missing = 37)	Yes	32.5	54	Not even a third of the participants (32.5%) indicated they did attend discussion classes in the past. There could have been various reasons for this, but most often students wanted to have some form of contact and interaction with the lecturer on the module (refer sections 5.5.2.1 and 5.5.2.2), but work commitments and staying far from where these classes were, proved to be a drawback.
	No, could cope on my own	12.1	20	
	No, it was too far	18.1	30	
	No, did not know about the classes	10.8	18	
	No, could not get leave	18.1	30	
	No, had other commitments	7.2	12	
	No, find it a waste of time	1.2	2	

Table 5.5 reveals that 21.7% of the participants attended tutorial classes while 32.5% attended group discussion classes. Considering that most of the participants were part-time students who worked during the day (refer section 5.3.1), a large number of these students still found time to attend contact sessions as they were of the opinion that these sessions could assist them to understand the accounting concepts necessary to be successful in the FAC2602 module. The participants who did not attend these classes indicated they stayed too far from the learning centres, they could not get leave or found the Unisa learning centre did not offer classes for FAC2602. Accounting students need support as all Accounting modules include calculations and concepts, and students most often struggle with these (refer section 5.4.1.2 and 5.5.2.2). Face-to-face situations, such as a group discussion classes, are always helpful to present such calculations and concepts visually to students (refer section 5.4.3). However, as the feedback from the participants indicated that a low percentage of them made use of these contact sessions, I was curious to understand the role technology at Unisa played to lessen the transactional distance.

5.3.2.2 Preferences regarding the use of myUnisa

To enable me to understand the role *myUnisa* had on providing the participating students with a tool to communicate with lecturers and other students, participants' preferences (obtained from their responses to questions 13 to 18) regarding the use of *myUnisa* for study purposes, downloading study material, submitting assignments, as well as discussion forum activities and use of e-mails are summarised in Table 5.6.

Table 5.6: Participants' preferences regarding the use of *myUnisa* and e-mails

Use of <i>myUnisa</i> and e-mails		%	N	Findings
Q13 Do you prefer getting study material on <i>myUnisa</i> or via e-mail only? (missing = 23)	Yes	27.8	50	Although 85.6% (Table 5.4) could use a computer if they wanted to, 72.2% preferred to get their Unisa study material in the post. This might be related to the cost of printing large documents, not having access to printers or the fact that getting the study material in the post is more convenient and less time-consuming.
	No	72.2	130	
Q14 Have you submitted any FAC2602 assignments via <i>myUnisa</i> ? (missing = 24)	Yes	95.0	170	Although participants preferred to get their study material via the post (Q13), 95% of the participants submitted their assignments via the internet. As most of the students had access to a computer and the internet (Table 5.4), submitting assignments on-line seemed to be convenient to most of them.
	Do not know how	0.6	1	
	Prefer to post	4.4	8	
Q15 FAC2602 discussion	Have read and posted comments	25.8	46	The fact that lecturers often posted important information regarding

Use of <i>myUnisa</i> and e-mails		%	N	Findings
forum on <i>myUnisa</i> (missing = 25)	Have read only	49.4	88	assignments and examination preparation on <i>myUnisa</i> could be the reason why 49.4% of the participants read the comments.
	Did not know about discussion forum	13.5	24	
	Not interested	10.7	19	
	No internet access	0.6	1	
Q16 Used the “official study materials” tool on <i>myUnisa</i> to access and download FAC2602 study material (missing = 26)	Yes	88.7	157	Although 72.2% of the participants indicated they would prefer not to get their study material via the internet, a high percentage of participants (88.7%) accessed <i>myUnisa</i> and downloaded study materials from the website.
	No need to	7.9	14	
	Did not know I can download study material from <i>myUnisa</i>	1.1	2	
	Do not know how to download	1.7	3	
	No internet access	0.6	1	
Q17 Activated <i>myLife</i> Unisa e-mail account (missing = 27)	Yes	98.3	173	As it is compulsory for Unisa students to activate their <i>myLife</i> e-mail account to gain access to <i>myUnisa</i> , nearly all the participants indicated that they had activated their <i>myLife</i> e-mail accounts.
	No	1.7	3	
Q18 Communicated with FAC2602 lecturers using e-mails (missing = 29)	Yes	27.6	48	Two thirds of the participants indicated they had no need to communicate with the lecturers by e-mail.
	No need to	69.0	120	
	No internet access	3.4	6	

Even though most of the participants (97.2%) had access to a computer and the internet (96.1%) (Table 5.4), only a small percentage of participants (25.8%) interacted with other students and the lecturer via the discussion forum. A similar low percentage (27.6%) used e-mails to communicate with the lecturer; thus, although students had easy access to computers and the internet, the feedback from the participants still indicated that they did not make use of these technologies to increase the didactic conversation (cf. Holmberg, 1982) between themselves, fellow students and/or the lecturers. If students had access to computers and the internet, I wanted to understand why they did not use computers and the internet to increase the didactic conversation (cf. Holmberg, 1982) which would have resulted in a decrease in the transactional distance (cf. Moore, 1973).

5.3.2.3 Participants' perceptions regarding the ease of using various technologies at Unisa

Considering the various technologies available to students at Unisa and participants' preferences regarding the use of these technologies, Questionnaire 1 also sought to obtain feedback through questions 28.1 to 28.10 regarding the ease of using these different technologies. The responses are summarised in Table 5.7.

Table 5.7: Participants' perceptions regarding the ease of using various technologies at Unisa

Ease of using various technologies at Unisa		%	N	Findings
Q28.1 Accessing the internet (missing = 44)	Very comfortable	84.9	135	Of the participants, 84.9% indicated they could access the internet with ease. This also related to the findings (Table 5.4) when they indicated they had access to a computer and easy access to the internet.
	Relatively comfortable	12.6	20	
	Not used to, but eventually succeeded	1.3	2	
	Totally out of my depth	0.6	1	
	Do not have access to the internet of cell phone	0	0	

Ease of using various technologies at Unisa		%	N	Findings
	Have access, but never attempted	0.6	1	
Q28.2 Accessing myUnisa (missing = 44)	Very comfortable	91.8	146	Nearly 92% of the participants could access <i>myUnisa</i> easily. Once again, this corresponded to the fact that the participants had access to a computer and the internet and knew how to use it.
	Relatively comfortable	6.9	11	
	Not used to, but eventually succeeded	1.3	2	
	Totally out of my depth	0	0	
	Do not have access to the internet of cell phone	0	0	
	Have access, but never attempted	0	0	
Q28.3 Activating myLife e-mail account (missing = 44)	Very comfortable	83.6	133	83.6% of the participants could comfortably activate their <i>myLife</i> e-mail.
	Relatively comfortable	10.7	17	
	Not used to, but eventually succeeded	4.4	7	
	Totally out of my depth	0	0	
	Do not have access to the internet of cell phone	0	0	
	Have access, but never attempted	1.3	2	
Q28.4 Submitting an assignment on- line via myUnisa (missing = 44)	Very comfortable	91.2	145	Of the participants, 98.1% could comfortably submit an assignment on-line via <i>myUnisa</i> .
	Relatively comfortable	6.9	11	

Ease of using various technologies at Unisa		%	N	Findings
	Not used to, but eventually succeeded	1.3	2	
	Totally out of my depth	0.6	1	
	Do not have access to the internet of cell phone	0	0	
	Have access, but never attempted	0	0	
Q28.5 Accessing study links on myUnisa and downloading study material (missing = 44)	Very comfortable	79.2	126	The majority of the participants (79.2) could access and download study material from myUnisa.
	Relatively comfortable	13.2	21	
	Not used to, but eventually succeeded	5.7	9	
	Totally out of my depth	1.9	3	
	Do not have access to the internet of cell phone	0	0	
	Have access, but never attempted	0	0	
Q28.6 Taking part in discussion forum on myUnisa (missing = 44)	Very comfortable	52.2	83	More than two thirds of the participants participated in the discussion forum (either reading and/or posting comments) while 16.4% of the participants never attempted or were not interested to participate in the discussions. The fact that 69.2% of the participants were comfortable to take part is in line with their familiarity with computers and the internet (Q28.1 to Q28.5).
	Relatively comfortable	17.0	27	
	Not used to, but eventually succeeded	9.4	15	
	Totally out of my depth	5.0	8	
	Do not have access to the internet of cell phone	0	0	
	Have access, but never attempted	16.4	26	

Ease of using various technologies at Unisa		%	N	Findings
Q28.7 Communicating with FAC2602 lecturer using SMSes (missing = 44)	Very comfortable	30.8	49	Of the participants, 30.8% were very comfortable to communicate with the lecturer using SMSes and a further 20.1% indicated they were relatively comfortable.
	Relatively comfortable	20.1	32	
	Not used to, but eventually succeeded	11.3	18	
	Totally out of my depth	5.7	9	
	Do not have access to the internet of cell phone	0	0	
	Have access, but never attempted	32.1	51	
Q28.8 Downloading FAC2602 podcasts from myUnisa (missing = 44)	Very comfortable	47.8	76	The majority of participants (65.4%) were comfortable with downloading podcast tracks from <i>myUnisa</i> .
	Relatively comfortable	17.6	28	
	Not used to, but eventually succeeded	9.4	15	
	Totally out of my depth	8.8	14	
	Do not have access to the internet of cell phone	0.6	1	
	Have access, but never attempted	15.8	25	
Q28.9 Listening to the FAC2602 CDs (missing = 44)	Very comfortable	76.1	121	Nearly 90% of the participants found listening to the CDs comfortable. Only a small percentage of the participants (7.5%) had no access to the internet and/or a mobile phone and did not attempt to
	Relatively comfortable	12.6	20	
	Not used to, but eventually succeeded	3.2	5	

Ease of using various technologies at Unisa		%	N	Findings
	Totally out of my depth	0.6	1	listen to the CDs.
	Do not have access to the internet or cell phone	0.6	1	
	Have access, but never attempted	6.9	11	
Q28.10 Watching the FAC2602 DVD (missing = 44)	Very comfortable	74.2	118	Feedback regarding the ease of use for the DVD was very similar to that regarding CDs, as 84.9% found it comfortable and only 10% did not attempt to watch the DVD.
	Relatively comfortable	10.7	17	
	Not used to, but eventually succeeded	3.8	6	
	Totally out of my depth	1.3	2	
	Do not have access to the internet of cell phone	0.6	1	
	Have access, but never attempted	9.4	15	

The feedback provided by the participants in Table 5.7 indicated they were comfortable with accessing the internet, *myUnisa* and e-mails. They also specified that they had no problem submitting assignments on-line and downloading study materials. This feedback was positive as Unisa, as a DE institution, relies on computers and their students' access to the internet to provide students with study material and student support and to communicate regularly. Unisa (2007:5) furthermore defines its character as a comprehensive institution as follows:

Multiple modes of delivery and learner support based primarily on open and distance education methodologies, underpinned by learner-centeredness; making use of cost effective and appropriate information and communication technologies to enhance learning, and direct contact with students where practicable and necessary.

This is also in line with the guidelines provided by the White Paper for Post-school Education and Training (DHET, 2013:xvi), which encourages institutions to expand on-line and blended learning as a way to offer programmes to students and to incorporate technologies to assist with increasing student success (DHET, 2013:33). It was evident from the FAC2602 participants' responses summarised in Table 5.7 that the participating students were generally comfortable using the various technologies utilised by Unisa at the time of the present research.

Figure 5.4 portrays a visual presentation of Table 5.7 regarding the participants' perceptions on the ease of making use of these technologies.

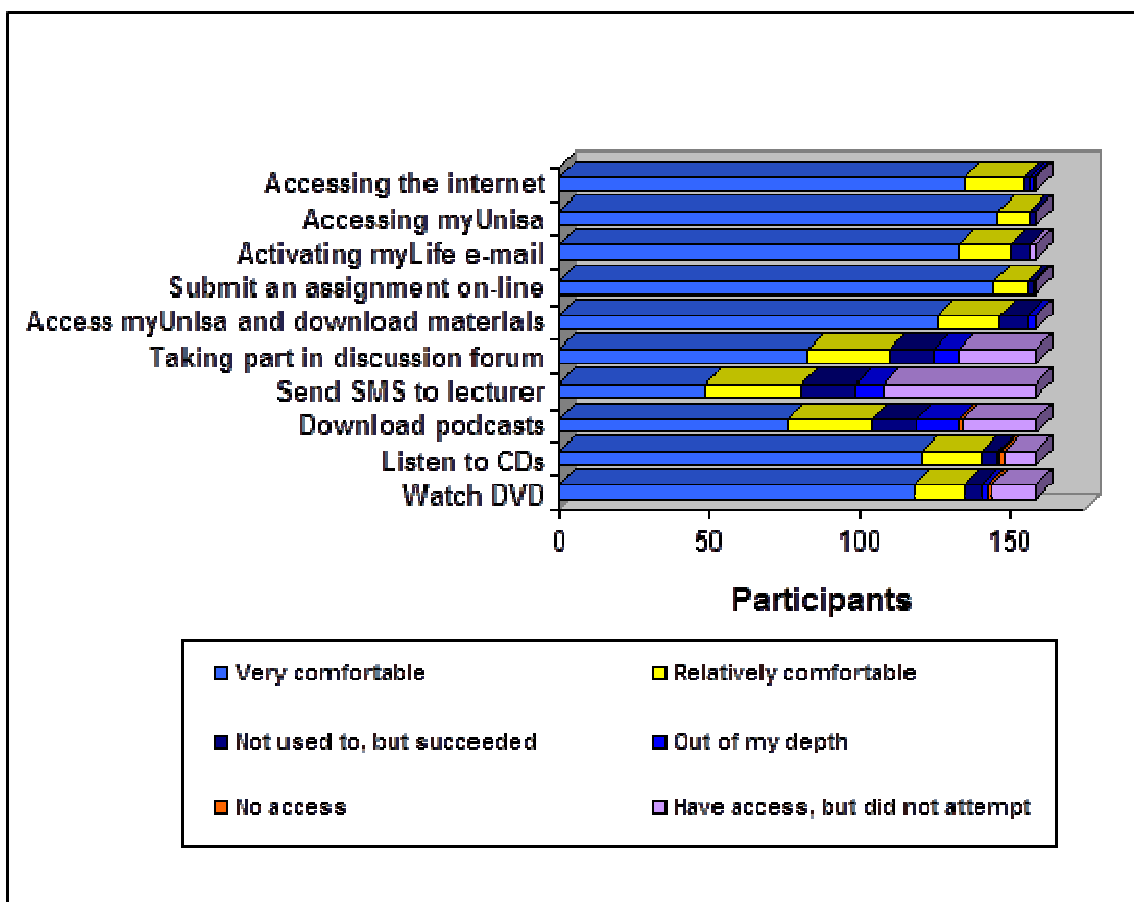


Figure 5.4: Participants' perceptions regarding the ease of using various technologies at Unisa

Regarding the various technologies available at Unisa at the time of the present study, it was evident that, although the participants had access to computers and the internet, they used the computers mainly to submit assignments, download study material and to activate their Unisa e-mail accounts, but seldom used it to communicate with other students and/or the lecturer via the discussion forum.

Referring to the theories of Holmberg (1982) and Moore (1973) (Chapter 2), it is obvious that computers and the internet played an important role to lessen the transactional distance (cf. Moore, 1973), but they did not assist to increase the didactic conversation (cf. Holmberg, 1982) which is also an important factor for student success in a DE/ODL environment (refer section 2.3.1). At the time of the present research in 2012, when Unisa students wanted to ask their lecturer a question, two-way conversation was mainly through e-mails.

Considering that most of the participants were part-time students (refer Q4) with limited time available for studies (at night and during weekends), these students could opt for the easiest, most familiar technologies to assist them in their studies. This is evident when considering the feedback from the participants in Table 5.7. Participants were more comfortable with listening to the CDs (Q28.9) and watching the DVD (Q28.10), compared to taking part in discussion forum (Q28.6), sending an SMS to the lecturer (Q28.7) and downloading a podcast track (Q28.8). Section 5.4.2.4 reports on the participants' perceptions and experiences on the use of SMSes in the FAC2602 module.

5.3.2.4 Participants' preferences regarding the role of SMSes in the FAC2602 module

In order to understand how the participating FAC2602 students perceived the use of SMSes in the FAC2602 module, I included six questions regarding the use of the SMSes in Questionnaire 1. The responses of the participants regarding the use of SMSes in the FAC2602 module (Questionnaire 1, questions 20 to 25) are summarised in Table 5.8.

Table 5.8: Participants' preferences regarding the role of SMSes

Role of SMSes		%	N	Findings
Q20 Have you received the FAC2602 SMSes? (missing = 35)	Yes	95.8	161	Nearly all of the participants (95.8%) received the FAC2602 SMSes. This is significant, as the study set out to understand the participating FAC2602 students' perceptions on the use of mobile phones to lessen the transactional distance and to increase the didactic conversation (refer section 1.5).
	No	4.2	7	
Q21 Why did you not receive the FAC2602 SMSes? (missing = 35)	Did not provide Unisa with my number	1.8	3	The 4.2% of the participants who did not receive the SMSes did not provide Unisa with their number, changed the number or did not know why they have not received the SMSes. This indirectly means that if Unisa had their contact details, they also would have received the SMSes (Q20).
	Number changed	0.6	1	
	I did receive the SMSes	95.8	161	
	Do not have a cell phone	0	0	
	Do not know why I have not receive the SMSes	1.8	3	
Q22 Have you read and applied the content of SMSes in your studies? (missing = 35)	Yes	85.6	143	Nearly 86% of the participants indicated they had read and applied the content of the FAC2602 SMSes in their studies. This is a positive result as this was what the intervention intended to accomplish.
	No	10.2	19	
	Have not received SMSes	4.2	6	
Q23 Did the SMSes keep	Yes	85.6	143	Once again, a high percentage of participants (85.6%) were of the opinion

Role of SMSes		%	N	Findings
you motivated in your FAC2602 studies? (missing = 36)	No	10.2	17	that the SMSes motivated them in their studies. Motivation contributes to student retention and success (refer section 2.4.6).
	Have not received SMSes	4.2	7	
Q24 Should other modules at Unisa use similar SMSes? (missing = 36)	No	1.2	2	Nearly three quarters of the participants indicated they would like to see other modules at Unisa also making use of similar SMSes.
	Not sure	4.2	7	
	Perhaps	16.8	28	
	Definitely	73.6	123	
Q25 Have you sent SMSes to your FAC2602 lecturers? (missing = 37)	Have not received the SMSes	4.2	7	The fact that nearly 50% of the participants did not know they could send an SMS to the lecturer could be related to this being an initiative only available to FAC2602 students. Furthermore, it could be that the participants did not notice the announcements and instructions in the tutorial letters, and/or that they were not familiar with the new concept of sending SMSes to lecturers.
	Yes	3.0	5	
	Did not want to	48.2	80	
	Did not know I could	48.8	81	

Almost all of the participants who had a mobile phone received the FAC2602 SMSes (95.8%). The majority of the participants also revealed a positive reaction regarding the use of SMSes at Unisa as nearly 86% of the participants read and applied the content of the SMSes in their studies and the same percentage of participants (86%) were motivated by these SMSes. The positive responses regarding the outcome of these SMSes were also obvious when 73.6% of the participants wanted other modules at Unisa to make use of similar SMSes as well. However, students will have to keep Unisa informed of their mobile phone numbers so that all students can be

reached via this technology. This will provide the 'vehicle' (refer section 2.5.1) lecturers can use to increase didactic conversation (cf. Holmberg, 1982) and lessen transactional distance (cf. Moore, 1973).

In addition to the possibilities of using mobile phones and SMSes in an Accounting module to assist students, I also wanted to understand how the participating FAC2602 students perceived the use of podcasts in the module. This is reported in the next section.

5.3.2.5 Participants' preferences regarding the use of podcasts in the FAC2602 module

In order to understand the participating FAC2602 students' preferences on the use of podcasts in the module, Questionnaire 1 included Q33 and Q34, which covered the download perceptions and the usefulness of the podcasts. Participants' preferences regarding the use of podcasts in the FAC2602 module are summarised in Table 5.9.

Table 5.9: Participants' preferences regarding the use of podcasts

Preferences regarding podcasts		%	N	Findings
Q33a Did you download and listen to the FAC2602 podcasts on myUnisa? (missing = 45)	Yes	36.7	58	Just more than a third of the participants (36.7%) downloaded the podcasts from myUnisa. As the content of the podcasts was similar to the explanations provided to the students at the group discussion classes in the past (refer section 4.4.3), I was hoping I could share my knowledge of the FAC2602 module content with all the students.
	No	63.3	100	
Q33b Why did you not find the FAC2602 podcasts useful? <u>Indicate all that apply.</u>	Q33b1 Did not have time to listen	25.0	34	Considering these were mostly part-time students (refer Q4), the main reason given by the participants who did not download the podcasts was they had no time to listen to the podcasts. What was also positive from the responses was that 20.6% listened to the CDs (same content as podcasts) and 25.7% watched the DVD (same content as podcasts but a visual medium).
	Q33b2 Was not interested	4.4	6	
	Q33b3 Was not able to download from myUnisa	21.3	29	
	Q33b4 Had no internet access to download	3.0	4	
	Q33b5 Listened to the CDs	20.6	28	
	Q33b6 Watched the DVD	25.7	35	
Q34 Did you download the podcasts from myUnisa before you received the actual CDs? (missing = 46)	Yes	24.2	38	Nearly a quarter of the participants (24.2%) downloaded the podcasts from myUnisa before they received the CDs. However, nearly 34% of the participants preferred the original CDs to the podcasts. This might be related to the fact that only 72.2% of the participants had easy access to the internet as many also indicated they could not download the podcasts. It is also expensive to download podcasts from the internet (Ng'ambi & Lombe, 2012:184).
	Did not know the podcasts were available on myUnisa	20.4	32	
	Could not download the podcasts from myUnisa	12.7	20	
	Too much trouble to download the podcasts	5.1	8	

Preferences regarding podcasts		%	N	Findings
	Started to download, but took too long	3.8	6	
	Preferred the original CDs	33.8	53	

A graphic representation of the reasons participants gave for not finding the podcasts useful is displayed in Figure 5.5.

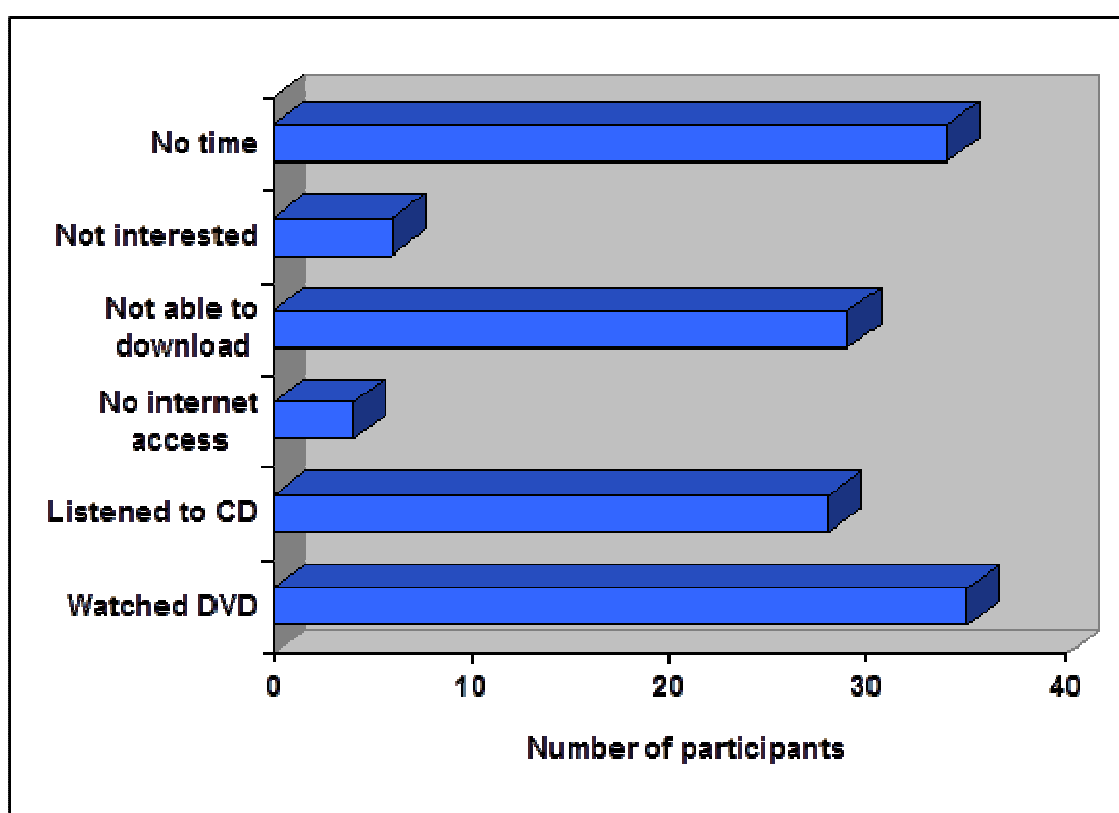


Figure 5.5: Participants' reasons for not finding the FAC2602 podcasts useful

As the podcasts and study material were available to students at the beginning of the semester, nearly a quarter of the participants (24.2%) downloaded the 24 podcast tracks (which could have been costly) from *myUnisa*. As these were mostly part-time students, they preferred to start with their studies as soon as possible during a semester. The fact that the podcast tracks were made available to students on a CD as well (to save them time and money) was one of the reasons the participants preferred to make use of the original CDs.

In order to understand the participants' preferences regarding the use of the CDs, I included Q32 in Questionnaire 1, and their responses are included in the next section.

