KEY TERMS

Competence

Curricula

Education

e-government

Facilitate

Information technology

Knowledge

Public Administration

Public service

Skills

Standards

Teaching

Undergraduate

Universities

Web 2.0

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INTRODUCTION AND RESEARCH DESIGN

"Knowledge is like light, weightless and intangible; it can easily travel the world, enlightening the lives of people everywhere."

WORLD DEVELOPMENT REPORT, 1999

1.1 GENERAL INTRODUCTION

The need to provide some form of professional education and training in Public Administration has been recognised as far back as the eighteenth century. Since then the education of public servants as well as Public Administration as an academic subject have gone through many phases of development (Adedejl & Baker 1974:119). However, professional education and training of public servants, especially in the United Kingdom, were not common practice during the previous centuries, as Sisson (1959:27) explained: "... the British administrator travelling abroad is shocked to discover that many countries are administered by men who read books about public administration". One of the first schools for the education of civil servants of high rank was established in the Kingdom of Siam (Thailand) in the nineteenth century (Adedejl & Baker 1974:117).

The importance of the study of Public Administration can be derived from the key role that public administration plays as "the organised non-political, executive functions of the state" (Pauw 1999:22). These functions are according to Pauw (1999:22) "a higher order or abstract category under which concrete services, institutions, activities and people may be subsumed. A function is something that the state should do or can conceivably do". Through the subject Public Administration students are thus guided to study all the non-political executive activities that the state does or should do.

Subsequently, the topic of this study "*Information technology competence in undergraduate Public Administration curricula*" was in the first instance selected because of the crucial role that undergraduate Public Administration curricula play to instil the necessary knowledge and skills to those students who will become public servants in the future. Traditionally the role and function of universities is seen as to provide higher education and intellectual preparation of students with the aim of preparing them for the future work environment. In this process the knowledge and skill requirements of employers in the public service need to be considered in the design of Public Administration curricula. (Wessels 2000:315).

Secondly, the topic of this study was selected after the South African Minister of Public Service and Administration, Minister Geraldine Fraser-Moleketi's, statement in the Budget vote speech of 2002 that government spent an estimated R3 billion per annum on information and communication technology (ICT) goods and services, but that only 20 percent of public servants are computer literate. The training of public servants extends to each state department on both national and provincial level and every individual civil servant. According to the Minister in her speech the public service is in need of new skills to develop officials' ability to use ICT (Fraser-MoleketI, Budget vote speech: 2002).

More recently in 2004, the need for more skilled public officials was illustrated again by a statement by Minister Geraldine Fraser-Moleketi, that the government will be recruiting new skilled personnel and that the recruitment will take place primarily in African countries, India and Iran with whom South Africa has bilateral agreements (*Sunday Times* 2004:online). During 14 to 17 November 2005 the Minister of Public Service and Administration led a delegation to India with the specific purpose of reaching an agreement between the two countries on assistance by the Indian public service through the transfer of Indian public servants, as well as training interventions and mentorship programmes for South African public servants. This will, according to Minister Geraldine Fraser-Moleketi, assist the South African public service to bridge the

skills gap within the public service to provide a better service delivery (Government Communication and Information Services speeches 2005:online).

In view of the above the question can be asked whether the curricula of undergraduate Public Administration at South African universities comply with the needs of the public work force when considering the use of information technology competencies.

This chapter will provide a motivation as to why the research topic was selected as well as the objectives and aims of the research. A conceptual analysis will provide a better understanding of important concepts that will be used in this research. Lastly this