5.3.2.6 Participants' preferences regarding the use of CDs and the accompanying tutorial letter in the FAC2602 module

Question 32 was included to obtain participants' views on the use of the FAC2602 CDs in the module to assist with teaching and learning. Participants' preferences regarding the FAC2602 CDs and the accompanying tutorial letter as well as the reasons for not finding the CDs useful are summarised in Table 5.10.

Table 5.10: Participants' preferences regarding the CDs and accompanying tutorial letter

Preferences regarding CDs		%	N	Findings
Q32 Did you find the CDs accompanying the FAC2602 tutorial letter helpful? (missing = 44)	Yes	80.5	128	A high percentage (80.5%) of the participants found the CDs and accompanying tutorial letter helpful. This was positive as the FAC2602 syllabus is covered in detail on these CDs and various difficult concepts are explained thoroughly.
	No	19.5	31	
Q32a Why did you not find the FAC2602 CDs useful? <u>Indicate all that apply.</u>	Q32a1 Did not have time to listen	53.1	17	The main reason given by the 31 participants who did not find the CDs useful was they had no time to listen to the CDs. (Also refer section 5.3.2.8)
	Q32a2 Was not interested	15.6	5	
	Q32a3 Had no access to a CD player	12.5	4	
	Q32a4 Downloaded and listened to the podcasts	6.3	2	
	Q32a5 Watched the DVD	12.5	4	

Although five participants indicated they were not interested in the content of the CDs, and four participants had no access to a CD player, a total of 128 participants made time in their busy schedules to listen to the CDs. Once again the results were positive, as the CDs also proved to be an effective 'vehicle' (refer section 2.5.1) to transport the content and explanations from the lecturer to the students in an ODL context and by doing so lessen the transactional distance (cf. Moore, 1973).

A graphic representation of the reasons given by participants for not finding the CDs and accompanying tutorial letter useful can be seen in Figure 5.6.

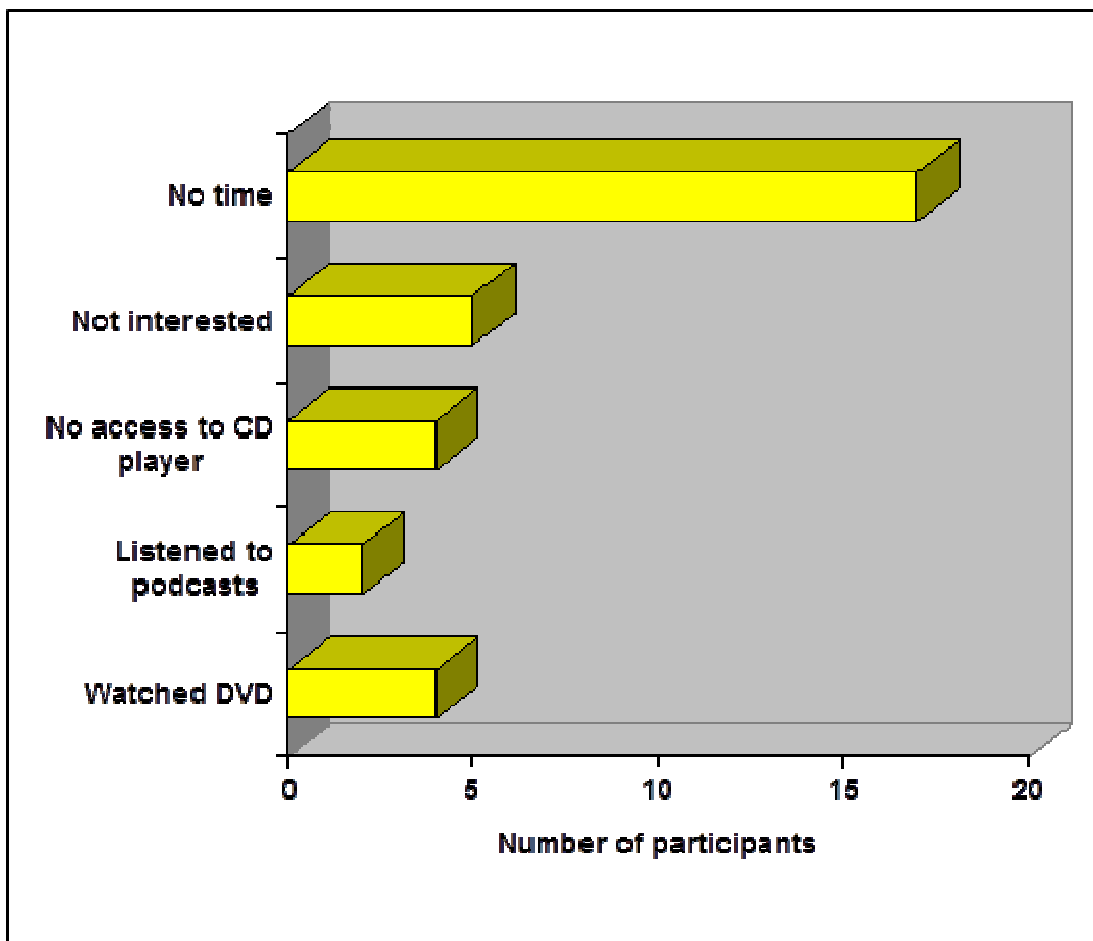


Figure 5.6: Participants' reasons for not finding the FAC2602 CDs and accompanying tutorial letter useful

As was also identified in terms of the podcasts (refer section 5.3.2.5), it was once again evident that a lack of time seemed to be a major constraint to participants. The previous section reported on the participants' perceptions on the use of SMSes,

podcasts and CDs in the FAC2602 module, and the next section will describe their perceptions on the use of the DVD.

5.3.2.7 Participants' perceptions regarding the use of a DVD in the FAC2602 module

As mentioned previously (refer section 1.3.3), although the study set out to understand the application of mobile phones in the teaching and learning of the FAC2602 module content, a DVD was also integrated into the study and distributed to students in 2012 (refer section 4.4.3). The DVD was a visual combination of the tutorial letter that accompanied the CDs and the audio recordings of the podcasts; thus no new or different content. The aim of questions 31 and 31a was to determine whether participants preferred the DVD, when compared to the CDs/podcasts and tutorial letter. Participants' preferences regarding the FAC2602 DVD and the accompanying tutorial letter as well as the reasons for not finding the DVD useful are summarised in Table 5.11.

Table 5.11: Participants' preferences regarding the DVD

Preferences regarding the DVD		%	N	Findings
Q31 Did you find the FAC2602 DVD helpful? (missing = 44)	Yes	79.2	126	Nearly 80% of the participants found the DVD helpful. This is similar to the percentage of participants who found the CDs helpful (refer Table 5.10).
	No	20.8	33	
Q31a Why did you not find the FAC2602 DVD useful? <u>Indicate all that apply.</u>	Q31a1 Did not have time to watch	38.5	15	The main reason given by the participants, who did not find the DVD useful, was that they did not have time to watch. Once again, the fact that these participants most certainly work while studying (Q4) might have been the reason why they do not have time to watch the DVD.
	Q31a2 Was not interested	17.9	7	
	Q31a3 Had no access to a DVD player	15.4	6	
	Q31a4 Downloaded and listened to the podcasts	10.3	4	
	Q31a5 Listened to the CDs	17.9	7	

A high percentage of the participants (79.2%) who watched the DVD were of the opinion that the DVD was helpful. Fifteen of the participants indicated they did not have time to watch the DVD, while only six indicated they had no access to a DVD player. From the 33 students who did not find the DVD helpful, four and seven respectively indicated they listened to the podcasts and/or the CDs.

A graphic representation of the reasons the participants gave for not watching the DVD can be seen in Figure 5.7.

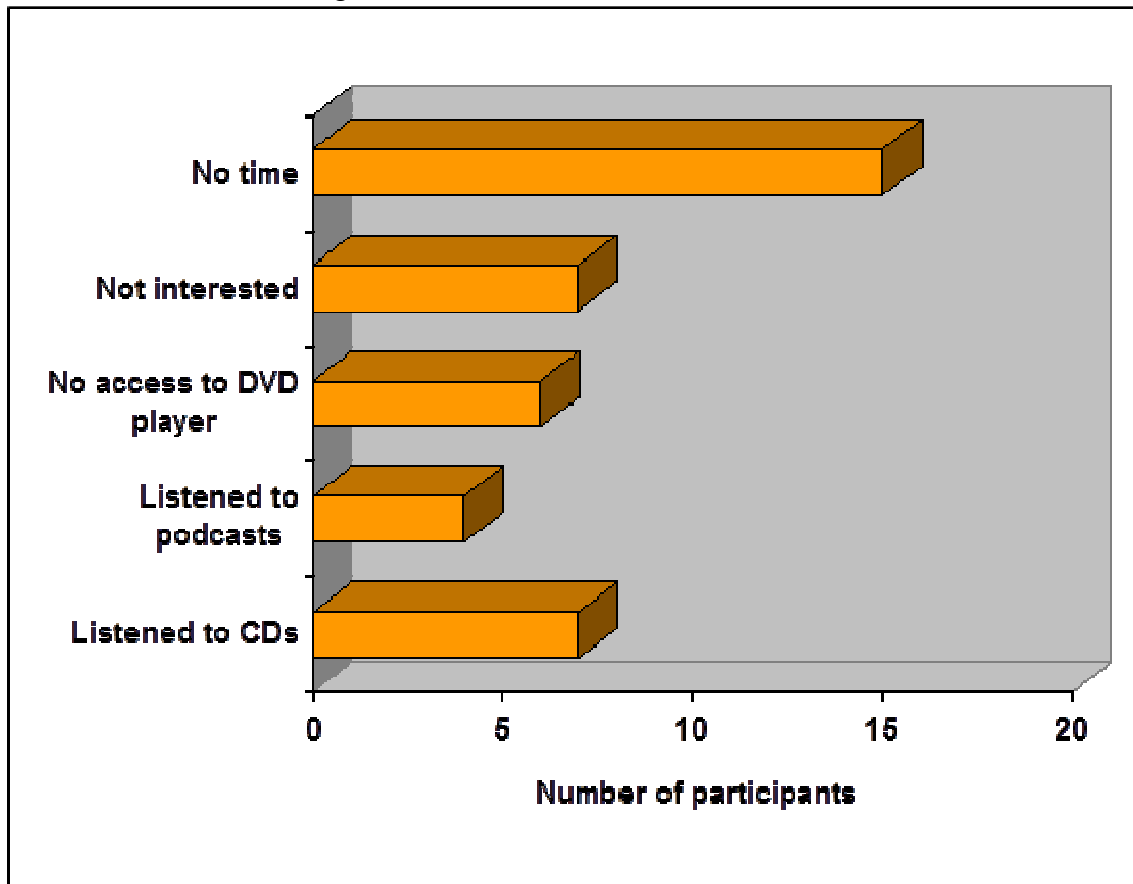


Figure 5.7: Participants' reasons for not finding the FAC2602 DVD useful

Similar to feedback regarding the CDs and the podcast, some of the participants once again indicated they did not have enough time to watch the DVD. Again, the fact that most of these students (nearly 80%) were part-time students who worked during the day, became evident from their feedback as time to study was limited.

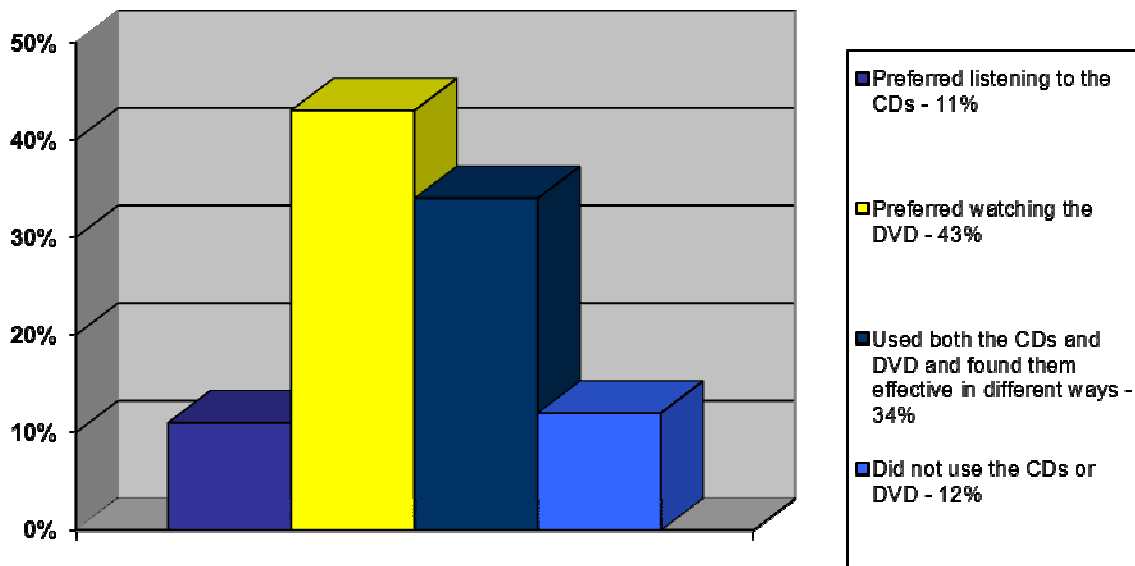
Sections 5.3.2.4 to 5.3.2.7 reported on the perceptions of the participants on the four interventions in the FAC2602 module, namely SMSes, podcasts, CDs and the DVD. The SMSes, CDs and the DVD were most helpful according to the feedback. When considering the high percentages of participants who acknowledged the assistance provided by these technologies, namely SMSes (85.6%), CDs (80.5%) and the DVD (79.2%), it was evident that accounting students' retention and throughput could benefit from these interventions. The main reason provided by the participants for not making use of a technology was mainly limited available time, which is understandable considering these were DE students who studied part-time.

The next two sections (5.3.2.8 and 5.3.2.9) report on the participants' preferences regarding CDs and/or a DVD in the FAC2602 module as well as their perceptions on the use of similar tools in other modules at Unisa.

5.3.2.8 Participants' perceptions regarding the use of CDs and a DVD in the FAC2602 module

As participants indicated the use of CDs and the DVD in the FAC2602 module as 'helpful' (sections 5.3.2.6 and 5.3.2.7), I also wanted to understand their perceptions on the use of these two technologies in more detail. Questions 35 and 38 asked participants' preferences regarding the use of CDs and a DVD in the FAC2602 module, and feedback is summarised in Figure 5.8.

**Q35 – Comparing the CDs to the DVD in the FAC2602 module
(missing = 46)**



**Q38 – Comparing the CDs and DVD to group discussion classes
(missing = 46)**

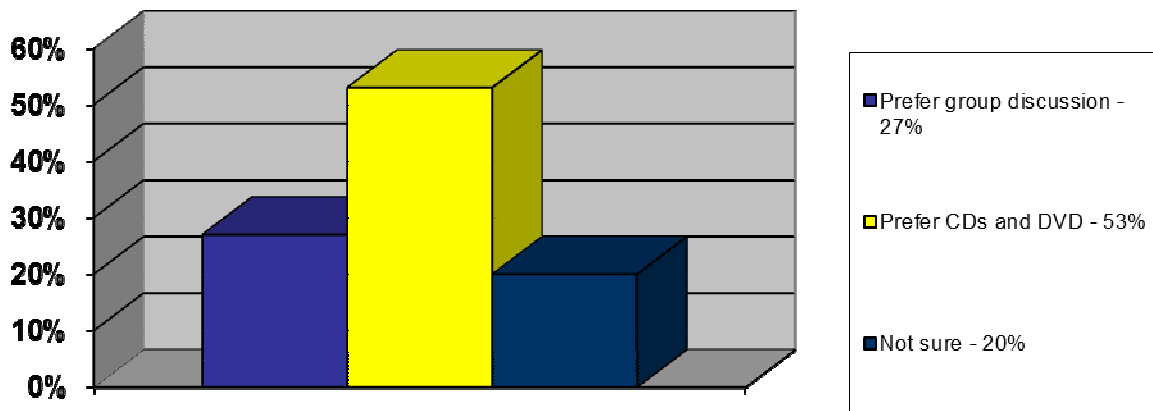


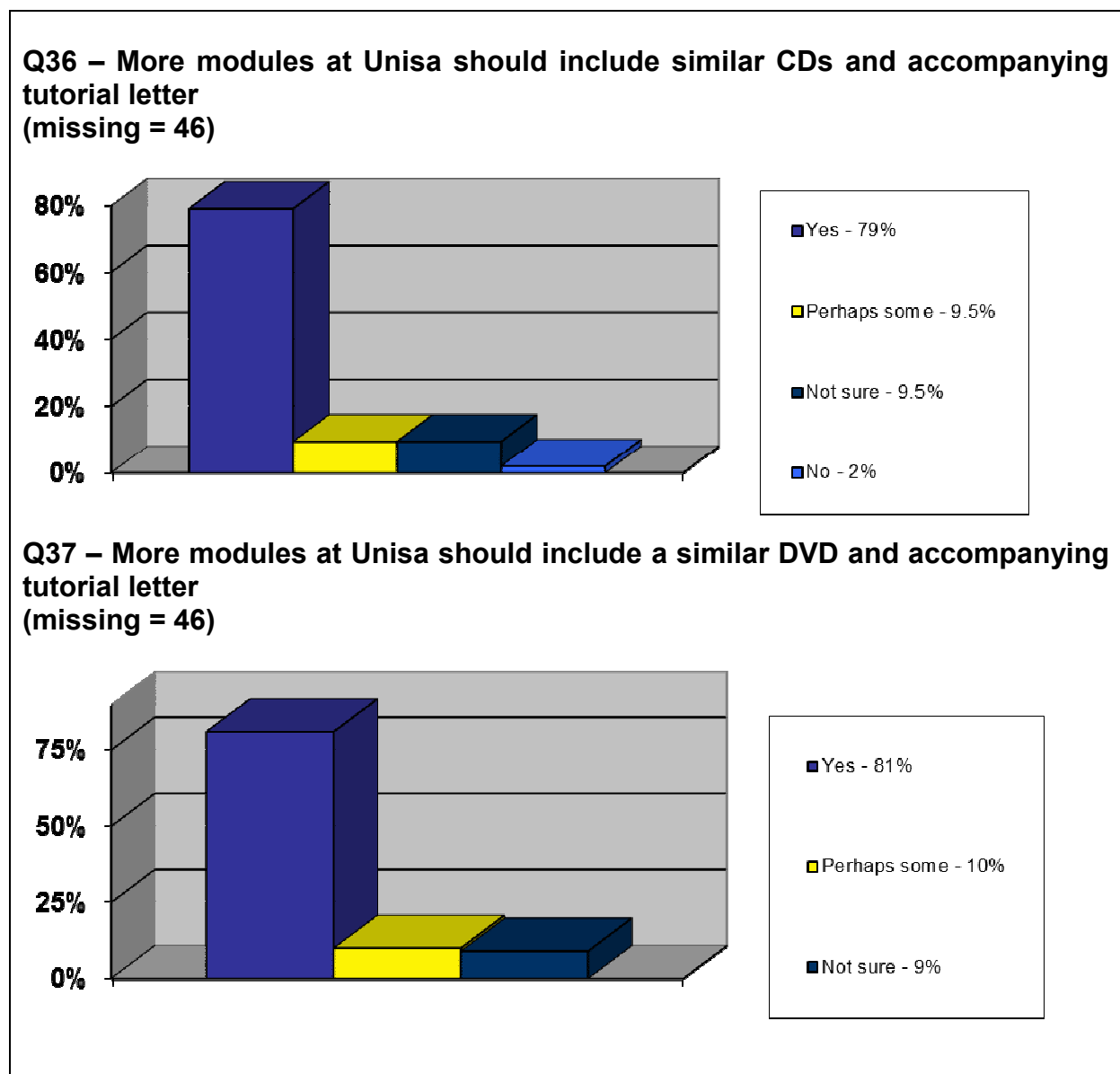
Figure 5.8: Participants' preferences regarding the use of CDs and a DVD in the FAC2602 module

When comparing the CDs to the DVD, the majority of participants (43%) preferred to watch the DVD compared to 11% who preferred to listen to the CDs. In addition, more than a third of the participants (34%) even preferred to watch the DVD and listen to the CDs. More than 50% of the participants also preferred the DVD and CDs to discussion classes. It was thus evident from the feedback that the participants preferred the use of the DVD and/or CDs for teaching and learning of the FAC2602 module content. The use of CDs and DVDs hence provides opportunities to other

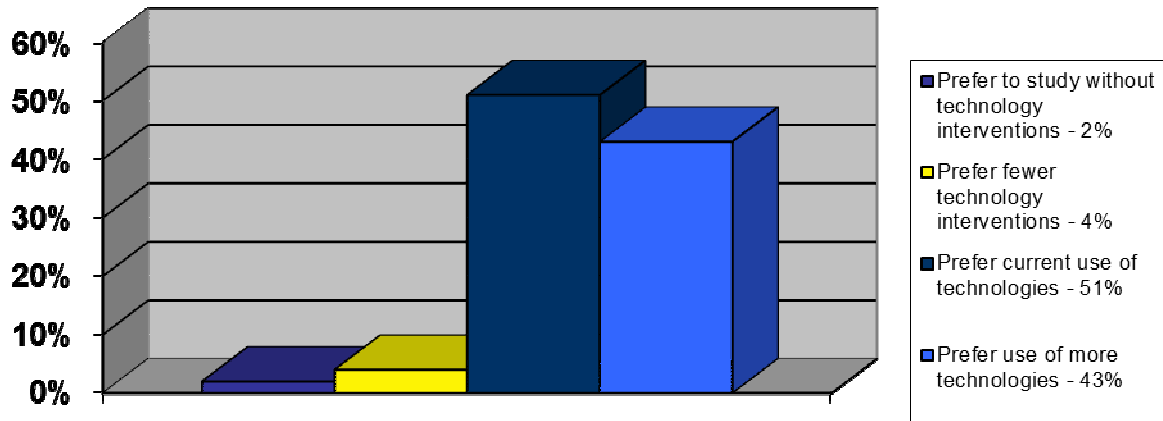
lecturers at Unisa to use these technologies to lessen the transactional distance (cf. Moore, 1973) and increase the didactic conversation (cf. Holmberg, 1982). To determine whether the participating FAC2602 students agreed with my perception, I wanted their feedback in this regard, and I therefore included four questions in this regard in Questionnaire 1. Their feedback is reported in the next section.

5.3.2.9 Participants' preferences regarding the use of similar technologies in other modules at Unisa

As the present study only focussed on FAC2602 students, I wanted participants to indicate their preferences regarding the use of similar technologies in other modules at Unisa. The feedback is summarised in Figure 5.9.



**Q40 – Preferences regarding the current use of technologies in the FAC2602 module
(missing = 46)**



**Q42 – Preferences regarding the use of technologies in a Unisa module
(missing = 49)**

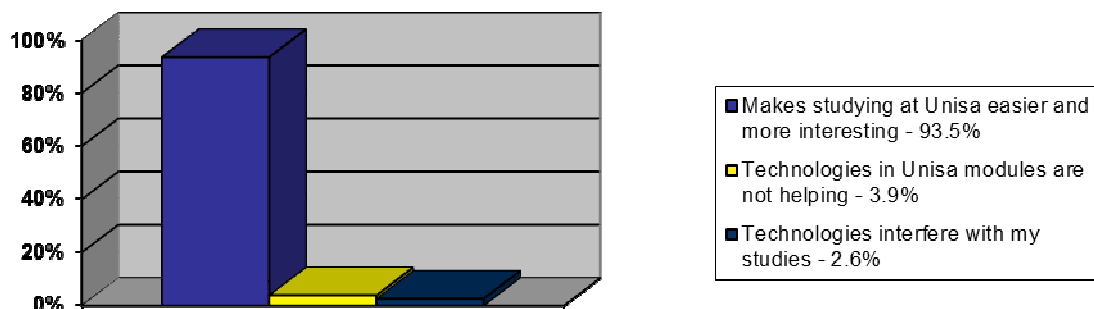


Figure 5.9: Participants' preferences regarding the use of similar technologies in other modules at Unisa

Feedback from the participants pointed towards a very positive perception regarding the use of technology as part of a DE module. Of the participants, 79% wanted more modules at Unisa to include similar CDs and an accompanying tutorial letter. An even higher percentage, namely 81% wanted a DVD to be included in other modules at Unisa. Regarding the extent to which technology should be part of a module, 51% of the participants preferred the number of interventions in FAC2602 to stay as they were at the time of the research, while 43% of the participants wanted even more technology to be included in the FAC2602 module. The consequence of the

technology intervention in the FAC2602 module was that nearly 94% of the participants were of the opinion that technology made studying at Unisa easier and interesting.

Section 5.3 reported (quantitatively) on the participants' perceptions regarding the various technologies used in the FAC2602 module and the possibilities of making use of similar technologies in other modules at Unisa. Although participants reported positively on the use of these technologies and were of the opinion that these interventions were beneficial to their studies, there was only a 5.22% increase in the throughput rate of FAC2602 students since the incorporation of the mobile phone interventions into the module (refer section 5.2). Therefore a further analysis of these participants' May 2012 examination results was necessary to determine whether these interventions did in fact have an effect on the retention and throughput rates of the FAC2602 students.

5.3.3 The associations between the positive perceptions of the participants and the mark categories

In an attempt to understand the possible effect of the mobile phone interventions on the throughput rates of the participants further, the final examination results of the 203 participants answering Questionnaire 1 were obtained from the FAC2602 examination file. The examination results were captured into SPSS and the mark distribution of the participants who wrote the May 2012 examination are displayed in Figure 5.10

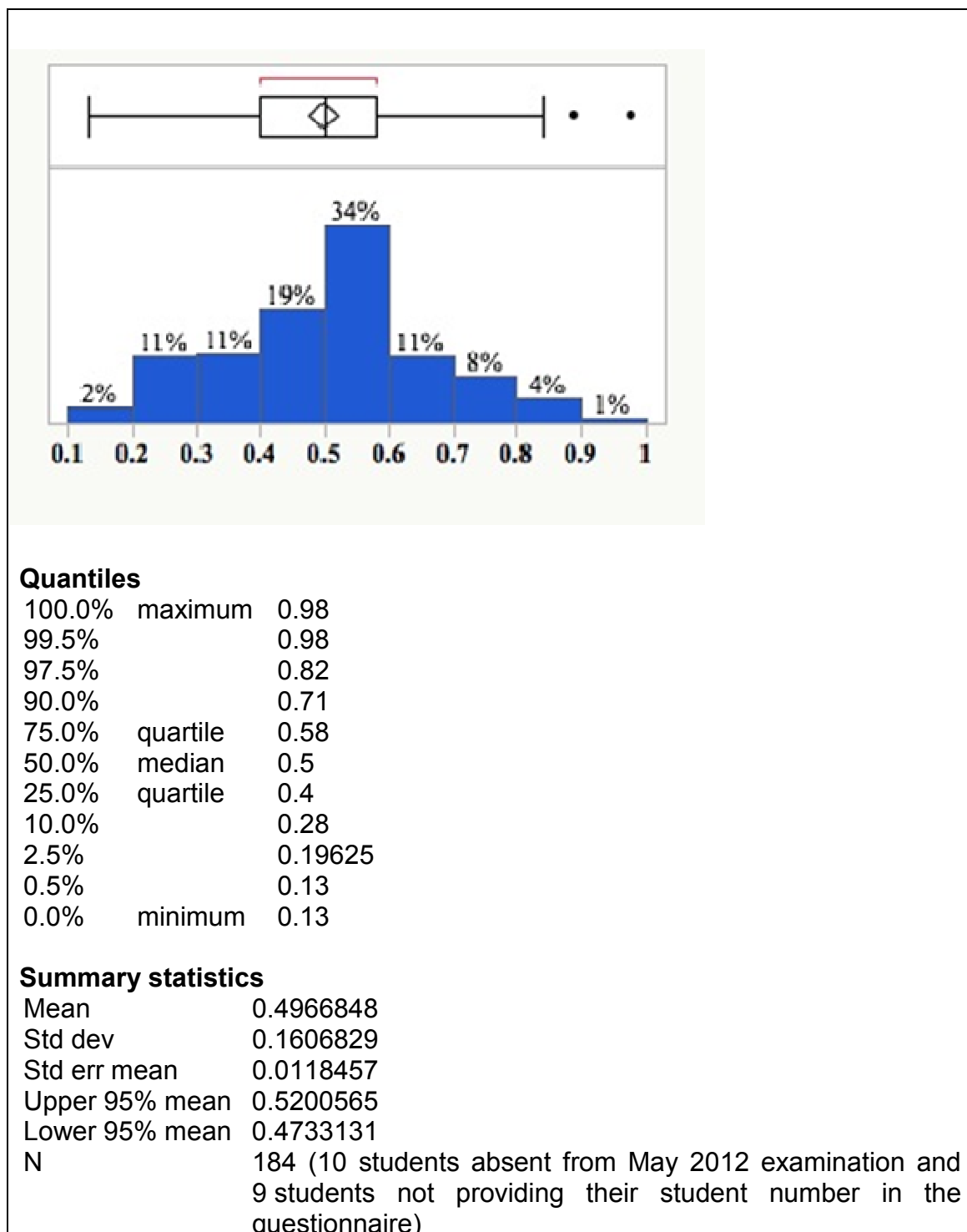


Figure 5.10: FAC2602 participants' May 2012 examination mark distribution

Figure 5.10 reveals that 43% of the participants obtained a final examination mark of below 50% in the May 2012 examination (also refer Figure 5.11), thus failing the FAC2602 module in that specific semester. In addition, 57% of the participants passed the examination, which was higher than the actual pass rate of the total

number of registered FAC2602 students (37.90% refer Table 5.2) in the particular examination.

Considering this higher passed rate, I wanted to know whether there was any association between the participants' examination results and the specific technology interventions they used during the semester. Consolidating the marks obtained by the participants in the May 2012 examination into three categories, namely below 50%, between 50% and 59% and 60% and higher, provided the results displayed in Figure 5.11.

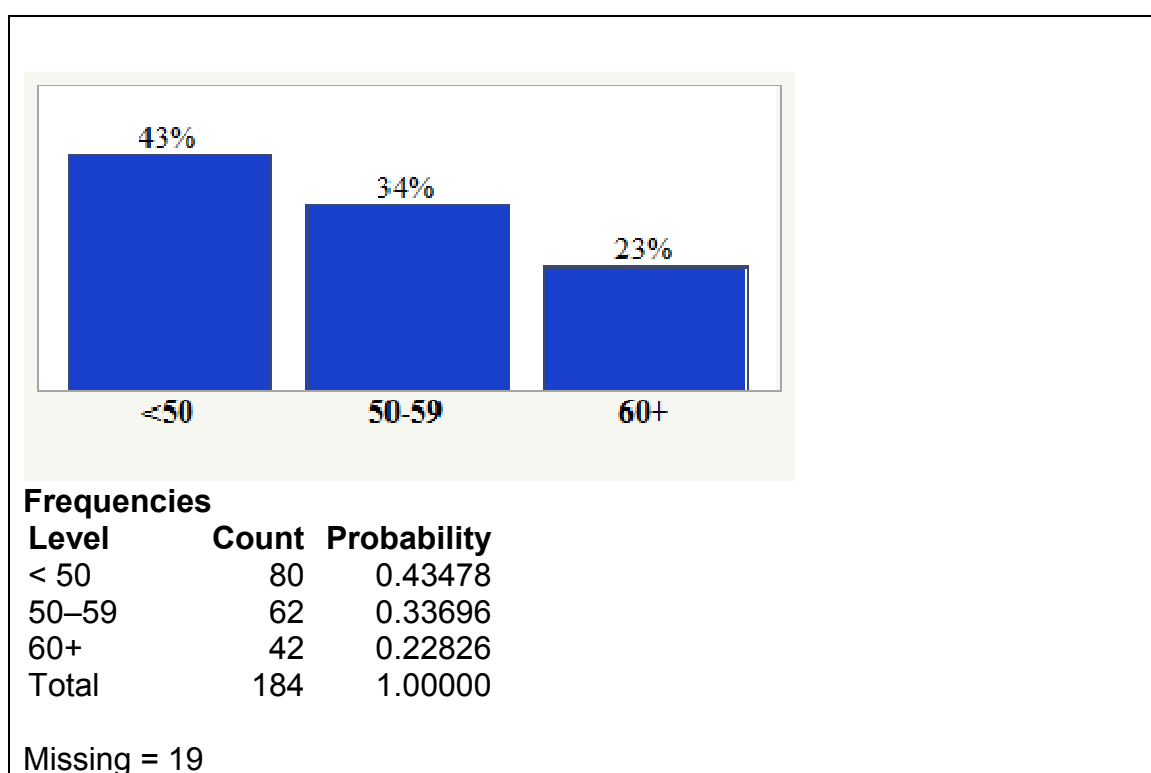


Figure 5.11: Examination results per category

A Pearson chi-square test was then conducted to examine whether there was a relationship between the three mark categories and the five interventions used by the participants during the semester (SMSes sent to students, SMSes sent to lecturers, podcasts, CDs and DVD). The test was conducted at the 95% significance level. The related contingency tables are presented in Table 5.12.

Table 5.12: Contingency tables by mark category

Q22 (SMS sent to students) by mark category				
Count Row %	< 50	50–59	60+	Total
No	14 60.87	4 17.39	5 21.74	23
Yes	57 41.61	48 35.04	32 23.36	137
	71 44.38	52 32.50	37 23.13	160

Q25 (SMS sent to lecturers) by mark category				
Count Row %	< 50	50–59	60+	Total
No	68 44.44	49 32.03	36 23.53	153
Yes	3 60.00	2 40.00	0 0.00	5
	71 44.94	51 32.28	36 22.78	158

Q33a (Podcasts) by mark category				
Count Row %	< 50	50–59	60+	Total
No	46 47.92	29 30.21	21 21.88	96
Yes	20 35.71	21 37.50	15 26.79	56
	66 43.42	50 32.89	36 23.68	152

Q32 (CDs) by mark category				
Count Row %	< 50	50–59	60+	Total
No	15 50.00	9 30.00	6 20.00	30
Yes	52 42.28	41 33.33	30 24.39	123
	67 43.79	50 32.68	36 23.53	153

Q31(DVD) by mark category				
Count Row %	< 50	50–59	60+	Total
No	20 62.50	8 25.00	4 12.50	32
Yes	47 38.84	42 34.71	32 26.45	121
	67 43.79	50 32.68	36 23.53	153

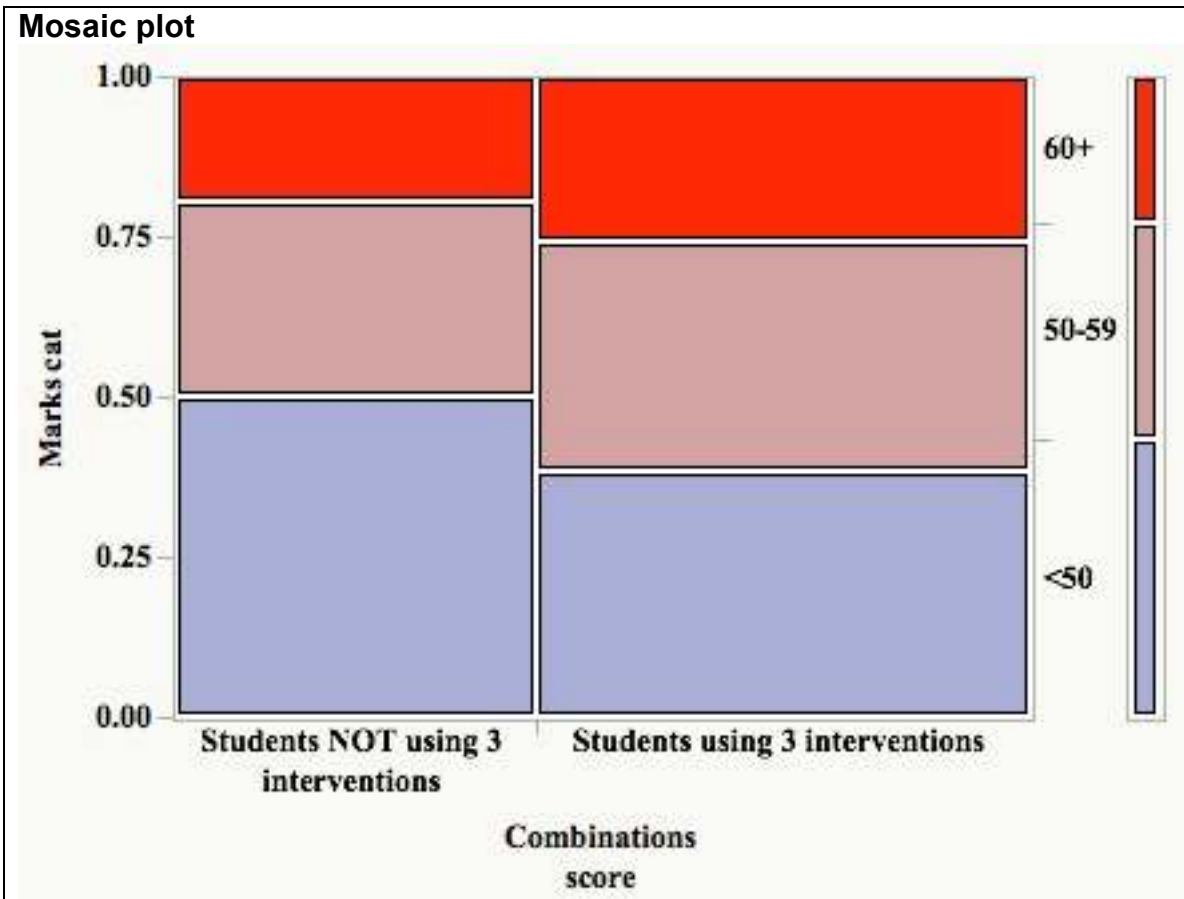
When comparing the interventions to the participants who failed the FAC2602 module (less than 50% Table 5.12), it became evident that only 38.84% of the participants who watched the DVD failed, compared to 62.50% of the participants who did not watch the DVD. Next, a chi-square test was used to test for an association between the marks obtained and the interventions used in the study. The association between the marks obtained by the participants per category and the five interventions are summarised in Table 5.13.

Table 5.13: Test of association between mark category and interventions

Variables	Degrees of freedom	Chi-square value	Prob>ChiSq	Significance
Q22 – SMSes sent to students compared to three mark categories	2	3.556	0.1690	Not significant
Q25 – SMSes sent to lecturers compared to three mark categories	2	1.533	0.4647	Not significant
Q33a – Podcasts downloaded and listened to compared to three mark categories	2	2.145	0.3422	Not significant
Q32 – Listened to CDs compared to three mark categories	2	0.608	0.7378	Not significant
Q31 – Watched DVD compared to three mark categories	2	6.056	0.0484	Significant

A probability value smaller than 0.05 indicated a statistically significant relationship between the intervention and the mark categories (cf. Hinton, McMurray & Brownlow, 2014:242). Thus, a significant association (0.0484) existed between the participants who watched the DVD and the three mark categories. There was thus a significant association between the participants who watched the DVD during the semester and their throughput rates. As highlighted previously in the study (refer section 1.3.2), I was of the opinion that if a DE accounting student could ‘see’ how calculations should be done and how the layout of their answer in the examination had to look, students would perform better. This might therefore be the reason why these participants performed better as they could ‘see’ what the lecturer wanted them to do.

Considering the fact that there was a significant association between throughput rates and the use of the DVD, I also wanted to establish whether participants who used more than one of the interventions had a higher score in the May 2012 examinations when compared to participants who did not make use of any of the interventions. Applying a score of 1 for a 'Yes' answer and 0 for a 'No' answer, the intervention scores were calculated. Participants who made use of all five the interventions would thus have a score of 5. The results are displayed by way of a mosaic plot (cf. Terpening, 2011:92) and a scores table (cf. Hinton *et al.*, 2014:162) in Figure 5.12.



Contingency table

Combinations score by mark category

Count Row %	< 50	50–59	60+	Total
Participants NOT using 3 interventions	39 50.00	24 30.77	15 19.23	78
Participants using 3 interventions or more	41 38.68	38 35.85	27 25.47	106
	80 43.48	62 33.70	42 22.83	184

Tests

N	DF	- LogLike	RSquare (U)
184	2	1.2190337	0.0062

Test	Chi-square	Prob>ChiSq
Likelihood ratio	2.438	0.2955
Pearson	2.435	0.2959

Figure 5.12: Contingency analysis of mark category by combination scores

The results indeed show that the 106 participants who made use of three or more of the interventions in the FAC2602 module performed better (35.85% + 25.47% =

61.32%) compared to the 78 participants who used two or fewer of the available interventions (50%).

Referring once again to the central research question (Table 1.3), the results obtained from Questionnaire 1 (quantitative data) indicated that the use of three or more of the mobile phone interventions did have an effect on the FAC2602 participants' throughput. The results further indicated that participants who watched the DVD were more successful in the May 2012 examination when compared to participants who did not watch the DVD.

In order to understand to which extent the various mobile technologies improved the didactic conversation (cf. Holmberg, 1982) and lessened the transactional distance (cf. Moore, 1973) in the FAC2602 module as experienced by the participating FAC2602 students, I used Questionnaire 2 (qualitative data), which was made available to students in the second semester of 2012. Feedback from the participants is reported in the next section.

5.4 PARTICIPANTS' PERCEPTIONS ON THE USE OF MOBILE TECHNOLOGIES TO LESSEN TRANSACTIONAL DISTANCE AND INCREASE DIDACTIC CONVERSATION: A QUALITATIVE PERSPECTIVE

The qualitative data was obtained from Questionnaire 2, a self-administrated questionnaire with 11 open-ended questions. The questionnaire was piloted in November 2012 (refer section 3.5.3.1) and feedback was received from five students. Thereafter the questionnaire was made available to all registered FAC2602 students on *myUnisa*. A total of 70 questionnaires were completed by the FAC2602 students registered during the second semester of 2012. Thus, by adding the five pilot studies, a total of 75 questionnaires were collected.

The qualitative interrogation followed a two-stage process as recommended by Schutz (1967). A first-order analysis is the process by which the researcher makes sense of the phenomenon under investigation. During a second-order analysis, patterns or themes are identified through which the perceptions and experiences of the participating FAC2602 students are interpreted. In the present study, a total of 366 codes were identified during first-order analysis using exact words in the

documents or words that were appropriate in describing what the students meant. During the second-order analysis, 25 themes were recognised. Table 5.14 demonstrates the link between the research questions (refer Table 1.3) and 13 of the themes identified during the coding of the qualitative data.

Table 5.14: Link between research questions and themes identified during the coding of the qualitative data

Research questions	Themes identified
1. To which extent can mobile phones support two-way conversation?	Two-way conversation
2. To which extent can mobile phones be utilised to increase flexibility in resolving learning problems?	Resolving learning problems
3. How can mobile phones be utilised to present study material?	Presentation of study material
4. Are mobile phones appropriate when giving advice and making suggestions?	Giving advice and making suggestions
5. How can mobile phones be utilised to exchange views?	Exchanging views
6. How can mobile phones be used to involve students emotionally?	Involving emotionally
7. To which extent can mobile phones accommodate a personal conversation style?	Conversation style
8. Does the mobile phone intervention have an effect on retention and throughput rates?	Retention and throughput
9. How do students perceive and experience the mobile phone intervention?	Perceptions and experiences

Table 5.14 reveals that each of the first seven research questions had one distinctive theme that was identified during the coding process of the qualitative data. Two and four themes were identified for research questions 8 and 9 respectively. Related codes were linked to these themes and the participating FAC2602 students' perceptions and experiences on the mobile phone intervention project at Unisa are

described in sections 5.4.1 to 5.4.7, as well as section 5.5. The feedback from the students will be discussed and linked to the context of the research questions and themes identified in Table 5.14.

5.4.1 Two-way conversation

Table 5.15 gives a summary of the codes used to describe the two-way conversation perceptions and experiences of the FAC2602 students. In addition, the related codes linked to the two-way conversation theme, namely DE, face-to face and the various functions of the technologies used in the module will be discussed in sections 5.4.1.1.to 5.4.1.3.

Table 5.15: Codes used to describe two-way conversation

Theme identified	Related codes
Two-way conversation	Distance education – two-way conversation, isolation, distance, correspondence, bridge
	Face-to-face – ask questions, clarification, class, communication, contact, explain, facilitation, faster communication, interact, motivation, part of class, relationship, response, turnaround time
	Functions of the technologies – ask questions, clarification, class, communication, connected, consulting, contact, encourage, engage, explain, facilitation, instantly, interact, motivation, response, sharing, togetherness, two-way

5.4.1.1 Distance education (DE)

With regard to two-way conversation in the DE context, several examples were given by students who found the technology to lessen the transactional distance between the student and the lecturer (P246: Q2.49). As one student explained:

“It was excellent aid; bridged the gap between distance learning; had the classroom/Lecturer effect” (P239: Q2.42).

Another student even defined it as a “Cyberspace Classroom” (P265: Q2.66). One student pointed out that instead of travelling long distances to receive help, the use of a mobile phone makes it easier for the student to be assisted (P244: Q2.47). Another student felt that the various interventions would obviously cut the cost of phone calls, and enable speedy, direct but distance communication (P208: Q2.14). In addition, students found the “two-way conversation was very effective when studying by distance learning” (P251: Q2.53) and felt distance learning to be “no longer distant anymore” (P264: Q2.65). “[B]eing able to keep in touch with people who can assist” helps students in DE institutions (P254: Q2.56).

Some of the students even indicated which mobile phone functions they preferred: “Twitter and Whatsapp are great ideas for two-way communication, but only for short announcements and general enquiries” (P207: Q2.13) and “Whatsapp and Facebook are good two-way of communication, but not all student might have access to Whatsapp because certain type of cell phones can accept Whatsapp” (P267: Q2.68).

Although one student could see the benefit of using social media to increase two-way conversation, he/she was concerned about the lecturer’s involvement:

For a two-way conversation, I would think social media can play a huge role as it is instant messaging and student queries can be addressed in real time. It may however only work in theory as it would be pressing for lecturers to be available like that (P254: Q2.56).

Another student however believed that communication (didactic conversation) can also be between student and student, “it doesn’t even always have to be the lecturer that answers” (P275: Q2.PS 3).

5.4.1.2 Face-to-face

In a DE environment, students do not have the opportunity to attend face-to-face contact sessions, but one participant indicated, “having the content explained in words helps to grasp the concepts” (P246: Q2.49). Participants were of the opinion that “the use of technologies assists DE students to feel like full time student by always receiving information from lectures” (P223: Q2.28) and would ensure the

lecturers “understand what the student is saying so it help clarify confusing questions” (P225: Q2.3). One participant believed that many students “find it easier to listen to someone explaining things, than reading it in a textbook” (P212: Q2.18). Another participant explained (quote again given verbatim):

It gives you confidence .builds a relationship of trust that when you encounter a problem you have somebody to assist you and it also encourages to do lot more problems, because you can easily get assistance (P210: Q2.16).

5.4.1.3 Functions of the technologies

The function of the mobile phone in assisting with two-way conversation (didactic conversation) was highlighted by one participant (P232: Q2.36) who was of the opinion that it “is very positive and forward thinking. Students engage more effectively via mobile technology due to their familiarity with such communication”. The same participant continued “it enables the student to engage with the lecturer in a way that is more familiar to them and therefore less intimidating than face to face communication.”

Another participant was of the opinion that the students:

... can easily ask questions and receive feedback in an informal manner, as most people feel sometimes questions are too silly to ask a lecturer. But if on a more informal means may be encouraged to ask more questions (P238: Q2.41).

The two-way conversation is now also between student and lecturer, and this form of facilitation is “a quicker communication channel between lectures and students” (P204: Q2.10). One participant even called it “instant communication” (P218: Q2.23) and another participant described it as “instant feedback” (P223: Q2.28), which effectively means less transactional distance. Students no longer need to wait for a long time to get answers as mobile phone communication “cuts down the turnaround time; it’s an instant method of communicating and interacting with people” (P225: Q2.3).

DE students often experience transactional distance and this was emphasised by a participant saying in this verbatim quote:

I think this will help a student ask questions and get replies. It is sometimes frustrating to have questions and have no idea who can answer them an instant messaging platform will be ideal for students without tutors like me (P255: Q2.57).

Regarding some of the negative experiences students often encounter, one participant was of the opinion that mobile phones “enable instant messaging and advice and suggestions can be given in real time” and in addition, “this will save time and will prove beneficial to the student in the long run” (P254: Q2.56). Another participant believed that this may “motivate students to tackle their learning problems” (P243: Q2.46).

5.4.2 Resolving learning problems

Focussing on the second research question, Table 5.16 summarises the codes related to the utilisation of mobile phones to increase the flexibility in resolving learning problems.

Table 5.16: Codes used to describe resolving of learning problems

Theme identified	Related codes
Resolving learning problems	Clarity, difference, different, directly, examples, feedback, help, learning experience, smarter, support, time management, understanding, focus, planning, resolving

As most Unisa students study on their own, it is often difficult for them to understand and grasp concepts, but the use of mobile phones “can help student in asking questions, relieving anxiety of the subject/course misunderstanding by communicating to the lectures concerned” (P245: Q2.48) and “decrease the time spend by students not understanding a chapter” (P205: Q2.11). Another participant was of the opinion that “it is beneficial as a student can get instant feedback when studying and do not understand something” (P223: Q2.28) while another participant believed “problems can be solved as they occur” (P252: Q2.54).

With regard to specific technologies, one participant mentioned, “podcasts were very helpful in assisting students to understanding the work” (P215: Q2.20). Podcasts

enable students to listen to what the lecturer says and then they may "... refer to my notes and have understanding of what I am studying" (P264: Q2.65). Podcasts, SMSes, MXit, WhatsApp and e-mails are appropriate communication methods between student and lecturer, as one participant mentioned "a student can directly" ask the lecturer for specific advice or guidance" (P258: Q2.6), which means increasing didactic conversation.

Another participant was of the opinion that the "DVD and additional resource material helped me a lot" (P225: Q2.3), and this was echoed by yet another participant who explained, "some areas which were difficult were made easier after I played the DVD" (P221: Q2.26). One participant reported "have been working on the laptop in the office the whole day ... wish to use a different medium to study in the evenings". The same participant then explained, "the Study Guide and DVDs gave me that option" (P274: Q2.PS 2). Another participant said, "DVD's which were an extraordinary help in preparing for the exam" (P236: Q2.4).

One participant believed that "having the content explained in words helps to grasp the concept" (P246: Q2.49) and, as most participants were also working full-time (refer Table 5.3), another participant alleged in this verbatim quote the "CD was the only great help for me personally I don't have time to watch a DVD nor do I have the hours I need to work through the modules I need to listening to the CD put everything in perspective" (P235: Q2.39). I have noticed in the past, that students generally do not like reading; however, one participant mentioned, "when it comes to phones, social networking websites, anything and everything get read" (P271: Q2.8). Mobile technology also assists to resolve learning problems promptly, as one participant confirmed in this verbatim quote "sometimes you are stuck on one section need clarity to carry on. Relives the stress that the subject material is so incomprehensible" (P239: Q2.42). Getting hold of a lecturer, information and additional study material helped another participant "a lot during my studies - it answered any questions I had and helped me understand the work" (P233: Q2.37).

Mobile technology can assist students and this was emphasised by a participant who was of the opinion that "when one is faced with a problem when attempting a module or question; the technologies are instant and very helpful when one needs a response fast" (P260: Q2.61). Many participating students were working full-time and

did not have time for classes (refer Table 5.3). One participant reported, “mobile and social networking would be our only source of assistance” (P270: Q2.70) while another participant remarked, “student support given at the right time can boost self-confidence and provide the assurance the student needs at the most crucial time” (P232: Q2.36). These perceptions are in line with both the theories of Holmberg (1982) and Moore (1973).

5.4.3 Presentation of study material

In order to understand how the FAC2602 students perceived the utilisation of mobile phones to present study material to them in various formats, various codes were identified from their feedback and these are summarised in Table 5.17. The two codes that were identified focussed mainly on the content and the mode of delivery.

Table 5.17: Codes used to describe presentation of study material

Theme identified	Related codes
Presentation of study material	Content – class, explain, guide, helpful, study guide, subject matter, understand
	Mode – access, course presentation, different way, explain, technology, tool, visual

5.4.3.1 Content

Students studying at a DE institution need additional support (refer section 2.4) and one participant was of the opinion that any form of student support “always enhance the teaching as well as the learning” (P245: Q2.48). Another participant was of the opinion that “If managed efficiently, it would assist in improving the way study guides are set out by lecturers and assist students to pass modules more easily” (P213: Q2.19). Yet another participant believed a study guide needs to be accompanied by SMSes, DVDs and CDs as these make “the study a bit better” (P221: Q2.26). One participant also emphasised the fact that mobile technology could assist lecturers to enhance, encourage and assist students with the relevant subject matter (P245:

Q2.48) while another participant said, “it is more like getting a class wherever I am at” (P208: Q2.14).

In addition, one of the participants indicated that “podcasts are great, as they explain things in a better manner than just reading a textbook do” (P212: Q2.18), while another participant remarked on the function of the mobile phone by saying these phones can be used to get “lectures to students who are not able to attend classes” (P207: Q2.13). One of the participants felt the use of podcasts “is a brilliant method and makes the information simple to understand” (P223: Q2.28) whereas another participant agreed that the content of the podcasts helped in that “the lecturer explains in detail exactly how they reach an answer” (P272: Q2.9). As one participant highlighted, podcasts “explain much more in detail, and there is a “real”- false sense of teacher -student interaction which helps psychologically” (P247: Q2.5) and another participant emphasised the fact that “some areas which were difficult were made easier after I played the DVD” (P221: Q2.26).

5.4.3.2 Mode

I furthermore wanted to understand how the FAC2602 students perceived the use of mobile phones to assist them with the teaching and their learning. I was indeed pleased by the various positive responses I received. One participant believed that “the use of mobile technologies is the way to go, because student and/or employees are working off their blackberries, ipads, smartphones” (P227: Q2.31) while another participant mentioned that “more students have access to MXit, Facebook, etc. via their mobile phones than they have to a computer with internet connection, which also makes it a better form of communication” (P233: Q2.37). Mobile phones can indeed bridge the transaction distance. As one participant stated, “problems are now solved anywhere and anytime students don’t have to go home or cafe to access computers and internet” (P267: Q2.68). However, another participant cautioned, “visual aid is needed in order for examples to be effective” (P209: Q2.15).

Some of the students found the use of mobile phones “was a new tool and at first it was a different method for studying. I have adjusted to the technologies and will make more use of this in my studies in the future” (P204: Q2.10). In the present research, mobile phone interventions made “it easier for the student to access help

when needed” (P244: Q2.47); however, others had “difficulties in accessing the podcasts” (P255: Q2.57). Students are familiar with mobile phone technologies as they use their “smart phone for many different aspects of my daily lifestyle; the technology helps me enjoy study material more” (P238: Q2.41) and, as the “majority enjoys the use of technology, especially mobile and this will help those who cannot afford to buy computers” (P243: Q2.46). A participant commented “MyUnisa discussion board was a great help, easy to access from any mobile phone device/Smartphone” (P226: Q2.30) but another participant preferred the SMS intervention more because “my phone is not advanced I have to go to internet cafe to have access to the media” (P241: Q2.44).

I generally perceived the participants’ perceptions on the use of mobile phones in assisting with teaching and learning to be positive. The interventions were appropriate to lessen the transactional distance and to increase the didactic conversation. As one participant pointed out:

Because most students have social media, and with Unisa being a distance learning institution; mobile technology plays an important role that serves a link between the lecturer and student. Firstly it’s cheaper to write a message/comment/questions/clarity regarding the module, and the lecturer can then answer/advise, thus making it an interactive session (P228: Q2.32).

Focussing on mobile phones in this study was described by one participant as “very positive and forward thinking. Students engage more effectively via mobile technology due to their familiarity with such communication” (P232: Q2.36). Although some students might only have had access to a computer and the internet at their workplace, another participant perceived that “the mobile technology was a huge help. I think it’s the best thing that ever reached learning” (P228: Q2.32) while yet another participant even asked me to “please continue using it as effectively” (P226: Q2.30). Another participant commented, “due to high number of students enrolled at a university like Unisa, the use of technology can definitely be of importance to lecture-student relationship with regard to advice and suggestions” (P245: Q2.48), and in addition one participant pointed out that:

The use of technology is the now; and besides get used these modes; as everyone needs to be technology savvy. It feels great that Unisa moving with the generations (P239: Q2.42).

5.4.4 Giving advice and making suggestions

Focussing on the fourth research question (refer Table 1.3), I furthermore wanted to understand how the FAC2602 students perceived a mobile phone as appropriate technology when providing them with advice and suggestions. Most students studying at Unisa (and specifically in the FAC2602 module) are provided with a printed study guide and various tutorial letters at the beginning of a semester. They are then expected to work through the material, submit assignments and write a final examination. Study support, in the form of advice and suggestions, is often restricted to written comments on marked assignments or feedback on the discussion forum. The feedback provided by the participants in Questionnaire 2 was analysed and the codes relating to participants' perceptions and experiences on the use of mobile phones to give advice and making suggestions are reflected in Table 5.18.

Table 5.18: Codes used to describe giving advice and making suggestions

Theme identified	Related codes
Giving advice and making suggestions	Alone, assist, clarity, communication, direct, examples, explain, feedback, guide, lecturers behind us, on track, plan, remind, schedule, study smarter, up to date

Feedback from one of the FAC2602 students regarding the use of mobile phones in assisting with giving advice and making suggestions indicated, "it encouraged me to keep up with the study schedule of the study units throughout, reminded me of the submission dates for my assignments" (P228: Q2.32). The SMS communication was also received positively, and as explained by one participant, "allowed me to be on track with the syllabus as areas of study during a particular week will be highlighted and if one is behind schedule an encouragement of catching up was given" (P217: Q2.22). Another participant also mentioned, "it kept me up-to-date with the study units I had to complete on time, every time, all the time" (P268: Q2.69). One

participant also commented on the style of the SMS saying the SMSes were “written in a way to direct you without offending” (P222: Q2.27).

The mobile phone communication aided one participant to feel “more in touch with the subject” (P275: Q2.PS 3) (less transactional distance) while another was of the opinion that the interventions played an important role as some “topics need step by step assistance” (P210: Q2.16). Podcasts, SMSes, MXit, WhatsApp and e-mails, was experienced by many students as an appropriate communication method between students and lecturers, and this was emphasised by one participant who mentioned, “the student can directly communicate with the lecturer and ask specific advice” (P258: Q2.6) (increased didactic conversation). Podcasts were appreciated, and as one participant noted, “they explained things in a better manner than just reading a textbook do”, and also “for a lot of people they find it easier to listen to someone explaining things, than reading it in a textbook” (P212: Q2.18). Thus, the podcasts and CDS helped with the accounting content. One participant mentioned, “one could understand the work better” (P237: Q2.40), while another believed the CDs “are fast & easy to use and widely available amongst even less privileged students” (P277: Q2.PS 5). One participant was of the opinion that mobile technology

... can play a huge role and we faced with having to come up with solutions on our own, and with instant messaging, we have an opportunity of getting assistance at least a bit faster, if not instant (P260: Q2.61).

One participant was of the opinion that “there must be a willingness to complete your studies; the lectures basically assist in making this a reality” (P268: Q2.69), whereas another participant alleged that the “constant valuable communication and interaction will greatly improve learners approach to a subject” (P222: Q2.27). One participant even defined the mobile technology support as “it felt like I had big brother directing me, which was great” (P222: Q2.27).

5.4.5 Exchanging of views

To determine whether the mobile phone interventions assisted with the exchange of views between the FAC2602 students and the lecturer as well as between student and student, the following codes, as listed in Table 5.19, were identified.

Table 5.19: Codes used to describe exchanging of views

Theme identified	Related codes
Exchange views	Group – alone, communication, directly, explain, expression, face-to-face, feedback, friend, instantly, interact, involving, message, response team, two-way
	Individual – alone, introvert, isolation, myself

5.4.5.1 Group

In a DE environment, students often feel alone (experience a large transactional distance) as they do not have much interaction with students and facilitators. However, in the field of accounting studies, it can only be beneficial to students if they can discuss (have a didactic conversation about) concepts and problems they encounter in and with content. The importance of interaction was emphasised by one participant who was of the opinion that the mobile phone intervention was not only “facilitating communication from lecturer to student but also from student to lecturer, enabler to communicate to solve difficulties with sections of the study material” (P204: Q2.10). This communication with the lecturers “made me feel like I was actually part of a class - it gave a feeling of togetherness” (P233: Q2.37) and another participant explained, “I feel more part of the module” (P219: Q2.24). One participant mentioned, “I’m part of a generation that mostly communicates via mobile technologies, it felt like the lecturers were catering specifically for us!” (P233: Q2.37).

Students want to experience the classroom effect even if they are DE students. This was accentuated by a participant who said,

I think it would be great to create a sort of “chat room” with a “classroom” feel, where students can communicate with each other and the lecturer any questions or problems they might have so that the whole group can gain advantage - i.e. one person has a specific question about the work and another student has the same problem but is not comfortable with asking the question, but now while the lecturer is explaining the other student will also contribute (P233: Q2.37).

5.4.5.2 Individual

Noteworthy from the feedback was that some of the participants preferred to study alone. One participant indicated a preference for studying “in my own time”, without even utilising social media, which “will distract me from my demanding job (P218: Q2.23). Another participant also confirmed, “I prefer studying by myself so most of the time I used to go through the study material by myself and consult lecturers by email when I have questions” (P276: Q2.PS 4).

Students who preferred to study alone had nevertheless shown a need for “direct communication lines with student and lecturer”, as it was thought that this interaction would “greatly improve learners approach to a subject” (P222: Q2.27). Mobile technologies can thus play “a very important role as it feels as if you are talking to your lecturer face to face” (P229:Q2.33), and one participant was of the opinion that “it is very positive and forward thinking. Students engage more effectively via mobile technology due to their familiarity with such communication” (P232: Q2.36). It is thus evident that mobile phones can indeed enhance the exchanging of views and increase the *didactic* conversation between lecturers and students as well as between students and students.

5.4.6 Involve emotionally

The didactic conversation theory of Holmberg (1982) lays emphasis on the importance of a conversation between the facilitator and the student. If this conversation encompasses emotional aspects, it will assist with student retention and throughput. Codes used to describe the participating FAC2602 students’ perceptions and experiences on the use of mobile phones to involve them emotionally are identified in Table 5.20.

Table 5.20: Codes used to describe emotional involvement

Theme identified	Related codes
Involve emotionally	Negative – alone, depression, hopeless, introvert, lonely, stress, surprise
	Positive – belonging, boost, connected, contact, cool, encourage, enjoy, entertain, feeling, freedom, friend, happy, interesting, involve, looking forward, motivate, reassurance, recognition, relationship, surprise, team, wow

5.4.6.1 Negative

The throughput rates in various Accounting modules have not been very encouraging in the past; therefore, it was understandable when one participant mentioned in this verbatim excerpt “when you as student, fail a subject, you feel like a failure and think you are stupid” (P266: Q2.67). Mobile phone technologies assisted with “stress and depression relief during exams” (P229: Q2.33). Another participant explained that the mobile phone intervention would make students feel part of a group/class as “the lecturer can help you and it will take away some of the stress of studying on your own” (P262: Q2.63), while yet another participant believed the intervention assisted to “make learning fun and interesting hence motivating the student who at times finds himself lonely fighting to study” (P257: Q2.59).

5.4.6.2 Positive

In the previous section, participants reported on the negative emotions they experienced, especially in the DE environment. However, the use of mobile technologies could also involve students emotionally and assist to alleviate the negative experiences. This was evident as one participant reported, “support given at the right time can boost self-confidence” (P232: Q2.36), while another participant felt it “eliminates that feeling of I can never get this” (P210: Q2.16). One participant explained, “the fact that a lecturer has personal contact with a student boosts a student’s morale and self-esteem” (P255: Q2.57). Another participant also referred to

this “confidence booster, eliminates that feeling of I can never get this, encourages us to do more exercises to prove a new or different technique” (P210: Q2.16).

Regarding the language used in the SMSes and Mxit conversations, participants were pleased, as one participant explained the conversation “was easy going and I didn’t feel the need to get my back up with someone telling me what to do” (P222: Q2.27). The regular interaction also motivated the students and changed their “negative attitude towards our studies” (P229: Q2.33), while one participant explained the emotional involvement by saying, “it feels like the lecturers actually cares about the students & you’re just not another number that’s on the registration file” (P262: Q2.63). Another participant described the involvement as “a sense of belonging, as you know there are many others also studying to pass this subject” (P275: Q2.PS 3).

Concerning the use of the various mobile phone interventions, one participant indicated, “the sms’s kept me motivated and felt more like a varsity with class schedules than studying on my own” (P262: Q2.63) and another participant was of the opinion that “all modules should be embracing the use of podcasts and sms’s as for me it was having a friend on a journey where u really need a friend” (P216: Q2.21). One participant described his/her experience with the mobile technology intervention as:

We need to feel like full time student by always receiving information from your lectures relating to that module. It makes one feel important that at least the lectures care about us making it to pass (P223: Q2.28).

It is thus evident that the interventions incorporated in this study did indeed embrace an emotional aspect as experienced by the participating FAC2602 students. Participants felt connected to the module and the lecturer, which was experienced as a decrease in the transactional distance.

5.4.7 Conversation style

Concerning the possibilities of accommodating a personal conversation style during the mobile phone interventions, the codes listed in Table 5.21 were identified from the participants’ feedback.

Table 5.21: Codes used to describe conversation style

Theme identified	Related codes
Conversation style	Independent, introvert, intruding, involve, myself, team, visual person

One participant indicated, “it felt much easier to communicate with the lecturer via the mobile technologies” (P233: Q2.37), and although there might have been students who would have preferred to work on their own, a participant mentioned, “it is sometimes frustrating to have questions and have no idea who can answer them an instant messaging platform will be ideal for students without tutors like me” (P255: Q2.57). In the present research, mobile technologies seemed to solve this problem as “it enables the student to engage with the lecturer in a way that is more familiar to them and therefore less intimidating than face to face communication” (P232: Q2.36), while another participant reported on the use of mobile phone communication that is “instant and very helpful when one needs a response fast” (P260: Q2.61). One participant explained that the use of mobile technologies “can help student in asking questions, relieving anxiety of the subject/course misunderstanding by communicating to the lectures concerned” (P245: Q2.48) and “it becomes easier for us as the student to interact with the lecturer via these social media technologies” (P206: Q2.12), because “I could get hold of the lecturer at any time without feeling that I’m intruding” (P233: Q2.37).

As most participants were familiar with MXit, WhatsApp and e-mail, one participant was of the opinion that students “feel more comfortable using this type of media to communicate, which will give them the confidence to speak up if they struggle with a concept” (P233: Q2.37). However, another participant was of the opinion that conversation on its own would not help as much as visual aid which “is needed in order for examples to be effective” (P209: Q2.15). This perception can be linked back to the results obtained in Table 5.13, where the effect of the use of the DVD was explained.

Considering the feedback given by the participants in Questionnaire 2, Figure 5.13 clearly indicates the various main perceptions mentioned by the participants, namely

positive experience, success, advice and suggestions as well as two-way conversation.

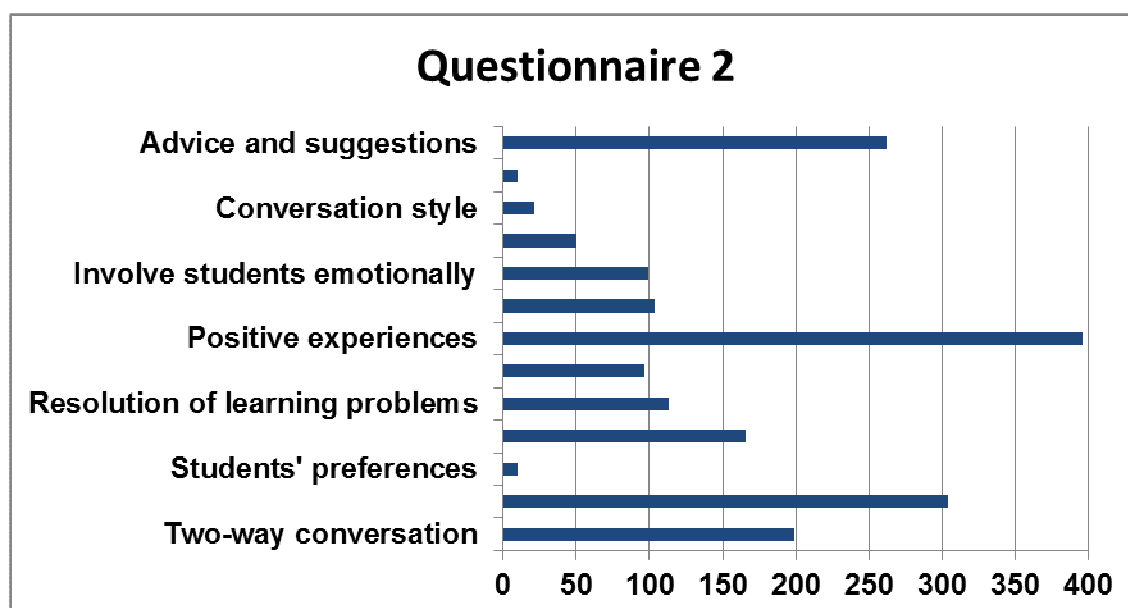


Figure 5.13: Themes identified from feedback – Questionnaire 2

It was therefore evident that the mobile phone interventions improved the didactic conversation and lessened the transactional distance. Research questions 1 to 7 (refer Table 1.3) were therefore answered. In the next section, the participants' experiences and perceptions are analysed further to answer research questions 8 and 9 by making use of feedback provided by the FAC2602 students in Questionnaires 1 and 2, e-mails, discussion forums and SMSes as well as my personal journal.

5.5 PARTICIPANTS' PERCEPTIONS AND EXPERIENCES ON THE USE OF MOBILE TECHNOLOGIES: A QUALITATIVE ANALYSIS OF ALL DATA SOURCES

Sections 5.3 and 5.4 reported on the quantitative and qualitative data obtained from the FAC2602 students who participated in the study and who provided feedback on the use of mobile technology during the present research in 2012. As the first mobile phone interventions commenced in the second semester of 2006 (refer section 4.4), qualitative data, including e-mail correspondence, discussion forum conversations, SMSes and my personal journal, was collected since 2006. This section reports on the analysis of this data in order to understand the participating FAC2602 students'

perceptions and experiences on the use of mobile technologies (research question 8) to assist with retention and throughput (research question 9). The content of these qualitative data sets was analysed using the Atlas.ti program to identify themes and codes relevant to retention and throughput as well as participants' perceptions and experiences on the use of mobile phone technologies in the FAC2602 module.

5.5.1 Retention and throughput

The present study set out to understand the problem of low retention and throughput rates of the FAC2602 students at Unisa through the didactic conversation theory of Holmberg (1982) and the transactional distance theory of Moore (1973) respectively. In order to understand this problem, qualitative data was gathered between 2006 and 2012, and Table 5.22 describes the themes that specifically referred to retention and throughput as identified from the feedback.

Table 5.22: Codes used to describe retention and throughput

Theme identified	Related codes
Retention and throughput	Retention – connected, dedication, encourage, hard work, looking forward, motivate, reminder, self-discipline, support, team, up to date
	Throughput/success – bad results, degree, distinction, exam, fail, finish, mark, panic, pass rate, preparation, results

5.5.1.1 Retention

Considering that this study set out to use mobile technologies to enhance the retention and throughput of FAC2602 students, feedback related to the participants' experiences and perceptions on the use of mobile phones to lessen the transactional distance and to increase the didactic conversation was important. One participant explained his/her experience by saying:

I really appreciated the sms's that was send from the lecturers. It kept me motivated and also when I got a bit behind with my work that sms's was my weekly reminder to pull up my socks and get going again. It also felt like we were more connected to the lecturers and felt more like university

than studying and worrying on your own. Thank you for keeping me motivated this semester (P262: Q2.63)

Another participant was also of the opinion that the use of the SMSes was a “great way of staying up to date with latest info as well as communication between students” and it helped “to know you are not the only person doing that subject good to hear how fellow students experience the subject from their perspective” (P203: Q2.1). DE students are not always on track with their studies as they are not sure how to pace themselves through the semester and the large volume of study material (refer section 2.4.4). However, the regular communication during the present study “definitely keeps me on track and motivates me to stay with the schedule” (P5: DF5.9), and “keep students motivated, positive, help the interaction growth between students, remind students of assignments, give students credit for good work done and it will help to explain something quickly!” (P123: Q1.374). One participant even said, “I feel motivated and even looking forward to picking up my FAC2602 books with all the support! It is nice to know the lecturers are behind me” (P8: E-mail 2) while another participant was of the opinion that “instant replies motivate students to tackle their learning problems” (P243: Q2.46).

Students often reported on the lack of motivation, as one participant mentioned, “one needs commitment and dedication to study at Unisa because there are no teachers to push you every day to study” (P137: Q1.389), while another participant believed regular interaction between students and lecturers “change our negative attitude towards our studies. Lift us up when we are down in a big way” (P229: Q2.33). The transactional distance (Moore, 1973) often experienced by DE students is explained by a participant saying:

Sometimes during your studies you come to a point where you feel totally hopeless and wonder why are you doing this to yourself and need some motivation to carry on again. If you can connect to other students you can chat and see you are not alone and some students can motivate each other again. This will give the student a boost to carry on (P262: Q2.63).

Although there was a small increase in the retention rate of the FAC2602 module since the study commenced (refer section 5.2), the researcher acknowledges the fact that various factors outside of this study could have contributed to this increase. However, from the aforementioned feedback from the students, I am positive that the

mobile phone intervention did assist to keep students motivated to persist with their FAC2602 studies.

5.5.1.2 Throughput

Bearing in mind the low throughput rates of the FAC2602 students (refer Tables 1.2, 5.1 and 5.2), the feedback received from the students regarding their perceptions on the use of mobile phones to assist with their studies was imperative to help me understand their perceptions on the use of mobile phones in the module. Codes identified included inter alia degree, distinction and results. One participant confirmed that studying at a distance is not easy and “to figure out the work by your self is sometimes hard, but overall it is a combination of perseverance, hard work, motivation and dedication that will ensure good results” (P13: Q1.240). This belief was echoed by another participant saying, “distance learning is difficult but the tools that UNISA provides at one’s disposal are useful and do assist” (P16: Q1.243). One participant however said, “better results could be achieved if we had day to day class” (P58: Q1.297).

Concerning the lecturer and mobile phone interventions in the FAC2602 module, one participant reported, “the lecturers have a great way of providing us with the knowledge to go and write our examinations” (P92: Q1.339), while another participant mentioned the technology, saying it “makes studying easier and to get information faster in the end getting prepared for the exam” (P99: Q1.347). The interventions also “kept me on track with all the study units I had to study, for me to be prepared for the exams” (P190: Q1.455) and one participant remarked that he/she “wish all other Unisa lecturers can use the same method because I think we wouldn’t have to get bad results” (P229: Q2.33). Another participant was of the opinion that “all modules should use the sms’s they are very helpful, they are motivating and keeping me on track and I’m sure by exam time I’ll be all ready for my distinctions. Keep it coming I really like the system” (P5: DF5.6).

Furthermore, one participant felt, “having this kind of communication helped me keep up with assignments, study units and exam preparation” (P269: Q2.69), while another participant stated that the “DVD’s and CD’s are always helpful. Especially towards exams” (P4: DF4.1). Being successful is always the ultimate aim of any

student. One participant was confident that the mobile phone intervention “will increase the pass rate drastically!!” (P4: DF4.3).

This aforementioned feedback (i.e. making studying easier, getting prepared for the examination, increasing the pass rate drastically) confirmed once more that the application of mobile phones in the FAC2602 module improved the didactic conversation, lessened the transactional distance and increased the retention and throughput rates of these students (see research problem statement in section 1.5).

5.5.2 Participants’ perceptions and experiences of mobile phone technologies

In the previous section, feedback from students relevant to the retention and throughput was highlighted. In this section, responses from students regarding their perceptions and experiences of the mobile phone interventions in the FAC2602 module are included to assist with answering research question 9 (refer Table 1.3). The codes relating to these perceptions and experiences are summarised in Table 5.23.

Table 5.23: Codes used to describe participants' perceptions and experiences of the mobile phone interventions in the FAC2602 module

Themes identified	Related codes
Perceptions and experiences	<p>Distance learning (context) – technology, two-way, Unisa, virtual classes, work</p> <p>Distance learning (personal) – alone, challenging, commitment, dedication, discipline, effort, employment, family, flexible, full-day, full-time, independent, interaction, internet access, limited, motivation, not in the mood, own pace, part-time, personal circumstances, schedule, work</p> <p>Accounting, FAC2602, lecturer, teacher</p> <p>Technologies – access, bandwidth, BBM, CD, cell phone, cheaper, communicate, computer, different senses, discussion forum, download, DVD, e-mail, Facebook, hard copies, interaction, internet, learning aid, mobile technology, more modules, Mxit, myUnisa, on-line, podcast, SMS, social media, technologies, tool, Twitter, WhatsApp</p> <p>Preferences – don't, never, not used, prefer no, prefer yes</p> <p>Negative (emotional) – abusive, asleep, behind, bombard, bored, boring, challenge, confusion, demanding, difficult, distract, forget, frustrating, hard, hate, interrupt, lack, limited time, lonely, nobody, panic, perseverance, pressure, procrastination, stress, struggle, tiresome, too many, wastage, waste of time</p> <p>Negative (general) – challenge, error, glitches, limiting, obstacle, problem, slow, unfortunately</p> <p>Positive (format) – advantageous, belonging, beneficial, bridged, cheaper, connected, considerate, convenient, definitely, directly, effective, efficient, enhance, enjoy, essential, extra mile, friendly, handy, help, innovative, invaluable, involve, organised, positive, precisely, proven, reassurance, thoughtful, togetherness, up to date, useful, valuable</p> <p>Positive (timing) – directly, immediate, precisely, progress, pronto, quickly, timeously, up to date</p> <p>Positive (reassurance) – advantageous, belonging, comfortable, considerate, effective, encourage, help, innovative, invaluable, motivational, positive, progress, reassurance, relaxed, satisfied, support, thoughtful, useful, valuable</p> <p>Positive (general) – absolutely, advantageous, amazing, applause, appreciate, awesome, brilliant, cool, enjoy, excellent, extra mile, extremely, fantastic, great, handy, happy, impress, invaluable, love, marvellous, thank you, vital, wow</p>

5.5.2.1 Distance learning

Participants' perceptions regarding studying at a DE institution included problems such as "time management - we are not just distance students, we are also working long hours, have families, etc" (P229: Q2.33) and "as part time student, and a full day's work one is not always in the mood for studying after 17:00" (P150: Q1.403). Working full-time and studying at night is a challenge as explained by a participant saying, "you to push yourself on a daily basis" (P112: Q1.361).

However, many of the students were positive regarding the use of technologies as one reported, "as a full time working student, I do not always have access to my e-mails, but with the mobile technologies, it was much easier, as I believe that 95% of all students have cell phones, so it is much more accessible" (P266: Q2.67), while another indicated, "it will help because individuals such as me need help as we work and I don't have time for classes in the town we live in so if we stuck mobile and social networking would be our only source of assistance" (P270: Q2.70). The use of the mobile phone interventions "allows information to be provided to students quickly and when you are studying part time all the information that you get is of much help and you appreciate getting the information quickly" (P216: Q2.21). One participant also mentioned the quick turnaround time of messages that insures that "we need to feel like full time student by always receiving information from your lectures relating to that module" (P223: Q2.28).

Contact between lecturers and students in a DE environment is limited but as one participant explained, "by contacting the lecturer or my fellow students, I can get advise on different study methods" (P258: Q2.6). Another participant was of the opinion that it helped students to "hear how fellow students experience the subject from their perspective" (P203: Q2.1). Many of the students preferred the use of mobile phones, and one participant emphasised, "communication with internet facilities is good, it boost our confidence as students but since we do not have much access to the internet I would prefer cell phone sms use" (P180: Q1.443).

Many of the students would have preferred attending some form of face-to-face contact, but one participant was positive that "podcasts are a great way of getting lectures and important information to students who are unable to attend lectures"

(P207: Q2.13). This was also confirmed by another participant saying, “the fact that the lectures are not always available for face to face classes, technology can cover that void” (P100: Q1.348). For that reason, another participant stated, “I rely on information given via technology mediums” (P164: Q1.420). The FAC2602 students did indeed experience the transactional distance when studying at a DE institution challenging as the didactic conversation between the student, other students and the lecturer was limited; however, the use of technologies in the module assisted to alleviate the DE perception.

5.5.2.2 Accounting

The participants often found studying at a distance a challenge, “when it comes to understanding subjects, like accounting, it is sometimes difficult if you don’t understand something where if you had a lecturer face-to-face he/she will be able to explain something more easily” (P18: Q1.245). This was confirmed by another participant who said, “studying from a distance is not easy in Accounting because something we need a person to ask questions while practising it” (P84: Q1.329). One participant stated, “it is difficult to study in distance learning, especially the accounting because it needs deeper understanding” (P183: Q1.447).

One participant said, “interaction is needed especially with accounting” (P190: Q1.455) and another emphasised, “believe that you cannot fully grasp this module, without the lecturer support through the CDs and DVDs” (P12: Q1.239). One participant was of the opinion that “the CDs that were included were invaluable to the learning experience” (P12: Q1.239) while another participant commented it made “FAC2602 baie makliker gemaak om te verstaan” (*FAC2602 much easier to understand*) (P26: Q1.259).

However, one participant was of the opinion that “social media networks, are mediums of communication, FAC2602 can only be studied with the aid of examples” (P209: Q2.15). Students preferred face-to-face contact sessions as one participant pointed out, “the lecturer must not use these; she can come for the 3 hours on discussion just like other lecturers as it is a practical subject and not easy to understand on your own” (P256: Q2.58), while another participant was adamant referring to the module as “FAC 2602 a practical subject” (P256: Q2.58).

Contrary to the above, participants were generally positive about the role of technologies in the module reporting, “the use of technologies in the FAC2602 module was very helpful and something I would like to see more of” (P52: Q1.288), as well as “it is tough but with the material from the FAC2602 lecturers life studying is easier” (P173: Q1.432). Another participant agreed by indicating, “they have been very helpful, specifically in subjects like accounting” (P18: Q1.245) while yet another participant said, “will recommend DVD and CDs for all second and third year modules for Financial Accounting” (P221: Q2.26).

From the feedback provided by the participating FAC2602 students, it was noticeable that understanding accounting concepts is often difficult and participants indicated that they would prefer to have face-to-face sessions as they needed the interaction. However, the mobile phone interventions did assist with the participating students’ accounting studies within the DE context.

5.5.2.3 Technologies

The participants’ perceptions and experiences on the use of technologies ranged from positive to negative. Focussing on the positive feedback, one participant remarked that he/she, “highly appreciate the use of mobile technologies because most of the Unisa students have chosen to study at Unisa simply because distance education is less expensive but distance always negatively impact on our studies, so mobile technologies will expired that” (P208: Q2.14). This perception was echoed by another participant who was of the opinion that “most students have social media, and with Unisa being a distance learning institution; mobile technology plays an important role that serves a link between the lecturer and student. Firstly it’s cheaper to write a message/comment/questions/clarity regarding the module, and the lecturer can then answer/advise, thus making it an interactive session” (P228: Q2.32). Another participant remarked, “Mobile technologies are very much assisting us as distance learners” (P229: Q2.33), while another participant described is as “it felt much easier to communicate with the lecturer via the mobile technologies and it felt like I could get hold of the lecturer at any time without feeling that I’m intruding” (P233: Q2.37). One participant emphasised, “as I’m part of a generation that mostly communicates via mobile technologies, it felt like the lecturers were catering specifically for us!” (P233: Q2.37) while another participant believed “students

engage more effectively via mobile technology due to their familiarity with such communication” (P232: Q2.36).

Some of the participants made special reference to social media applications. However, one participant mentioned, “Twitter can be frustrating because of the character limitation when tweeting” (P12: Q1.239) while another participant commented, “I don’t use Facebook or twitter but BB can be very useful and Whatsapp as well in communicating with lecturers” (P67: Q1.310). A different participant was of the opinion that “while I did not use Facebook or Twitter, I find Facebook extremely useful as a way to communicate in groups” (P274: Q2.PS 2). This was also mentioned by another participant, “students are able to create groups on Facebook and Whatsapp and interact and help each other in solving their learning problems” (P254: Q2.56). Participants commented that, as “most students are more familiar with MXit, Whatsapp, etc., than with email - I think they also feel more comfortable using this type of media to communicate, which will give them the confidence to speak up if they struggle with a concept” (P233: Q2.37) and in addition, “Whatsapp, twitter & Facebook is the cheapest form of communication, the student can be assisted by lecturer same time” (P252: Q2.54). One participant referred to all the mobile phone interventions used in the FAC2602 module by saying, “podcasts, sms, MXit, Whatsapp and emails, feels to me like a more appropriate communication method between student and lecturer” (P258: Q2.6).

Conflicting responses were also received as one participant mentioned, “those would interrupt my studies. You cannot seriously expect me to follow FAC2602 on twitter. Sorry I do not agree with that. Social media and studies do not go together” (P96: Q1.344) while another participant said, “don’t feel that MXit, Whatsapp, Twitter and Facebook can solve learning problems” (P207: Q2.13). “I am not on Facebook, Twitter etc. AND I do not want to be on it” (P150: Q1.403) and “personally I don’t feel that Twitter and Facebook must be used when it comes to studies” (P258: Q2.6) were some of the negative feedbacks received. One participant indicated that he/she preferred “SMSs I have a cell phone and do not have much time for twitter and Facebook (Both of which I do not use) and dislike MXit” (P273: Q2.PS 1) while another participant agreed and said, “ek dink e-pos is baie beter as enige ander medium nie almal maak gebruik van MXit twitter en Facebook nie” (*I think e-mail is*

much better as any other medium not everybody makes use of Mxit twitter and Facebook) (P242: Q2.45).

A large number of participants gave positive feedback regarding the use of podcasts and the CDs. One participant acknowledged, “Unisa caters for the working market, hence the need for time effective aid as in the case of the CDs” (P1: DF1.6), with another participant saying, “thank you very much for the CD, it is also a great help in that one can’t always attend the extra classes” (P1: DF1.1).

Some participants had a lengthy discussion on the 2010 discussion forum on the effectiveness of the CDs:

I’ve gotten a supplementary exam for FAC2602, and had not listened to the CD during the first semester, thus I could also not comment when completing the survey. Last night I started my revision and wanted to work through the exercises and decided at the last minute to see what is on the CD. WOW, what a great help, for the first time I really feel that I understand unrealized profits on trading stock, the CD just explained and presented the same information in a slightly different way and suddenly I totally got it. I sure hope they will be using the CDs in more and more courses (P1: DF1.1).

Another great idea from the FAC2602 team. The CDs and the additional questions helped a lot; it was like having a lecturer ;) (P1: DF1.4).

die cd’s was n groot hulp. ek het die dosente vrae gevra op mxit en dan die antwoord in die cd’s gekry (*The CDs were of great help. I asked the lecturers on Mxit and then got the answer on the CDs*) (P1: DF1.5).

guides and only send the CDs and the additional questions right from the start (P1.DF1.6).

Hi Guys. How do you find these CDs are they helping?? Because they are helping me a lot especially cash flows, now I am finishing Earnings per share, I still struggle here and there but nothing the CD does not explain. If you haven’t started using them where have you been the past 3 weeks (I have had them for 3 weeks now). Guess who’s playing in my car radio now (P1: DF1.8).

Considering I wanted to assist all students with some of the more difficult concepts in the FAC2602 module feedback such as “THANK YOU for the CD’s I am also finding them very helpful. Little things are mentioned on the CDs, I would have missed them by just studying the study guide” (P3: DF3.3) and “especially with FAC2602, I think the CDs that were included were invaluable to the learning experience. I do not

believe that you can fully grasp this module, without the lecturer support through the CDs and DVDs” (P12: Q1.239) confirmed that I have indeed achieved this. As one participant mentioned that the “podcasts and CDs were very useful to me during my hours in the car with our traffic jams” (P235: Q2.39) while a second participant “listened to the CD’s while travelling to work every day, then because I heard how to do the work when I studied at night I understood the concept better” (P269: Q2.7), I was convinced that mobile phones were appropriate in this study as students could learn anywhere and at any time.

Referring back to section 5.3.2.8, I can now understand why some of the participants made use of both the DVD and the CDs. One participant explained, “jy kan n cd of dvd herhaal tot jy dit verstaan” (*you can repeat a CD or DVD until you understand it*) (P26: Q1.259), and “with CDs or DVDs you can always rewind, forward, pause and listen” (P101: Q1.349), while another participant “liked the audio and visual stimulation of the DVD’s more than just listening to the CD’s” (P66: Q1.309). The mobile phone intervention thus catered for all student preferences.

The mobile phone intervention also assisted those students who had limited time as “the CD was the only great help for me personally I don’t have time to watch a DVD nor do I have the hours I need to work through the modules I need to listening to the CD put everything in perspective” (P235: Q2.39). One participant summarised the whole intervention by stating, “excellent response and feedback; great effort for introducing my Unisa; CD’s etc and MXit” (P239: Q2.42).

It was evident from the FAC2602 feedback that the mobile phone technologies did assist with increasing the didactic conversation (“it felt much easier to communicate with the lecturer” [P233: Q2.37] and “students engage more effectively via mobile technology due to their familiarity with such communication” [P232: Q2.36]). In addition, the technologies also assisted the participating FAC2602 students with their accounting studies as it lessened the transactional distance so often experienced by students opting to enrol for their studies at a DE institution and who work full-time and who cannot attend classes regularly. In this regard, participants said,

distance always negatively impact on our studies, so mobile technologies will expired that [P208: Q2.14]

mobile technology plays an important role that serves a link between the lecturer and student [P228: Q2.32]

personally I don't have time to watch a DVD nor do I have the hours I need to work through the modules I need to listening to the CD put everything in perspective [P235: Q2.39].

5.5.2.4 Preferences

In their feedback, the participating FAC2602 students also mentioned their different preferences regarding studying at a DE institution. It was evident that participants preferred the distant learning, as "I prefer to sit by myself, working through the work" (P83: Q1.328) and also "I prefer studying part time and working at my own pace" (P135: Q1.387). Although another participant "find it harder than the face-to-face interactions. But I prefer it as I am more flexible with my time" (P152: Q1.405).

One participant, however, warned that, when incorporating technologies, "discretion should however always be used. The preference of each individual student should therefore be considered" (P259: Q2.60). This was also highlighted by another participant who "believe it is specific to each student to what method of communication they prefer" (P251: Q2.53) and yet another participant who "personally I prefer email communication, but I believe the younger generation will greatly benefit as these methods of communication are very popular amongst them & widely available (much more so than computer communication)" (P277: Q2.PS 5). One participant also mentioned the fact that mobile phone interventions are "easier and cheaper form of communication and fast access. Much preferred" (P46: Q1.282). However, one participant explained, "some of us use it and some are cheaper most students can afford them. I Prefer BBM, Twitter and Whatsapp" (P57: Q1.294). On the other hand, one of the participants was of the opinion that "I'm a bit old school so i prefer using myUnisa and the Unisa email facility" (P119: Q1.368). Another participant preferred "Sms, I preferred to study alone, having other social networks will distract me from my demanding job, and I could study in my own time" (P218: Q2.23). Another participant was positive when saying, "it's excellent in this era, and I would prefer this as the appropriate way to go" (P106: Q1.355). Participants thus had different views and preferences with regard to DE studies and technology interventions.

5.5.2.5 Negative

From the previous sections, it is apparent that participants had numerous preferences when it came to the use of technologies such as SMSes, podcasts, CDs, DVD and social media (including MXit) in an academic environment. Regarding the low percentage of participants who made use of the MXit intervention (refer section 4.4.2), it became clear that participants also had negative perceptions regarding the use of especially social media (i.e. MXit, WhatsApp, Twitter, BBM) as a vehicle for learning interaction. Various reasons for these perceptions were raised, such as “a waste of time as these social media apps are a distraction and would lead to time wastage” (P76: Q1.321) to “having other social networks will distract me from my demanding job” (P218: Q2.23). One participant was “not so keen in that as people use that for fun things and forget that we are talking school work” (P35: Q1.269). Another participant commented,

The use of social media has been greatly abused as there are some who are abusive and are not interested in sharing information, their motive will be to abuse the dedicated students, so I do not believe in using social media as an academic support system (P100: Q1.348).

This section highlighted some of the negative perceptions of participants while the next section will positive feedback received from participants during the study.

5.5.2.6 Positive

This last section reports on participants’ positive perceptions and experiences on the use of mobile phone interventions in the FAC2602 module. Although mentioned previously, one participant again emphasised studying at Unisa, a DE institution as:

different by far. there are a lot of stuff that one has to figure out for oneself and at first it’s frustrating and challenging, but with the ever improving technology and provided its used effectively as in the case with Unisa, it’s difficult to say it’s distance education (P175: Q1.436).

Considering this study set out to understand participants’ perceptions on the use of mobile technologies in the teaching and learning of Accounting, feedback such as “they can make learning fun and interesting hence motivating the student who at times finds himself lonely fighting to study” (P257: Q2.59) as well as “build a community feeling amongst students, a feeling of belonging to a bigger group of

people struggling with the same issues and distresses they are facing” (P226: Q2.30) helped me to understand the problem of transactional distance students often experience.

By incorporating mobile phones into the FAC2602 module “students always got smile when they get messages” (P267: Q2.68), which highlights the “very positive role these technologies can play in student lecture relationships and it exposes the two parties to really understand what the other is saying or struggling with” (P260: Q2.61). “Ordinary books become boring” (P210: Q2.16) but “knowing that someone is walking through it with you, can change how you prepare and approach a subject” (P222: Q2.27). Participants were of the opinion that mobile phone technologies are appropriate and recommended that “especially all the accounting modules” (P245: Q2.48) should make use of the interventions.

The use of mobile phones to increase didactic conversation was seen by one participant as “absolutely fantastic, the communication was flowing and all the honours rested in me to achieve” (P245: Q2.48). Another participant explained, “through these media students receive a message exactly the same time the lecturer sent them and they can immediately attend to them and have information in time, then problems are solved” (P267: Q2.68); thus, less transactional distance. One participant was of the opinion that the “system help me focused during the semester. Well done and keep it going! Brilliant tool for correspondence and I enjoyed it!” (P2: DF2.2), while another participant confirmed, “it bridges the gap of distance learning education” (P122: Q1.372).

5.6 CHAPTER CONCLUSION

This chapter reported on the findings of the research aimed to determine the extent to which the application of mobile phone technology in the teaching of an Accounting module at a South African DE university improves the didactic conversation and lessen the transactional distance in order to increase students’ retention and throughput rates. The study set out to understand and assess accounting students’ perceptions and experiences of the use of SMSes, MXit, podcasts/CDs and a DVD in the teaching and learning of the module content.

Central to the research problem was the improvement of the retention and throughput rates of FAC2602 students. This chapter compared these statistics from the period before the study commenced with the period after the interventions had been incorporated. When comparing the retention and throughput rates of the FAC2602 students before the mobile phone interventions to the retention and throughput rates after the interventions, increases of 3.66% in the retention rate and 5.22% in the throughput rates were detected (comparing Table 5.1 to Table 5.2). When plotting these rates on a graph, the downward slope of the throughput rates before the interventions and the upward slope (although marginal) after the commencement of the interventions, is noticeable (comparing Figures 5.2 and 5.3).

In order to supplement the abovementioned statistical analysis of the retention and throughput rates, the perceptions and experiences of the participants were obtained through two self-administered questionnaires, e-mail correspondence and discussion forum documentation. My personal research journal as well as the examination statistics of the FAC2602 module also served as data sets for this study. These additional data sets were analysed quantitatively and qualitatively in order to obtain a well-substantiated and nuanced understanding of the possible effect of mobile phone interventions on improving the didactical conversation and lessening of the transactional distance.

The quantitative perspectives of the participating FAC2602 students were obtained through Questionnaire 1 (refer section 5.3). It was noted that the majority of FAC2602 participants were most probably younger than 30, English-speaking, part-time students, from the black population group, who had passed Accounting as a school subject in Grade 12, enrolled for the BCompt degree and registered for the FAC2602 module for the first time. Although the majority of participants had access to a computer, nearly 28% of the participants did not have easy access to the internet (refer Table 5.4). Although most of the participants worked during the day, they indicated their preference to attend contact sessions (refer Table 5.5) as they were of the opinion that these sessions could assist them to understand the accounting concepts necessary to be successful in the FAC2602 module. However, a low percentage of participants (as few as 10%) made use of the contact sessions offered to them by Unisa, most probably due to time constraints (refer section 5.5.2.3).

The participants encountered limited problems regarding the use of *myUnisa* for downloading study material, submitting assignments and activating their *myLife* e-mail accounts. However, the didactic conversation between lecturers and students as well as between students and students was limited as participants very seldom posted comments on the discussion forum and only made use of e-mails when needed. Participants were more comfortable with listening to the CDs and watching the DVD, compared to taking part in the discussion forum, sending an SMS to the lecturer and downloading a podcast track (refer Figure 5.4). It was thus obvious that computers and the internet played an important role to lessen the transactional distance, but these technologies did not assist to increase didactic conversation.

From the feedback it became evident that the use of mobile phones, to assist with teaching and learning, was a viable option as all participants had a mobile phone (refer Q19, Table 5.4) and all participants could be reached via this medium if they updated their contact details regularly (refer Table 5.8). Regarding the use of SMSes in the FAC2602 module, participants clearly showed their approval of the intervention as they applied the content of the SMSes in their studies and perceived the text messages to motivate them. Nearly 74% of the participants wanted other modules at Unisa to make use of similar SMSes. By making use of mobile phones, lecturers can thus increase didactic conversation and lessen the transaction distance. However, the research findings on the use of mobile technology reported on in this chapter need to be assessed within the context of the use of other technologies, such as podcasts on *myUnisa*, CDs and DVDs.

In this regard, this chapter provided evidence of the use of various other modes of technology. One of them is podcasts available on *myUnisa*. Although participants could download the podcast tracks from *myUnisa*, they seemed to prefer waiting for the arrival of the original CDs by mail. Of the participants, 80.5% (refer Table 5.10) made time in their busy schedule to listen to the CDs. Nearly 80% of the participants (refer Table 5.11) who watched the DVD were of the opinion that it was helpful. In addition, more than a third of the participants preferred to watch the DVD and to listen to the CDs (refer Figure 5.8). More than 50% of the participants (refer Figure 5.8) preferred the DVD and CDs to discussion classes, evidently due to time constraints (refer section 5.5.2.3). The feedback obtained through Questionnaire 1

pointed towards a very positive perception regarding the use of technology as part of a DE module. Nearly 80% of the participants (refer Figure 5.9) wanted more modules at Unisa to include similar CDs, and an even higher percentage, namely 81%, wanted a DVD to be included. Of the participants, 51% preferred the number of technology interventions in FAC2602 to stay as was the case at the time of this research, while 43% of the participants (refer Figure 5.9) wanted even more technology to be included in FAC2602. The consequence of the technology intervention in the FAC2602 module was that 93.5% of the participants (refer Figure 5.9) were of the opinion that technology makes studying at Unisa easier and interesting. CDs – and especially the DVDs – provide, in addition to printed study material, an audio and visual dimension enhancing the learning of complex accounting concepts and methods. However, similar to printed study material, the communication of these technologies is one-directional, while the communication enabled by mobile technology is multi-directional, facilitating didactical conversation and decreasing transactional distance.

Section 5.3.3 of this chapter reported on the possible associations between the various mobile phone interventions. The results firstly revealed that 57% of the participants (as per Questionnaire 1) passed the May 2012 examination, compared to the actual pass rate (37.9%) of the total number of registered FAC2602 students. Secondly, the Pearson chi-square test revealed that a significant association exists between the success rates of the participants who watched the DVD when compared to participants who did not watch the DVD. Lastly, the results revealed that participants who made use of three or more of the interventions (of which one was the SMS intervention), performed better when compared to participants who used two or fewer of the interventions (of which one was the SMS intervention) – a confirmation that these interventions are not only suitable for students with time constraints, but that the interventions complement each other.

The chapter further presented feedback collected from the participating FAC2602 students during the second semester of 2012 through Questionnaire 2 (refer section 5.4).

A total of 13 themes identified were linked to the research questions (refer Table 5.14). The codes used to describe the two-way conversation perceptions and

experiences of the participants revealed that technology can indeed shorten the transactional distance between the lecturer and the student. Some of the participants said it almost felt like they were attending a face-to-face session, as it was easier to understand accounting concepts if these were explained to them via these technologies. The use of mobile phones did enhance the two-way conversation (didactic conversation) as the communication became fast and less formal to students and this assisted to motivate participants.

The participants were also of the opinion that the variety of interventions (podcasts, CDs and DVD) helped them with their studies. However, the mobile phone interventions increased didactical conversations on inter alia the content of these CDs and DVD by assisting the participants to ask questions directly and receive answers quickly. The use of mobile phones supported these participants who had limited time to study, to get assistance instantly. This was a clear indication of less transactional distance and more didactic conversation.

When comparing a module that only provides students with printed study material to a module that includes technologies as well, participants were of the opinion that technology enhanced the teaching and learning of the FAC2602 module. Mobile phones can enhance, encourage and assist students, which relates back to the principle of anywhere, anytime learning (refer section 2.6.2). Participants felt in touch with the module as the regular communication kept them up to date with their studies. The communication from the lecturer was also done in such a manner that participants could easily understand the messages and the accounting content thus became clearer.

In a DE environment where limited didactic conversation exists, mobile phone interventions not only assisted in solving difficult sections of the work, it also provided a feeling of togetherness and a classroom effect. Although some participants preferred to study on their own, the mobile phone provided them with the opportunity to communicate directly with a lecturer through a familiar and effective technology. The use of mobile phones in the FAC2602 module helped to alleviate some of the negative emotions often experienced by DE students. The interventions decreased the transactional distance, relieved stress and made studying more interesting. The communication received from the lecturer boosted the participants' confidence,

motivated them and increased their sense of belonging. In addition, as they were familiar with the mobile phone, the participants found the conversation style easy and understandable (refer sections 5.4.1.3. and 5.4.6.2).

In addition to the feedback provided by the two questionnaires, qualitative data was also collected since the study commenced in 2006. My autoethnography narratives and those of my FAC2602 students (verbatim quotes) were incorporated in section 5.5 to support the findings. Focussing on retention and throughput, various e-mail correspondences, discussion forum conversations, SMSes and my personal journal were analysed to identify themes that could assist me to understand my participants' perceptions and experiences on the use of mobile phones in the teaching and learning of the FAC2602 module.

It became evident that the SMSes kept the participants on track, motivated them and encouraged them to keep up their studies. The SMSes provided the didactic conversation needed in a DE environment, which resulted in participants experiencing less transactional distance between the lecturer and themselves. As most participants were working full-time and had limited time available for studies, the mobile phone interventions provided a quick connection between the student and the lecturer. Problems and queries were resolved almost instantly as participants felt like full-time students attending a face-to-face session. One participant mentioned, "technology can cover the void" (P100: Q1.348), or transactional distance, and especially in accounting studies. Participants agreed that the technology assisted them to understand the content (refer section 5.5.2.2). Another participant said, "I see a very positive role these technologies can play in student lecture relationships and it exposes the two parties to really understand what the other is saying or struggling with (P260: Q2.61). This supported and increased the didactic conversation.

This chapter thus provided adequate evidence that the application of mobile technologies in the teaching of the FAC2602 module at Unisa indeed contributed to the didactical conversation between students and the lecturer involved in the particular module. Furthermore, it decreased the transactional distance between students and the lecturer. Consequently, considering the theories which guided this study, one may ascribe the slight improvement in the throughput rates of FAC2602 students to the successful introduction of mobile phone interventions.

CHAPTER 6

INTERPRETATION, CONCLUSION AND CONTRIBUTION

“A journey of a thousand miles begins with a single step”
(Lao-tzu, 2013:online)

6.1 INTRODUCTION

This thesis reported on research directly related to the challenges faced by students “following the distance learning route” as vividly identified by SAICA in 2009 (Olivier & Bulman, 2009:8). The magnitude of the challenges identified in the SAICA report for the accounting profession in South Africa, is evident from the fact that no less than 40% (refer Table 1.1) of all the accounting students in South Africa are enrolled at Unisa, the leading ODL institution in the country. This thesis subsequently reported on research aimed at an enriched understanding of the retention and throughput of accounting students at an ODL institution.

A review of the literature, especially on ODL, indeed revealed that DE has changed substantively since the early 1900s and technology is now playing an important role to support DE students (Blake & Scanlon, 2014; Scanlon *et al.*, 2013; Shen & Linlin, 2014). Although various studies have established technology to have an influence on the retention and throughput rates of DE students (Simonson *et al.*, 2012; Simpson, 2008; Turney *et al.*, 2009), no evidence of scholarly research related to the learning challenges of accounting students at a DE institution in South Africa could be found. The majority of research has shown to be conducted on the use of technologies that include computers and/or internet connectivity (Adam *et al.*, 2011; Ahadiat, 2008; Simonson *et al.*, 2012). Limited research seems to have been done on the use of mobile phones in the teaching and learning of accounting students.

Guided by the DE theories of Holmberg (1982) and Moore (1973), the present research set out to expand the body of knowledge in terms of accounting students’ perceptions and experiences after mobile phones had been incorporated into a second-year Accounting module to increase the didactic conversation and to lessen

the transactional distance. The following research problem was formulated to reflect the motivation for this study:

To which extent does the application of mobile phones in an Accounting module at a South African open distance learning university improve the didactic conversation, lessen the transactional distance and increase the retention and throughput rates of these students?

The purpose of this study was to determine and understand the extent to which the application of mobile phone technology in the teaching of an Accounting module at a South African ODL university would improve the didactic conversation, lessen the transactional distance and increase the retention and throughput rates of the students. Following the theories of Holmberg (1982) and Moore (1973), the research purpose was divided into nine research questions (refer Table 1.3). Each question has been addressed by means of an analysis of the applicable literature and the empirical data obtained through the present research. By answering each research question, this study has contributed to the solving of the central research problem (refer Figure 6.3).

This chapter subsequently consists of –

- a brief summary of each chapter of the thesis;
- a reflection on the limitations of the study;
- the main findings in response to each of the nine research questions;
- a final conclusion on solving the research problem;
- an indication of the significant and original contribution of this research to the field of accounting education; and
- recommendations for future research (refer Figure 6.1).

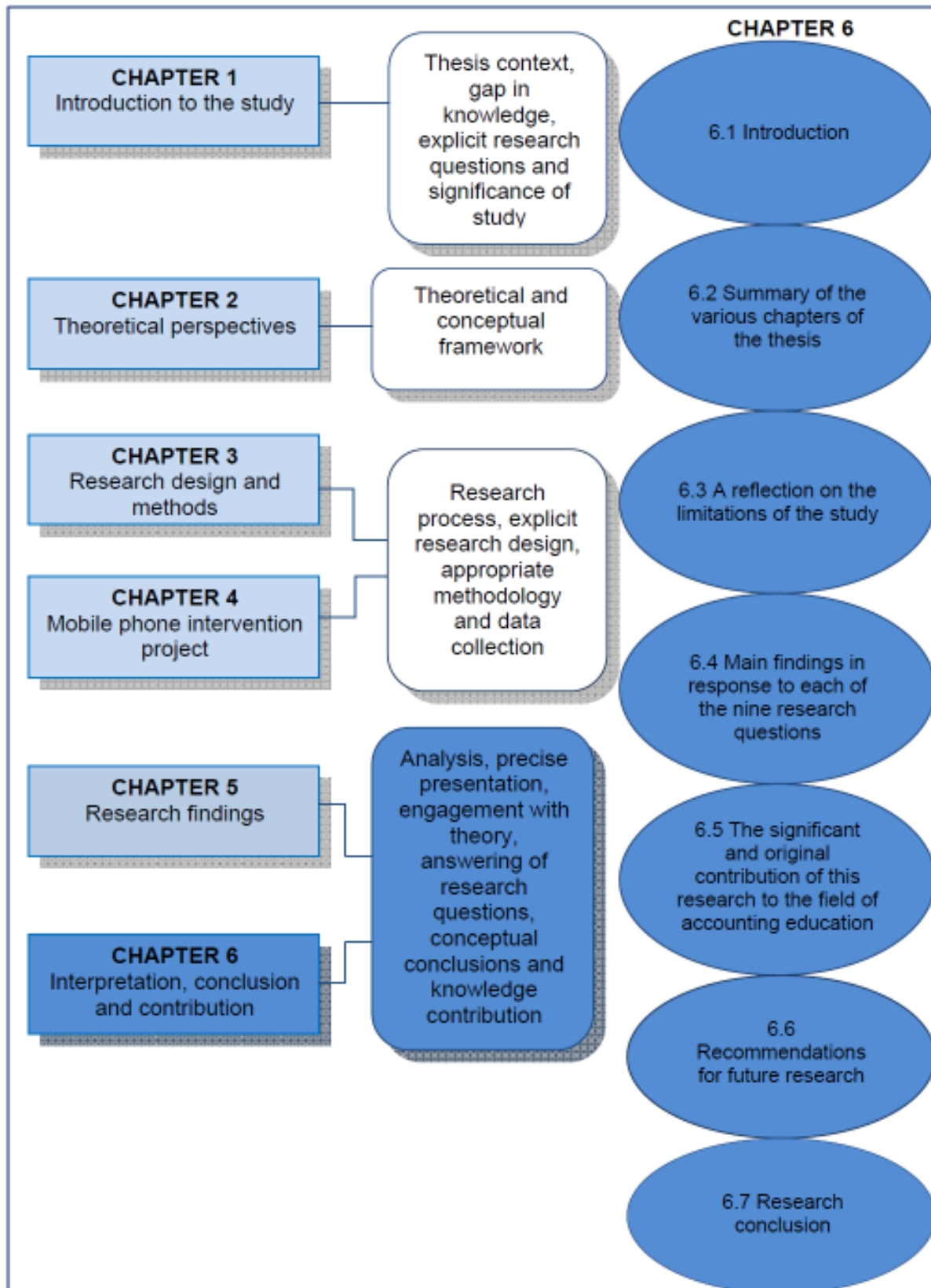


Figure 6.1: Structure of Chapter 6

Compiled after considering the components of doctorateness identified by Trafford and Leshem (2008)

6.2 SUMMARY OF THE VARIOUS CHAPTERS OF THE THESIS

This thesis comprises six chapters, starting with Chapter 1. Chapter 1 provided a brief overview of the unique nature and challenges of accounting education in South Africa, the distinct landscape of Unisa as an ODL institution and the challenges related to retention and throughput of accounting students at Unisa. Chapter 1 showed that this study was necessitated as the throughput of both undergraduate and post-graduate students who want to qualify as CAs in South Africa, are lower at Unisa when compared to residential universities. In order to understand the unique challenges related to retention and throughput of the accounting students at Unisa, the researcher selected one of the 30 compulsory modules, a second-year module, as a single case for this study. Following the background to and contextualisation of the study, the rationale to the study, the research problem and the research questions were deduced. The chapter also explained the research design and methodology for the study as well as the significance of the research. Chapter 1 concluded by explaining various key terms and providing the reader with an outline and the structure of the thesis.

Chapter 2 provided the theoretical perspectives for the study supporting the notion that technology bridges the transactional distance so often experienced by DE students. Reviewing various DE theories, the chapter then focussed explicitly on the transactional distance and didactic conversation theories of Moore (1973) and Holmberg (1982) respectively. The chapter discussed various factors influencing teaching and learning as well as the adoption and integration of technology into DE and Accounting courses. The chapter offered a review of mobile technology with specific reference to mobile learning, SMSes, social media, Mxit and podcasts. The chapter concluded with a provisional framework for understanding students' perceptions and experiences of the application of mobile phones in the teaching and learning of the FAC2602 module.

Chapter 3 described the research scope and philosophy relevant to the study. In addition, the research design and methods employed in the study were explained. The content of the chapter evolved around the explanatory sequential mixed-method single-case study adopted in this study (refer Figure 3.2), the unit of analysis as well as the data collection and analysis techniques. The chapter concluded by reflecting

on the limitations and strengths of the research design as well as the relevant ethical considerations.

Chapter 4 explained how the mobile phone intervention project was put into action to increase the didactic conversation between the researcher and the FAC2602 students to lessen the transactional distance, and by doing so to improve the retention and throughput rates of these students. The various mobile phone interventions were described, and qualitative reflections of the researcher and students who participated in these interventions were included. All the relevant steps applicable to the planning and implementation of every mobile phone intervention were discussed and reference to the UID principles for mobile learning was included.

Chapter 5 reported on the findings of the present research. The chapter first provided an overview and analysis of the FAC2602 students' retention and throughput rates from 2003 to 2012. Thereafter the chapter provided a quantitative perspective on the participants' perceptions on the use of various technologies in their studies at Unisa. The positive perceptions of the participants were tested further to find an association between the perceptions and the mark categories. In addition, qualitative data was used to enhance my understanding of the participating FAC2602 students' perceptions on the use of mobile phone technology to increase didactic conversation and lessen transaction distance in a DE module. Feedback by the participants was substantiated with verbatim quotes. In the last section of the chapter, the qualitative data collected throughout the research project (from 2006 to 2012) was analysed and the themes identified during the analysis of this data assisted me to identify themes related to participants' perceptions and experiences on the use of mobile technology as well as retention and throughput.

The purpose of this last chapter (Chapter 6) of the thesis is to interpret the findings as summarised in Chapter 5, and to provide a conceptual framework for understanding the unique challenges related to the retention and throughput of accounting students at Unisa. Figure 6.3 at the end of Chapter 6 depicts the research conducted in this study.

6.3 A REFLECTION ON THE LIMITATIONS OF THE STUDY

This research was conducted with due consideration of the requirements for quality, rigour, the research design and methodologies. However, the research brought with it unavoidable limitations that needed to be considered along with the findings.

The aim of the study was to understand the low retention and throughput rates of the FAC2602 students at Unisa through the application of the DE theoretical frameworks of didactical conversation (Holmberg, 1982) and transactional distance (Moore, 1973). Being a case study, one of the limitations of this research was that there could be no claims of generalisation. This research only focussed on one second-year Accounting module at Unisa; no other modules or students were included in the study. Furthermore, not all the registered students in the FAC2602 module participated in the study; therefore, the results reflect only the perceptions and experiences of the participants and myself.

As numerous studies (refer sections 1.3.3 and 2.4) have identified various factors that affect DE students' success, the researcher acknowledges that various factors could and may have affected on the results of the participating FAC2602 students' retention and throughput during the period of research. I only focussed on the participant' perceptions and experiences on the use of mobile phones, CDs and a DVD in the Accounting module, and no consideration was given to other factors that might have influenced the participants' learning experience in the module.

In addition, technologies have changed rapidly since the early 1900s and in the field of distance learning, researchers are already recognising the possibilities of various new developments. Mobile applications ('apps') are identified by Francesca (2014) in her article "4 of the fastest growing trends in education". In addition, Vázquez-Cano (2014:1505) also refers to the use of smartphones and apps in mobile distance learning, while the effect of MOOCs (massive open on-line courses) are reported by various scholars (Jona & Naidu, 2014:141; Kirkup, 2014:1; Liu *et al.*, 2014:147; Neuhaus, Feinbube & Polze, 2014:69), to name but a few. Although the researcher acknowledges the possibilities these new developments have on DE, the present study set out to understand the possible influence of a technology, which was accessible, affordable and beneficial to all students at the time of the research, on

didactic conversation and transactional distance. The study did not include the 'latest' technologies available but opted for the most widely used, namely SMSes, Mxit, podcasts (available on mobile phones), CDs and a DVD.

6.4 MAIN FINDINGS IN RESPONSE TO EACH OF THE NINE RESEARCH QUESTIONS

The purpose of the present research (refer Figure 6.3) was to understand the problem of the low retention and throughput rates of the FAC2602 students at Unisa through the theories of didactic conversation (Holmberg, 1982) and transactional distance (Moore, 1973). The research specifically explored student perceptions and experiences on the use of mobile phones in the teaching and learning of the FAC2602 Accounting module at Unisa, an ODL institution in South Africa. Findings from the present study describe the participating accounting students' perceptions and experiences on the use of mobile phones to support two-way conversation, to increase flexibility in resolving learning problems, to present Accounting study material, to give advice and make suggestions, to exchange views and also to involve students more emotionally. Finally, the present research identified and described the mobile phone interventions best suited to assist with accounting students' retention and throughput rates (refer Figure 6.3).

The study was conducted within an interpretivism epistemological paradigm (refer Table 3.3). The explanatory single-case study studied the integration of mobile phones into an Accounting module at Unisa, relying on the theoretical propositions of the theories of Moore (1973) and Holmberg (1982). The case-study research design further relied on multiple sources of evidence collected over a sustained period of time. Using a sequential mixed-method research approach, data was collected from the unit of analysis (the researcher and the participating FAC2602 students). The interpretive approach followed in this study, applied the evidence provided by these data sources to converge and analyse the participants' perceptions and experiences on the use of mobile phones to assist with teaching and learning.

What follows is a discussion and analysis of the data I obtained from the research reported on in Chapters 2–5. I first provide a summary of the personal and demographic characteristics of the participants, followed by their perceptions on the

use of technologies at Unisa and in the FAC2602 module. I then proceed to answer each research question by analysing the data obtained from the literature and theoretical perspectives, the two questionnaires, e-mail correspondence, discussion forum documentation, statistical analyses of examination results as well as my personal journal (refer Figure 6.3).

6.4.1 Summary of personal and demographic characteristics

Table 6.1 provides a summary of the personal and demographic characteristics of the participants in this study.

Table 6.1: Summary of personal and demographic characteristics of participants

Personal details	Research findings
Age	The majority of participants were younger than 40 (87.2%).
Home language	A substantial percentage of participants (56.7%) studied in their home language.
Part-time or full-time students	The majority of participants were part-time students (79.3%) who almost certainly worked while studying.
Race group	50.2% of the participants were black.
Accounting in matric	69.4% of the participants had Accounting as a subject at Grade 12 level.
Have registered for FAC2602 before or not	Only 29.8% of the participants were repeating the FAC2602 module.
Reason for enrolling for FAC2602	The majority of participants were enrolled for the FAC2602 module as part of a BCompt degree (64.4%).

The table shows that a large number of the FAC2602 participants in this study were younger than 40, were studying in their home language, were part-time students, were from the black population, had passed Accounting as a school subject in Grade 12, were registered for FAC2602 for the first time and were enrolled for the BCompt degree.

6.4.2 Summary of participants' preferences regarding contact sessions and the use of technologies at Unisa

Table 6.2 provides a summary of the participants' perceptions on the use of technologies at Unisa at the time of the research.

Table 6.2: Summary of participants' perceptions on the use of technologies at Unisa

Technology and/or related enquiry	Research findings
Own a computer	A large percentage of participants owned a computer (84%).
Access to a computer	97.2% of the participants had access to a computer.
Description of computer access	85.6% of the participants could use the computer whenever they want to.
Description of internet access	72.2% of the participants have easy access to the internet; however, 27.8% of the respondents reported limitations to their internet access on a spectrum from no access to slow access.
Own a mobile phone	All participants had a mobile phone.
Attended FAC2602 tutorial classes	Merely 21.7% of the participants attended tutorial classes. 41% of the participants could not attend as the classes were too far from the Unisa learning centre or no tutorial classes were offered at the closest centre.
Attended group discussion classes	Only 32.5% of the participants indicated they had attended group discussion classes in the past.
Prefer getting study material on-line	72.2% preferred to get their study material in the post although 85.6% of them could use a computer when they wanted to.
Submission of assignments on-line	95% of the participants had submitted assignments via <i>myUnisa</i> .
Took part in FAC2602 discussion forums	49.9% of the participants had read the comments on the FAC2602 discussion forum on <i>myUnisa</i> .
Downloaded	88.7% of the participants accessed <i>myUnisa</i> and downloaded study

Technology and/or related enquiry	Research findings
study material from <i>myUnisa</i>	materials from the website although 72.2% of the participants indicated they would prefer not to get their study material via the internet.
Activated <i>myLife</i> e-mail account	Nearly all the participants had activated their <i>myLife</i> e-mail account (98.3%) as it was compulsory for them to do so.
Used e-mails to communicate with lecturers	69% of the participants had not used e-mails to communicate with the lecturer as they had no need to do so.

Table 6.2 clearly indicates that the majority of the participants had access to a computer (97.2%) and could make use of the computer whenever they wanted to (85.6%). Although a somewhat lower percentage of the participants had easy access to the internet (72.2%), 84.9% indicated they were very comfortable accessing the internet. Unisa provides each registered student with a dedicated *myLife* e-mail account when they first register, and it was encouraging to find that 98.3% of the participants had activated this e-mail account and 83.6% were very comfortable doing it. However, when it came to actually using this e-mail account to communicate with lecturers (didactic conversation), 69% of the participants indicated they had no need to do so.

In addition, 95% of the participants had already submitted assignments via *myUnisa*, and 91.2% of them indicated they were very comfortable doing so. This high percentage was also applicable to the number of participants (88.7%) who accessed *myUnisa* and downloaded study material from the website. It was evident from the responses that participants were very comfortable accessing *myUnisa* (91.8%) and downloading study material (79.2%) when required to do so. One can thus say that access and computer-related technologies no longer prevent students from studying effectively at a DE institution in South Africa.

However, it was evident from the participants' responses that students still prefer not to get their study material in an electronic format only; they prefer printed material via the postal service (72.2%). It was furthermore evident that participants had either no time to participate in the discussion forums on *myUnisa*, as 49.4% only read the comments, or they were not very comfortable taking part in the discussions (52.2%).

In addition, the time constraint (79.3% were part-time students) became evident when referring to the participants' responses regarding the attendance of tutorial classes as 25.3% indicated they could manage on their own and only 32.5% had attended group discussion classes in the past. It was evident from the feedback that participants had limited contact with the lecturers and other students; thus, it was of interest to find out if the mobile phone intervention had bridged this transactional distance.

6.4.3 Summary of participants' perceptions regarding the ease of using various technologies at Unisa

Table 6.3 provides a summary of the FAC2602 participants' perceptions on the ease of using technologies at Unisa as part of their study.

Table 6.3: Summary of participants' perceptions on the ease of using technologies at Unisa

Technology and/or related enquiry	Research findings
Ease of accessing the internet	84.9% of the participants could access the internet with ease.
Ease of accessing <i>myUnisa</i>	91.8% of the participants could access <i>myUnisa</i> easily.
Ease of activating <i>myLife</i> e-mail account	83.6% of the participants could comfortably activate their <i>myLife</i> e-mail.
Ease of submitting an assignment via <i>myUnisa</i>	98.1% of the participants were comfortable to submit an assignment on-line.
Ease of accessing study links on <i>myUnisa</i> and downloading study material	79.2% of the participants could access and download study material with ease from <i>myUnisa</i> .
Ease of taking part in the discussion forum on <i>myUnisa</i>	69.2% of the participants participated in the discussion forum (either posting or reading comments) with ease.
Ease of communicating with FAC2602 lecturer using SMSes	A total of 30.8% of the participants were comfortable communicating with the lecturer using SMSes.
Ease of downloading FAC2602 podcasts	65.4% of the participants were comfortable downloading the podcast tracks from <i>myUnisa</i> .

Technology and/or related enquiry	Research findings
from <i>myUnisa</i>	
Ease of listening to the FAC2602 CDs	88.7% of the participants found listening to the CDs comfortable.
Ease of watching the FAC2602 DVD	84.9% of the participants found watching the DVD comfortable.
Have received the SMSes	Nearly all the participants had received the SMSes (95.8%). The 4.2% of participants who did not receive the SMSes have not provided Unisa with their latest contact details.
Have read and applied the content of the SMSes in their studies	85.6% have read and applied the content of the SMSes in their studies.
Found the SMSes motivational	85.6% of the participants found the FAC2602 SMSes motivational.
Should other modules at Unisa make use of similar SMSes?	73.6% of the participants indicated that other modules at Unisa should make use of similar messages.
Have sent an SMS to the lecturers	48.8% of the participants did not know they could send SMSes to their lecturer.
Have downloaded and listened to the podcasts	36.7% of the participants downloaded the podcasts from <i>myUnisa</i> . The main reasons given by participants who did not download the podcasts were: <ul style="list-style-type: none"> – they watched the DVD (25.7%); – they listened to the CDs (20.6%); and – they did not have time to listen (25%). A total of 24.2% of the participants downloaded the podcasts from <i>myUnisa</i> before they received the CDs. However, 34% preferred the original CDs to the podcasts.
Have found the CDs and accompanying tutorial letter helpful	80.5% of the participants found the CDs and accompanying tutorial letter helpful. The main reason given by the participants who did not find the CDs helpful was they had no time to listen to the CDs.
Have found the DVD helpful	79.2% of the participants found the DVD helpful, while the main reason for not finding the DVD helpful was that they did not have time to watch.
Comparing CDs to DVD	43% of the participants preferred to watch the DVD compared to 11% who preferred to listen to the CDs. In addition, 34% of the participants preferred to watch the DVD and also listen to the CDs.
Comparing CDs and DVD to group discussion classes	53% of the participants preferred the CDs and the DVD to discussion classes.

Technology and/or related enquiry	Research findings
Should other modules at Unisa make use of similar CDs and accompanying tutorial letters?	A total of 79% of the participants were of the opinion that other modules at Unisa should include similar CDs in the modules.
Should other modules at Unisa make use of a similar DVD?	A total of 81% of the participants were of the opinion that other modules at Unisa should include a similar DVD.
Preference regarding the current use of technologies in the FAC2602 module	A total of 51% of the participants indicated they preferred the number of interventions to stay as was the case in the FAC2602 module at the time of the research while 43% of the participants wanted even more technologies to be included in modules.
Perceptions regarding the use of technologies in a Unisa module	93.5% of the participants indicated technologies make studying at Unisa easier and more interesting.

Referring to Table 6.3, it is apparent that all the participants had a mobile phone, but only 95.8% had received the FAC2602 SMSes (as the others did not provide Unisa with their latest contact numbers) and 85.6% had read and applied the content of the SMSes in their studies. The same percentage of participants found the interventions helpful (85.6%) and the SMSes motivational, while 80.5% found the CDs helpful and 79.2%, the DVD. Although 76.1% and 74.2% of the participants respectively indicated they were very comfortable listening to the CDs or watching the DVD, the main reason given by participants for not making use of the intervention was the lack of time on their side.

Although 47.8% of the participants indicated they were very comfortable to download the podcasts from *myUnisa*, 63.3% did not download the podcasts. The reasons given for not making use of the podcasts were that they had watched the DVD or listened to the CDs. The reason for not listening to the podcasts may be twofold, namely the cost to download large podcasts from the internet or the lack of time to download the podcasts. The latter seemed to be most relevant as 33.8% of the participants preferred to wait for the CDs to arrive in the post.

When considering the participants' perceptions on the use of the interventions, most of the participants (43%) preferred the DVD to the CDs. However, 53% of the participants preferred to make use of both the CDs and the DVD. Accounting students often need additional support to grasp some of the concepts and they will make use of all available sources of information. This was confirmed by a participant who explained, "I do not believe that you can fully grasp this module, without the lecturer support through the CDs and DVDs" (P12: Q1.239). The fact that the CDs and podcasts could be played on mobile devices, provided the participants the opportunity to listen to the "CD's while travelling to work every day, then because I heard how to do the work when I studied at night I understood the concept better" (P269: Q2.7). This was also evident in the fact that participants wanted other modules to include similar SMSes (73.6%), CDs (79%) and a DVD (81%). It was thus clear that, for the participants, technologies made studying at Unisa easier and more interesting (93.5% of the participants agreed). The lack of time part-time students often experience was mentioned by 51% of the participants as reason for preferring the current use of technologies in the FAC2602 module.

What follows in sections 6.4.4 to 6.4.12 are discussions and analyses of the data I obtained from the research reported on in Chapters 2–5 to answer the research questions.

6.4.4 Two-way conversation

The first indicator deduced from the theories of Holmberg (1982) and Moore (1973) (refer section 2.4.1) was the supporting of two-way conversation.

Research question 1

To which extent can mobile phones support two-way conversation in a DE Accounting module?

6.4.4.1 Theory

In order to answer this research question, it must firstly be repeated that DE students often experience isolation from other students and facilitators as there is limited interaction between these parties. This is what is defined by Moore (1973) as

transactional distance. To overcome this perception of loneliness, the literature reviewed (refer section 2.4.1) specified that regular interaction between students and facilitators as well as the empathy shown by these parties are fundamental. Holmberg (1982) is of the opinion that the didactic conversation should be empathy-based and motivational as this will alleviate fears and anxieties; hence, promoting student self-belief and connectedness. Moore (1973) proposes a distinctive procedure and instructional design as well as the facilitation of interaction to bridge the gap.

6.4.4.2 Mobile phone intervention

Focussing on the SMSes and MXit functions for mobile phones and in line with the UID principles of equitable and flexible use of these for DE mobile learning (refer Table 4.3), the short 160-character SMSes provided FAC2602 informational content in small simplified messages. Making use of SMSes was an accessible and affordable option as most students have access to mobile phones. In the present study, providing participants with regular reminders and giving them the opportunity to send SMSes to their lecturer, assisted with the connectedness required in DE courses.

The MXit function provided an instant messaging opportunity for the lecturer and the participants to communicate. Technologies have a minimal learning curve to master for the younger generation of students (Rodriguez, 2011:540), and as nearly a third of CAS students were younger than 24 in 2014 (Unisa, 2014a), the use of social media gave participants the opportunity to make use of a mobile phone application they use daily for personal reasons for their studies.

6.4.4.3 Research results

Around 85% of the participants who answered Questionnaire 1 indicated they had read and applied the content of the SMSes in their studies and were of the opinion the SMSes motivated them (refer Table 5.8). Feedback from participants completing Questionnaire 2 (also refer section 5.4.1), indicated that mobile phones were helpful as:

The instant two way conversation can make a big difference (P243: Q2.46).

I believe a two-way conversation was very effective when studying by distance learning (P251: Q2.53).

It is thus evident that participants indeed perceived the integration of mobile phones in the teaching and learning of FAC2602 to assist with the two-way conversation (didactic conversation) needed by DE students. In addition, the mobile phone interventions also helped to lessen the transactional distance so often experienced by DE students:

When you got these communication it shorten the distance between the student and the lecturer (P221: Q2.26).

For students who are far away from lecturers and who work full time, it is a way of communicating with your lecturer (P266: Q2.67).

Built the bridge and make communication easier (P264: Q2.65).

6.4.4.4 Conclusion

Feedback from the participating FAC2602 students confirmed that the mobile phone interventions did indeed shorten the transactional distance between the student and the lecturer. The SMSes and Mxit mobile phone functions were utilised and found effective as an accessible and affordable technology to enhance the didactic conversation in the module. As the regular and instant communication between student and student as well as between student and lecturer assisted the students to ask questions and receive feedback quickly, the gap in the DE environment (transactional distance) was bridged.

6.4.5 Resolving learning problems

The second indicator deduced from the theoretical considerations of Holmberg (1982) and Moore (1973) relates to the resolving of learning problems (refer section 2.4.2).

Research question 2

To which extent can mobile phones be utilised to increase flexibility in resolving learning problems in accounting?

6.4.5.1 Theory

Considering that many FAC2602 students prefer face-to-face or tutorial classes (refer section 5.4.1.2) to DE, this study set out to understand the perceptions of these students through the theoretical lenses of Holmberg (1982) and Moore (1973). Although Moore (1973) is of the opinion that students must accept a high degree of responsibility for their studies (refer section 2.4.2), he cautions that some of these students require help to be successful in their studies. Based on students' different learning styles, Holmberg (1982) recommends a more interpersonal communication style, which can assist to make DE students feel connected to a module as this will offer a feel of face-to-face teaching (Parlakkilic, 2014; Speece, 2012:9). Although previous studies (Apostolou *et al.*, 2010; Conole, 2013; Rodriguez, 2011; Watson *et al.*, 2007; Zywno, 2003) have explained the implementation of various forms of technology to enhance student learning outcomes (refer section 2.5), Moore (1973) is of the opinion that a single technology seldom meets all these requirements.

6.4.5.2 Research results

Considering this study focussed on the SMS, MXit and podcast functions available on mobile phones and also integrated CDs and a DVD into the presentation of the FAC2602 module, the feedback from the participants was important to understand their experiences of these different interventions. Of the participants, 85.6% applied the content of the SMSes in their studies (refer section 5.3.2.4), and 80.5% and 79.2% found the CDs and DVD respectively helpful. There are various reasons why only 36.7% of the participants downloaded the podcasts from *myUnisa*. Firstly, not all participants had easy access to the internet (refer Table 5.4). Secondly, not all participants found it easy to download the podcasts (refer Table 5.7). Thirdly, many of the participants preferred to wait for the CDs to arrive in the post (refer Table 5.9), and lastly, most of the participants were part-time students (refer Table 5.3) who most probably worked while studying. These students may have had limited time to make use of technologies not ready for use. However, participants agreed that the mobile phone applications assisted to resolve learning problems:

Replacing the class with a CD is wonderful, I can use them at my own time and they have been a great help (P1: DF1.1).

Especially with FAC2602, I think the CDs that were included were invaluable to the learning experience (P12: Q1.239).

It helps with the learning process as it is not just “dry” books (P16: Q1.243).

They are very effective. They help after studying your printed material; you can get clarity and be able to note important aspects through e-learning tools (P37: Q1.271).

I think this is key. The whole point that student use these technologies is to have a better understanding of what is required to know (P236: Q2.4).

Participants also indicated their preferences regarding the use of CDs and DVDs in the module as well as in other Unisa modules (refer Figure 5.9). While 79% of the participants wanted other modules at Unisa to include similar CDs and an accompanying tutorial letter, 81% of the participants wanted a similar DVD incorporated in other modules. In addition to these positive responses, 93.5% of the participants were of the opinion that the use of technologies made studying easier at Unisa.

6.4.5.3 Conclusion

The participants’ experiences and perceptions on the use of mobile phone interventions (as well as CDs and a DVD) in this study were positive, and it was evident from the feedback that these interventions did assist to enhance the didactic conversation. The technologies assisted the participating students to understand the accounting content of the module better, and one participant even explained it as creating a “wonderful learning environment” (P48: Q1.284).

6.4.6 Presentation of study material

The third indicator deduced from the theories of Holmberg (1982) and Moore (1973) relates to the presentation of study material (refer section 2.4.3).

Research question 3

How can mobile phones be utilised to present study material to accounting students?

6.4.6.1 Theory

According to Holmberg's theory of didactic conversation (1982), the mode of learning in a DE environment needs to be predominantly behaviourist, cognitive and constructivist (Simonson *et al.*, 1999). Before the study commenced, FAC2602 students used to receive printed study material only. The lecturer therefore never had the opportunity to explain various new ideas and concepts to these students (except if they attended group discussion classes). The mobile phone interventions provided the lecturer/researcher the opportunity to communicate with the students (didactic conversation) and to assist them to construct knowledge as they engaged with the study material through these interventions. Making use of audio and visual presentations (CDs and DVD), the problems regarding content knowledge previously often encountered by students enrolled for the same module, were incorporated into these interventions to assist students with such problems. By creating an effective learning environment (refer sections 2.5.1 and 2.6.2), explaining these problems to students and teaching them the basic skills needed to solve these problems, the accounting students were presented with interactive technology-mediated material, which created the opportunity to increase the students' learning outcomes.

6.4.6.2 Research results

The CDs and accompanying tutorial letter as well as the DVD gave the participating students the opportunity to "rewind, forward, pause and listen" (P101: Q1.349), which resulted in the construction of knowledge. In a DE environment, it is difficult for the lecturer to recognise the problems students encounter. In addition, students do not always grasp the concepts the lecturer wants to convey to them through the printed study material. My own perception regarding additional explanation was confirmed by various participants. One participant believed FAC2602 students "need step by step assistance" (P210: Q2.16). One participant said, "studying from a distance is not easy in Accounting because something we need a person to ask questions while practising it" (P84: Q1.329), while another participant stated, "it is difficult to study in distance learning, especially the accounting because it needs deeper understanding" (P183: Q1.447). However, the technologies incorporated in the present study assisted students "to have a better understanding of what is required" (P235: Q2.4) and had a positive effect "in student lecture relationships and it exposes the two

parties to really understand what the other is saying or struggling with” (P260: Q1.261).

Furthermore, the SMS and MXit intervention projects made it possible for participating students to communicate with the lecturer regularly and to get assistance quickly when they encountered any problems. One participant was of the opinion that “it is a very useful tool as it will be like a face to face tutorial which is easier to follow and understand like you are in a class as opposed to reading and studying from study materials like books and tutorial letters” (P160: Q1.415).

6.4.6.3 Conclusion

A combination of the SMS, MXit, podcast/CDs and DVD interventions provided the accounting students with interactive technology-mediated study material which not only improved the didactic conversation (Holmberg, 1982) but also lessened the transactional distance (Moore, 1973). By engaging with the accounting content and the lecturer, the students had a deeper learning experience, which created the opportunity for improved learning outcomes.

6.4.7 Giving advice and making suggestions

The fourth indicator deduced from the theories of Holmberg (1982) and Moore (1973) relates to the advice given and suggestions made to students (refer section 2.4.4).

Research question 4

Are mobile phones appropriate when giving advice and making suggestions to accounting students?

6.4.7.1 Theory

Although DE students have the opportunity to study independently at their own time and pace, studies (cf. Angelino *et al.*, 2007; Motteram & Forrester, 2005; Stanford-Bowers, 2008) have shown that managing workloads, self-pacing, lack of time, time management timely feedback and isolation play an important role in student retention (refer section 2.4.4). Mediation between the student and the study material (i.e.

sustaining *the didactic conversation*) (Moore, 1973:661) and support by the lecturer tend to increase student satisfaction and success (Passey, 2000:45).

6.4.7.2 Research results

The intention of the SMS intervention in the FAC2602 module was to provide students with information to help them pace themselves through the study material. Various important dates (such as assignment due dates) were included in the short messages, and motivational content was also included to support them emotionally. In addition, the SMS and Mxit mobile phone functions assisted participants to ask the lecturer questions when they encountered problems. The almost immediate feedback from the lecturer “assists as sometimes you are stuck on one section need clarity to carry on” (P239: Q2.42). One participant mentioned, “podcasts, sms, Mxit, Whatsapp and emails, feels to me like a more appropriate communication method between student and lecturer. You as a student can directly ask the lecturer for specific advice or guidance” (P258: Q2.6).

In addition to the aforementioned, another participant commented that the DVD and the “CD just explained and presented the same information in a slightly different way and suddenly I totally got it” (P1: DF1.1). Because I had been on the FAC2602 for 15 years when this study commenced, I was familiar with the content of the module and I also understood the problems students often encountered. During the group discussion classes, I learned to understand the problems they stumbled upon in their studies, and I found ways to explain these to them in a way they could understand. These explanations were included in the content of the CDs and the DVD. The effectiveness of these explanations was mentioned by a participant who said, “something are just understood better when someone explains them to you” (P96: Q1.344).

6.4.7.3 Conclusion

The mobile phone interventions gave the participants students the advice and suggestions they needed to comprehend the accounting concepts. Students were paced throughout the semester, motivated and encouraged to persist. The regular Mxit sessions also provided students with the opportunity to ask questions when they encountered problems. This method was much more effective when compared to e-

mail correspondence, which was the only after-hours communication channel in the past, where a student had to wait for the lecturer to send an answer. The content of the podcasts/CDs and DVD also included various explanations, which were not previously part of the printed study material. Thus, both the audio and visual interventions helped to increase the didactic conversation (cf. Holmberg, 1982) necessary in a DE environment and assisted with decreasing the transactional distance (cf. Moore, 1973).

6.4.8 Exchanging views

The fifth indicator deduced from the theoretical considerations of Holmberg (1982) and Moore (1973) reflects on the exchanging of views (refer section 2.4.5).

Research question 5

How can mobile phones be utilised to exchange views between Accounting lecturers and students?

6.4.8.1 Theory

Students studying at a DE institution face different challenges when compared to students studying at a residential university. Not only do DE students not attend classes; they also have very little contact with lecturers and other students. To bridge the transactional distance (cf. Moore, 1973), which relates to students' distance of understanding and perceptions as explained by Moore (1996), dialogue must be developed between the lecturer and the students, the student and other students as well as between student and the content.

6.4.8.2 Research results

To lessen this transactional distance (Moore, 1973) the use of mobile phones was introduced into the FAC2602 module during the present study to increase the didactic conversation (Holmberg, 1982). Students want their facilitators to be responsive to their needs (refer section 2.4.5), and previous studies (cf. McBrien *et al.*, 2009; Pan & Sullivan, 2005) identified synchronous communication to add value to students' learning. To enable participating students and the lecturer to exchange views regularly, SMSes and MXit were introduced into the FAC2602 module during

the present research. These interventions gave participating students the opportunity to communicate with the lecturer through a synchronous communication tool (cf. Schullo *et al.*, 2007), namely SMS and MXit, which provided direct communication between the participants and myself in real time. As one participant reported, “it can help each other by explaining matters you don’t understand” (P262: Q2.63). Another participant was of the opinion that “a student can directly ask the lecturer for specific advice or guidance” (P258: Q2.6).

6.4.8.3 Conclusion

The accessible and affordable mobile phone interventions provided participating students with a communication channel to their lecturer after office hours and over weekends (the time these part-time students are most likely to be studying). By using the mobile phone interventions, the transactional distance (Moore, 1973) was lessened as the didactic conversation (Holmberg, 1982) was increased.

6.4.9 Involving emotionally

The sixth indicator deduced from the theories of Holmberg (1982) and Moore (1973) reflects on the emotional involvement of students (refer section 2.4.6).

Research question 6

How can mobile phones be used to involve accounting students emotionally?

6.4.9.1 Theory

Theorists Thayer *et al.* (1994:910) explain that emotion is related to motivation. In addition, Bandura (1989) believes self-efficacy is also related to motivation, and Hurd (2000) reports that DE students who maintain a high level of motivation during their studies are likely to be successful. DE students often feel less motivated in their studies and link this to a lack of personal contact (Frank *et al.*, 2003) or a sense of isolation (transactional distance) (Abrami *et al.*, 2011). Literature however indicates the use of blended instruction (Rowley *et al.*, 2002) and motivational messages (Visser *et al.*, 2002) to improve performance and retention.

6.4.9.2 Research results

To provide the participating FAC2602 students with the motivation needed to pursue their CA careers, the SMS messages to these students often included motivational content (refer Table 4.5). Feedback from the participants confirmed that these SMSes were indeed inspiring and supportive (refer section 4.4.1.1). In addition, the MXit conversations I had with the students often had to include motivational content, especially when students encountered problems with difficult accounting concepts.

6.4.9.3 Conclusion

The integration of mobile phone SMS and MXit interventions assisted with the emotional support DE students often need to remain motivated in their studies. These instant interventions provided me with the tool necessary to involve my students emotionally and by doing so to increase the didactic conversation (Holmberg, 1982) needed to decrease the transactional distance (Moore, 1973).

6.4.10 Conversation style

The seventh indicator deduced from the theoretical considerations of Holmberg (1982) and Moore (1973) reflects on the personal conversation style between the facilitator and the student (refer section 2.4.7).

Research question 7

To which extent can mobile phones accommodate a personal conversation style between accounting students and lecturers?

6.4.10.1 Theory

Although studying at a DE institution, the participating FAC2602 students also indicated their preferences regarding regular contact with the lecturer and fellow students (refer section 5.5.2.1). This is in line with Garrison and Vaughan's (2008) explanation that students want purposeful and meaningful interaction and, although technology can assist with two-way communication between facilitators and students (refer section 2.5), these interventions are most often asynchronous interactions (cf.

Moore, 1989:2), which do not accommodate real time communication between the lecturer and students.

6.4.10.2 Research results

To incorporate a more personal conversation into the FAC2602 module and to accommodate such conversation, I made use of the Mxit mobile phone function as well as SMSes. This synchronous tool on mobile phones (refer section 2.6.5) gave me the opportunity to communicate with the students in a personal conversation style in real time. In addition, the SMSes were compiled in a format to incorporate the SMS language style (refer Table 4.7) with which students are familiar. Furthermore, the script of the podcasts/CDs and DVD was also written in a manner to replicate a group discussion class situation (refer section 4.4.3).

6.4.10.3 Conclusion

The didactic conversation (Holmberg, 1982) used in the FAC2602 mobile phone interventions accommodated a personal conversation style. This style of communication assisted students to feel connected to the module and made it easier for them to communicate with the lecturer (refer section 5.4.7).

6.4.11 Retention and throughput

The study set out to increase the retention and throughput rates of the FAC2602 through the application of mobile phones.

Research question 8

Does the mobile phone intervention have an effect on the retention and throughput rates?

The study applied mobile phone interventions (SMSes, Mxit and podcasts) to increase the didactic conversation (Holmberg, 1982) in an Accounting module at Unisa and by doing so lessen the transactional distance (Moore, 1973), as this was necessary for student retention and throughput. As the study progressed, CDs were incorporated to provide the podcast tracks to the students (refer section 4.4.3), and a DVD was compiled which contained the visual presentation of the audio content on

the CDs (refer section 4.4.3). The theories of Holmberg (1982) (refer section 2.3.1) and Moore (1973) (refer section 2.3.2) provided the theoretical framework for this study.

The retention and throughput rates of the FAC2602 students were collected over a period of 10 years (1st semester 2003 to 2nd semester 2012) from the students' examination statistical analyses and averages were calculated to determine whether the mobile phone interventions did assist with the low retention and throughput rates of the DE participating accounting students. The results obtained indicated that the use of three or more of the mobile phone interventions did have an effect on the throughput rates of the participants and, in addition, the participants who had watched the DVD were more successful in the May 2012 examination (refer section 5.3.3).

6.4.12 Perceptions and experiences

The study set out to understand participants' perceptions and experiences on the application of mobile phones in the FAC2602 module.

Research question 9

How do participants perceive and experience the mobile phone intervention?

The participating FAC2602 students perceived the use of mobile phones in the teaching and learning of accounting in various ways. A large portion (93.5%) of the participants' perceptions and experiences pointed towards a positive experience. One participant approved by indicating that his/her "perceptions on the use of mobile technologies still stand positive that is the good move or development you made to reach all students in time" (P267: Q2.68) while a second participant agreed, "Definitely! I think all other modules would contribute by using mobile technologies - it makes for better communication between students and lecturers and makes students feel like they are part of a class and not struggling on their own through a module" (P233: Q2.37). Yet another participant also perceived that "mobile technologies are an excellent form of communication, as almost every UNISA students has a cell phone and it brings the students at different places" (P252: Q2.54). One participant

was of the opinion that “the technology helps me enjoy study material more” (P238: Q2.41).

The negative experiences mentioned by the participants related mostly to social media (refer sections 5.5.2.3 and 5.5.2.5). It was thus evident from the feedback that the participating FAC2602 students perceived the mobile phone interventions in the Accounting module to improve didactic conversation (Holmberg, 1982) and lessen the transactional distance (Moore, 1973). One participant clearly indicated, “the world is fast becoming all online and it is enterprising of UNISA to try adapting and keeping up by making use of mobile technologies and social networks and cell phones, and I am sure many students appreciate this” (P251: Q2.53).

6.5 THE SIGNIFICANT AND ORIGINAL CONTRIBUTION OF THIS RESEARCH TO THE FIELD OF ACCOUNTING EDUCATION

Using the theories of Holmberg (1982) and Moore (1973), data was interpreted in order to understand the perceptions and experiences of the accounting students after mobile phones had been introduced into their module. Prior to this research, only a printed study guide was provided to students.

The present study provided clear guidelines on the planning and implementation of the various mobile phone interventions, which could help facilitators. This study then described how the participating accounting students perceived and experienced the mobile phone interventions to improve didactic conversation and lessen transactional distance. In addition, the study determined the extent to which the mobile phone interventions assisted with the students’ retention and throughput.

Considering the low retention and throughput rates of DE Accounting students in South Africa, the study was undertaken at Unisa, a DE and ODL university in South Africa. The Accounting facilitator/researcher made use of mobile phone interventions (SMSes, MXit and podcasts) and set out to understand the problem of low retention and throughput through the didactic conversation theory of Holmberg (1982) and the transactional distance theory of Moore (1973) (refer Figure 6.2).

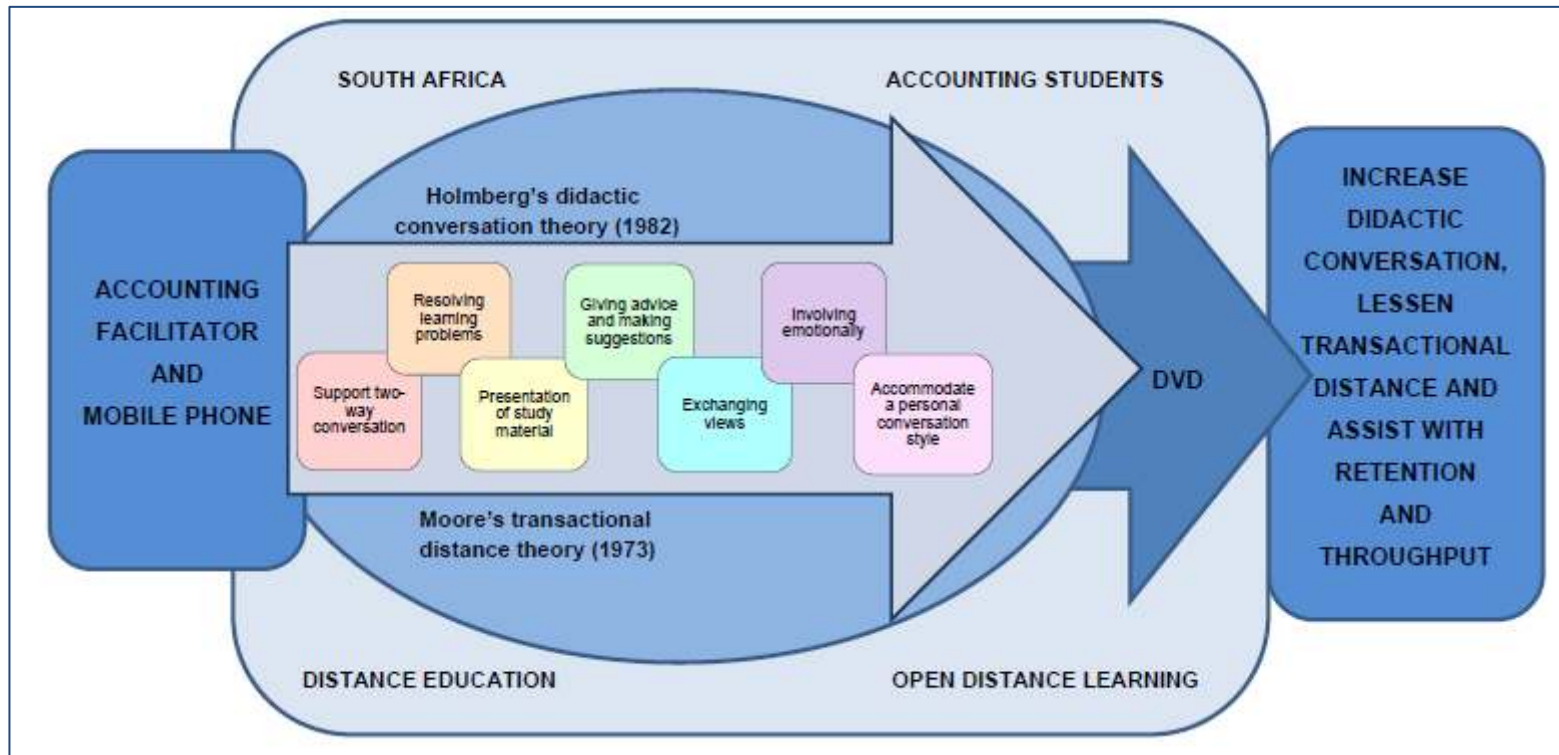


Figure 6.2: Conceptual framework for understanding the use of mobile phones in facilitating interaction between lecturer and students with the aim to increase retention and throughput rates of accounting students within an ODL environment in South Africa

Moore's transactional distance theory (1973) explains the phenomenon of student retention and throughput through inter alia the importance of the quality of the conversation and the extent to which the two-way conversation facilitates flexibility in the learning process and resolves learning problems. Holmberg's didactic conversation theory (1982) explains student retention and throughput through the following characteristics of conversation between facilitator and student (Holmberg, 1983:114–122):

- presentation of study material;
- explicit advice and suggestions to the student;
- invitations to exchange views;
- attempts to involve student emotionally; and
- personal conversation style.

As most of the participating accounting students were studying part-time, they often mentioned the lack of time in their feedback (refer section 5.5.2.1). However, the content of Accounting modules frequently necessitates the need for additional support. This support can be in audio format (CDs or podcasts), but better results have been achieved by making use of visual presentations on a DVD.

It became clear from these research findings that, although time may be a restricting factor for accounting students, they will make use of student support interventions if these are provided in a ready-to-use format. In the present study, a relatively low number of students (36.7%) made use of the podcasts, which were available on *myUnisa* as they preferred to listen to the CDs and/or watch the DVD instead.

An analysis of the retention and throughput rates of the participants in this study revealed that the use of three or more of the interventions did assist with the retention and throughput of the accounting students. Providing students with accounting content in different formats (print, audio, visual) has shown to have lessened the perceived transactional distance (cf. Moore, 1973). The two-way didactic conversation (cf. Holmberg, 1982), also necessary in a DE environment, was shown to have been enhanced by integrating mobile interventions with the aforementioned printed, audio and visual interventions. The mobile phone interventions were shown to have enhanced instant communication possibilities and

have improved the didactic conversation necessary to support accounting students. The participating students thus perceived the use of mobile phones to increase didactic conversation, lessen transactional distance and assist with the teaching and learning of accounting. Furthermore, the discussion in this thesis has revealed a close relationship between the theories of Holmberg (1982) and Moore (1973), as an increased didactic conversation seems to imply an inevitable decrease in the transactional distance.

The present study contributes to the existing literature (refer Figure 6.3) by combining and adapting the theories of Holmberg (1982) and Moore (1973) in a conceptual framework for understanding the retention and throughput rates of the accounting students in an ODL environment through the theories of transactional distance (Moore, 1973) and didactic conversation (Holmberg, 1982).

6.6 RECOMMENDATIONS FOR FUTURE RESEARCH

In answering the central research problem and the research questions, potential research areas for future research were identified.

The use of technologies and mobile phones in DE is not unique, and this research could be repeated at any other institution in any other subject field with mobile phones or with other technology. Technology creates opportunities for research in the field of face-to-face learning, distance learning, e-learning, mobile learning and blended learning settings as technology is transforming the education system worldwide, affecting on how students learn, share and gather information.

While Facebook, Twitter, WhatsApp and BBM were included in the FAC2602 module in the present research, limited emphasis was placed on these social applications during this study, as most students preferred to use these for personal conversations only (refer sections 5.5.2.3 and 5.5.2.5). Although various other studies have reported on the use of Facebook, Twitter, WhatsApp and BBM, limited innovative research of using social media has been conducted in South Africa and more specific in the field of Accounting.

Technologies are changing what we do and how we do it almost on a daily basis. Therefore the adoption of new technologies such as mobile apps, cloud computing,

game-based learning and 3D printing (Francesca, 2014), MOOCs (Jona & Naidu, 2014:141; Liu *et al.*, 2014:147; Neuhaus *et al.*, 2014:69) and OERs (open educational resources) (Thoms & Thoms, 2014:138; Xu, Zhang & Zheng, 2014:230) to name but a few, are creating opportunities for universities to adopt new innovative ideas for learning. As Collis and Moonen (2002:217) said, “You can’t *not* do it.”

6.7 RESEARCH CONCLUSION

The rationale for choosing the present research topic was two-fold:

- firstly, to understand the challenges regarding retention and throughput of an Accounting module at Unisa, a DE and ODL institution in South Africa, through the application of the didactic conversation theory of Holmberg (1982) and the transactional distance theory of Moore (1973); and
- secondly, to support accounting students through an enriched understanding more effectively in their studies to ensure they complete their studies in the shortest possible period as this will assist to alleviate the shortage of accountants and CAs in South Africa.

The research set out to fill the gap in the existing body of knowledge regarding improved didactic conversation (cf. Holmberg, 1982) and reduced transactional distance (cf. Moore, 1973) in accounting education in an ODL environment.

Apart from the contribution of this study to the body of knowledge on teaching and learning in the Accounting Sciences, this study has been an enriching journey for me as the lecturer and the researcher. I have come to realise that an intervention as insignificant as mobile technology, not only supported these students with the teaching and learning of the module content, but it assisted me to increase the didactic conversation necessary in a DE module, to lessen the transactional distance, and most probably increased the students’ throughput rates. The connectedness I had with my DE students was acknowledged by one participant:

Perfectly recognised me as valued and important student to success in my studies I personal thank you for that u have been an aspiration not to me only but to us all as your students (P267: Q2.68).

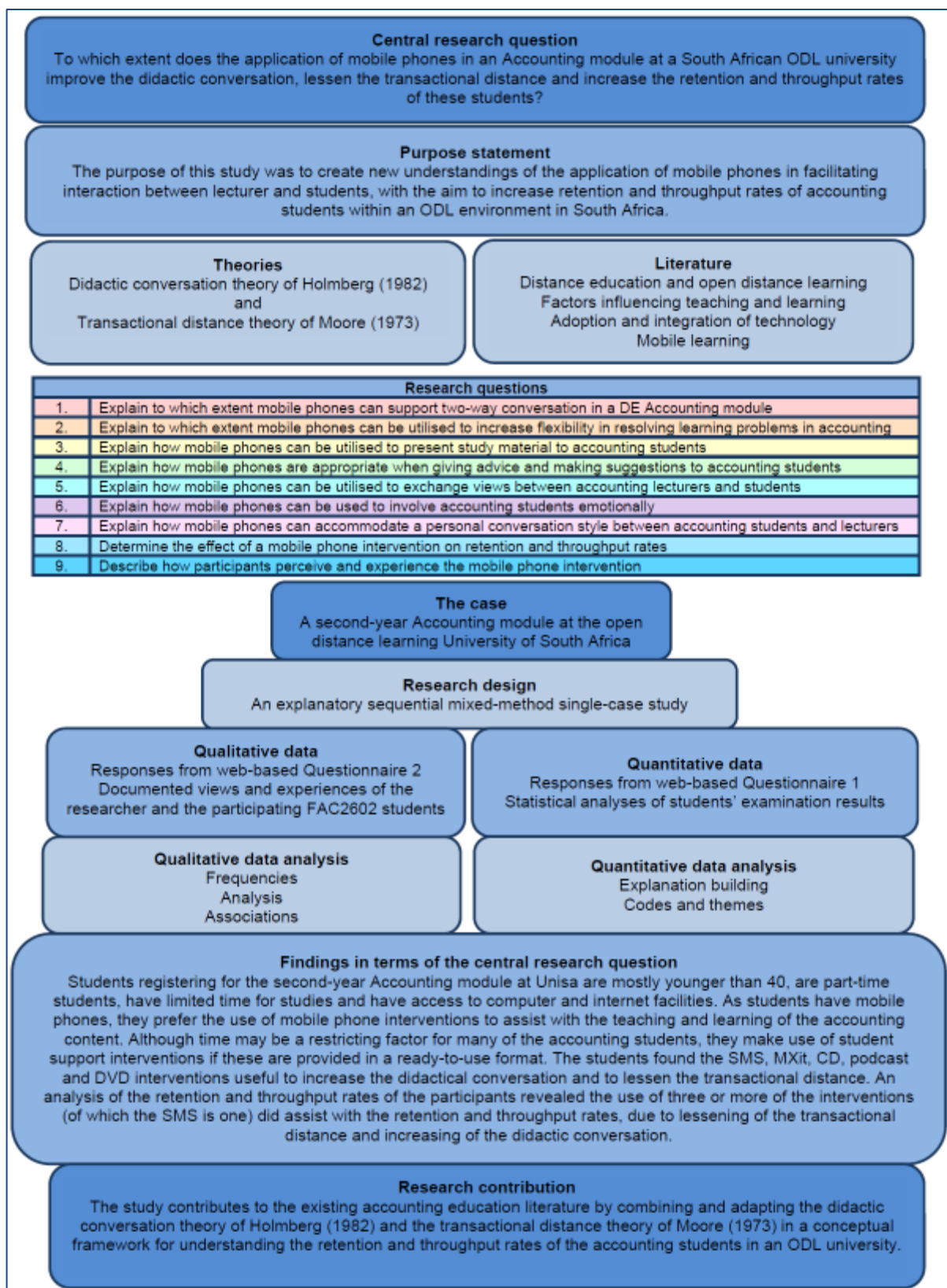


Figure 6.3: The research process of this study

(Author's own compilation)

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QUESTIONNAIRE 1

PARTICIPANT INFORMATION SHEET

15 May 2012

Dear prospective participant

A student survey on the use of electronic media as support to FAC2602

I am currently doing research, as part of my Doctoral thesis at the University of South Africa, focussing on the use of mobile technologies in the teaching and learning of the FAC2602 module. The purpose of my study is to understand how the use of these mobile technologies (mobile phones and MP3 players) can assist with the teaching and learning of Accounting.

You have been chosen to participate because you are/were enrolled as a student in the FAC2602 module. I want to know what your view is on the use of various electronic media in the FAC2602 module to support your learning. While there is no financial or other direct benefit in participating, your experience as current/previous FAC2602 student can however contribute much to assist and support other FAC2602 students in future. **I would greatly appreciate your contribution!** It will take about 15 to 20 minutes of your time.

If you do not wish to answer any of the questions, you may skip them and move on to the next question. You may also withdraw from this study at any time without penalty. The information recorded is confidential; your name is not being included in the study as only a number will identify you. Your student number will only be used by me should I have to contact you to clarify a point or for a follow-up interview later on should the need arise. Only the research team (i.e. myself and data analyst) will have access to the information and we will all sign a confidentiality agreement. Data from the study will be stored either in hard copy format or electronically on a flash disk and will be locked in a cupboard in my office. After a period of five years I will destroy the data personally.

This study has received written approval from the Research Ethics Committee of the College of Economic and Management Sciences at Unisa. If you would like to see the ethics approval letter, have any questions in respect of this study or want to receive a summary of the results, please contact me, Ms Annelien van Rooyen, telephone 012 429 4539, fax 012 429 8109 or e-mail vrooyaa@unisa.ac.za.

Thank you for taking time to read this information sheet and for participating in this study.

CONSENT TO PARTICIPATE IN THIS STUDY

- I have read and understood the study as explained in the information sheet.
- I understand that my participation is voluntary and that I am free to withdraw at any time without penalty.
- I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

If you understand and accept the above you may proceed by typing in your student number in the space provided and then continue by answering the questions.

Thank you
Annelien van Rooyen
Lecturer FAC2602

Q01	Please provide your Unisa student registration number in the space provided										
Q02	What is your current age group? (Choose one)	1	Younger than 20								
		2	Between 20 and 29								
		3	Between 30 and 39								
		4	Older than 40								
Q03	What is your home language? (Choose one)	1	English								
		2	Afrikaans								
		3	isiNdebele, Sesotho sa Leboa, Shona, isiZulu, Setswana etc.								
		4	Other								
Q04	Are you a full-time or part-time student? (Choose one)	1	Full-time student								
		2	Part-time student								
Q05	What race group are you? (Choose one)	1	Asian								
		2	Black								
		3	Coloured								
		4	Indian								
		5	White								
		6	Other								
Q06	Did you have Accounting in matric/Grade12? (Choose one)	1	Yes								
		2	No								
Q07	Have you registered for FAC2602 before or was this your first registration this semester? (Choose one)	1	This was my first registration								
		2	I failed a previous attempt and I was repeating this semester.								

Q08	Why did you enrol for FAC2602? (Choose one)	1	It is part of my BCompt degree.
		2	I am studying towards a BCom and Accounting is my major.
		3	Non-degree purposes.
		4	Other
Q08a	How does studying at a Distance Learning institution like Unisa compare to studying at a face-to-face institution/school? Include interaction with other students, facilitators/teachers and teaching of the subject in your feedback to the question.		
Q09	Do you own a computer? (Choose one)	1	Yes
		2	No
Q10	Do you have access to a computer? (Choose one)	1	Yes
		2	No
Q11	How would you describe your access to a computer? (Choose one)	1	I can use a computer for study purposes whenever I want to.
		2	I have to book to use a computer for my studies.
		3	I have to ask permission to use a computer for my studies.
		4	I do not have access to a computer.
Q12	How would you describe your internet access? (Choose one)	1	No access to internet.
		2	Access to internet very limited, can only read e-mails.
		3	Access to internet limited, cannot attach large documents to e-mails.
		4	Access to internet very slow, cannot download study material.
		5	Easy access to internet.
Q13	Would you prefer getting study material on myUnisa or via e-mail only? (Choose one)	1	Yes
		2	No

Q14	Have you submitted any FAC2602 assignments via <i>myUnisa</i> ? (Choose one)	1	Yes
		2	No, I do not know how to submit an assignment via <i>myUnisa</i>
		3	No, I do not have access to the internet
		4	No, I prefer to post my assignments.
Q15	With regard to the FAC2602 discussion forum on <i>myUnisa</i> , which of the following did you do? (Choose one)	1	I have read the comments and have posted a comment.
		2	I have only read the comments.
		3	I did not know that FAC2602 has a discussion forum.
		4	I was not interested to look at the discussion forum
		5	I do not have access to the internet and <i>myUnisa</i> .
Q16	Have you used the "Official study materials" tool on <i>myUnisa</i> to access and download FAC2602 study material during this semester? (Choose one)	1	Yes
		2	No, I did not need to.
		3	No, I did not know that study material is available on <i>myUnisa</i> .
		4	No, I do not know how to download study materials from <i>myUnisa</i>
		5	No, I do not have access to the internet and <i>myUnisa</i> .

Q17	Have you activated your <i>myLife</i> Unisa e-mail account? (Choose one)	1	Yes
		2	No
		3	Did not know I have to activate <i>myLife</i> Unisa e-mail account
		4	I do not have access to e-mail.
Q18	Have you communicated with your FAC2602 lecturers using e-mails? (Choose one)	1	Yes
		2	No, I did not need to communicate with my lecturers
		3	No, I do not have access to an e-mail.
Q18a	What is your opinion on the use of technologies such as e-mail and podcasts as teaching and learning tools at Unisa?		
Q19	Do you own a cell phone? (Choose one)	1	Yes
		2	No
Q20	The FAC2602 lecturers sent SMSes to students during the semester. Have you received these SMSes? (Choose one)	1	Yes
		2	No
		3	I do not have a cell phone.

Q21	If you did not receive the SMSes, why do you think you did not receive them? (Choose one)	1	I did not provide my cell phone number to Unisa for communication
		2	My cell phone number changed and I did not inform Unisa about the change
		3	I did receive the SMSes
		4	I do not have a cell phone
		5	I do not know
Q22	If you have received the FAC2602 SMSes, have you read and applied the content it in your studies? (Choose one)	1	Yes
		2	No
		3	I did not receive the SMSes
Q23	Are you of the opinion that the SMSes kept you motivated with your FAC2602 studies? (Choose one)	1	Yes
		2	No
		3	I did not receive the SMSes
Q24	Are you of the opinion that other modules at Unisa should use similar SMSes? (Choose one)	1	No definitely not
		2	Not sure
		3	Yes perhaps some modules
		4	Yes definitely all modules
		5	I did not receive the SMSes

Q25	Have you sent SMSes to your FAC2602 lecturers? (Choose one)	1	Yes
		2	No, I did not want to
		3	No, I did not know that I could send SMSes to the lecturers
		4	No, I do not have a cell phone.
Q26	Unisa has learning centres throughout South Africa where tutorial classes are available at a nominal fee. Did you attend these classes? (Choose one)	1	Yes, the tutorials helped me to understand my work better.
		2	Yes, but the tutorials did not help me to understand my work better.
		3	No, I could manage on my own.
		4	No, the nearest learning centre is too far from where I live.
		5	No, there was no FAC2602 tutorial class at the nearest Centre.
		6	No, I did not know about the tutorial classes.
Q27	Did you attend any Unisa group discussion classes in the past? (Choose one)	1	Yes
		2	No, I could cope on my own
		3	No, it was too far from where I live
		4	No, I did not know about the classes
		5	No, I could not get leave from work
		6	No, I had other commitments
		7	No, I find it a waste of time

Q28 With regard to various technologies, how comfortable are you when doing the following? (Choose the most appropriate for each item)						
	Very comfortable	Relatively comfortable	Not use to performing these tasks, but succeed eventually	Totally out of my depth to perform these tasks	Do not have access to the internet or cell phone	Have access but have never attempted it
28.1	Accessing the internet					
28.2	Accessing <i>myUnisa</i>					
28.3	Activating <i>myLife</i> e-mail account					
28.4	Submitting an assignment on-line via <i>myUnisa</i>					
28.5	Accessing study links on <i>myUnisa</i> and downloading study material					
28.6	Taking part in the discussion forum on <i>myUnisa</i>					
28.7	Communicating with FAC2602 lecturer using SMSes					
28.8	Downloading podcast tracks from <i>myUnisa</i>					
28.9	Listening to FAC2602 CDs					
28.10	Watching the FAC2602 DVD					
Q31	Did you find the FAC2602 DVD helpful? (Choose one)	1	Yes			
		2	No			

Q31a	I did not find the FAC2602 DVD useful, because (Only if answer to Q31 is no)	1	I did not have time to watch the DVD
		2	I was not interested in watching the DVD
		3	I did not watch the DVD as I had no access to a DVD player
		4	I downloaded and listened to the podcasts
		5	I listened to the CDs
Q32	Did you find the FAC2602 CDs and accompanying tutorial letter helpful? (Choose one)	1	Yes
		2	No
Q32a	I did not find the FAC2602 CDs useful because (Only if answer to Q32 is no)	1	I did not have time to watch the CDs
		2	I was not interested in listening to the CDs
		3	I could not listen to the CDs as I had no access to a CD player
		4	I downloaded and listened to the podcasts
		5	I watched the DVD
Q33	Did you download and listen to the FAC2602 podcasts on <i>myUnisa</i> ? (Choose one)	1	Yes
		2	No
Q33a	I did not find the FAC2602 podcasts useful, because (Only if answer to Q33 is no)	1	I did not have time to listen to the podcasts
		2	I was not interested in listening to the podcasts
		3	I did not listen to the podcasts as I was not able to download the podcasts from <i>myUnisa</i>
		4	I did not listen to the podcasts, as I had no internet access
		5	I listened to the CDs
		6	I watched the DVD

Q34	Did you download the CD tracks from the podcast option on <i>myUnisa</i> before you received the actual CDs? (Choose one)	1	Yes
		2	No, I did not know the podcasts were available on <i>myUnisa</i>
		3	No, I could not download the podcasts from <i>myUnisa</i>
		4	No, it was too much trouble to download the podcasts
		5	No, I started to download some tracks, but it took too long so I stopped
		6	No, I preferred the original CDs
Q35	When comparing the FAC2602 CDs to the FAC2602 DVD, which do you prefer? (Choose one)	1	I preferred listening to the CDs
		2	I preferred watching the DVD
		3	I used the CDs and the DVD and found them effective in different ways
		4	I did not listen to the CDs or watched the DVD
Q36	Are you of the opinion that the inclusion of CDs similar to the FAC2602 CDs together with the accompanying tutorial letter should be used by more modules at Unisa? (Choose one)	1	Yes, definitely
		2	Perhaps in some modules
		3	Not sure
		4	No, definitely not
		5	Did not listen to the CDs

Q37	Are you of the opinion that the inclusion of a DVD similar to the FAC2602 DVD should be used by more modules at Unisa? (Choose one)	1	Yes, definitely			
		2	Perhaps in some modules			
		3	Not sure			
		4	Did not watched the DVD			
Q38	With regard to group discussions and CDs/DVD, which of these do you prefer? (Choose one)	1	Prefer group discussions more than CDs/DVD			
		2	Prefer CDs/DVD more than group discussions			
		3	Not sure			
Q39 With regard to study assistance, indicate if you are of the opinion that your FAC2602 studies benefitted by using any of the following: (Choose the most appropriate for each item)						
		Yes very beneficial	Yes somewhat beneficial	Did not make use of this assistance	Not really beneficial	Not beneficial at all
	39.1 Tutorial classes					
	39.2 E-mail system through <i>myUnisa</i>					
	39.3 Discussion forum on <i>myUnisa</i>					
	39.4 Study material available on <i>myUnisa</i>					
	39.5 Use of SMSes by lecturers during the semester					
	39.6 Sending SMSes to my lecturers					
	39.7 CDs and accompanying tutorial letter					
	39.8 DVD and accompanying tutorial letter					
	39.9 Availability of podcast tracks on <i>myUnisa</i>					

Q40	With regard to the use of different technologies in the FAC2602 module, with which one of the following statements do you agree? (Choose one)	1	I would prefer to study without technology interventions.
		2	I would prefer less technology interventions in the module.
		3	I would prefer the use of technology as is currently the case.
		4	I would prefer the use of more technologies in the module.
Q41	What are your perceptions with regard to the use of technologies in the FAC2602 module?		
Q42	With regard to the use of technologies in a Unisa module, with which one of the following do you agree? (Choose one)	1	I think the use of technologies makes studying at Unisa easier and more interesting.
		2	I do not think the use of technologies in Unisa modules is helping me.
		3	I think the use of technologies interferes with my studies.
Q43	What would you change with regard to the use of technologies at Unisa?		
Q44	What are your perceptions on the use of social media (Facebook, Twitter, BBM, WhatsApp and MXit) in academic support?		

QUESTIONNAIRE 2

PARTICIPANT INFORMATION SHEET

19 November 2012

Dear prospective participant

I am currently doing research, as part of my Doctoral thesis at the University of South Africa, focussing on the use of mobile technologies in the teaching and learning of the FAC2602 module. The purpose of my study is to understand how the use of these mobile technologies (mobile phones and MP3 players) can assist with the teaching and learning of Accounting. I believe that mobile technologies can reduce the 'distance' students so often experience when studying at a distance education institution. As I want to know how you as a FAC2602 student viewed the use of mobile technologies in the module, I am inviting you to participate in my study.

You have been chosen to participate because you are/were enrolled as a student in the FAC2602 module. I want to know more about your perceptions and experiences with regard to the use of mobile technologies in this module. While there is no financial or other direct benefit in participating, your experience as current/previous FAC2602 student can however contribute much to assist and support other FAC2602 students in future. **I would greatly appreciate your contribution!** For me to understand students' perceptions and experiences on the use of mobile technologies in-depth, I need comprehensive feedback from you and I would be grateful if you can provide detailed written answers in the form of **at least** a paragraph per question. It will take about 15 to 20 minutes of your time.

If you do not wish to answer any of the questions, you may skip them and move on to the next question. You may also withdraw from this study at any time without penalty. The information recorded is confidential; your name is not being included in the study as only a number will identify you. Your student number will only be used by me should I have to contact you to clarify a point or for a follow-up interview later on should the need arise. Only the research team (i.e. myself, co coder, data analyst) will have access to the information and we will all sign a confidentiality agreement. Data from the study will be stored either in hard copy format or electronically on a flash disk and will be locked in a cupboard in my office. After a period of five years I will destroy the data personally.

This study has received written approval from the Research Ethics Committee of the College of Economic and Management Sciences at Unisa. If you would like to see the ethics approval letter, have any questions in respect of this study or want to receive a summary of the results, please contact me, Ms Annelien van Rooyen, telephone 012 429 4539, fax 012 429 8109 or e-mail vrooyaa@unisa.ac.za.

Thank you for taking time to read this information sheet and for participating in this study.

CONSENT TO PARTICIPATE IN THIS STUDY

- I have read and understood the study as explained in the information sheet.
- I understand that my participation is voluntary and that I am free to withdraw at any time without penalty.
- I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

If you understand and accept the above you may proceed by typing in your student number in the space provided and then continue by answering the questions.

Thank you
Annelien van Rooyen
Lecturer FAC2602

QUESTION 1	Mobile technologies were used in the FAC2602 module to send/receive SMSes, to download/listen to podcasts and to communicate (e.g. phone calls, MXit, Twitter, Facebook). What are/were your perceptions on the use of mobile phones in the FAC2602 module at Unisa?
QUESTION 2	Mobile and social media technologies include podcasts as well as MXit, WhatsApp, Twitter and Facebook. In your opinion, which role can these play in a module with special reference to two-way conversation between a student and a lecturer?
QUESTION 3	Mobile and social media technologies include podcasts as well as MXit, WhatsApp, Twitter and Facebook. In your opinion, which role can these play in a module with special reference to solving students' learning problems?
QUESTION 4	Mobile and social media technologies include podcasts as well as MXit, WhatsApp, Twitter and Facebook. In your opinion, which role can these play in a module with special reference to advice and suggestions within the student–lecturer relationship?
QUESTION 5	From your perspective, how can the use of mobile phones involve students emotionally?
QUESTION 6	As you reflect back on the FAC2602 module, how did mobile phones assist with the communication between student and lecturer?
QUESTION 7	In your view, how did the use of mobile phones in the FAC2602 module take your personal communication style into consideration?
QUESTION 8	How did the various mobile phone functions in the FAC2602 module help with your studies?
QUESTION 9	Which of the mobile phone and social media technologies (e.g. podcasts, SMSes, MXit, Twitter and Facebook) used in the FAC2602 module had the greatest effect on your studies? Why?
QUESTION 10	In your opinion, how should lecturers use mobile phones in future to assist FAC2602 students?
QUESTION 11	Would you recommend the use of mobile phones in other modules at Unisa? Please elaborate.

ETHICAL CLEARANCE



The title of the thesis changed since the original ethics application.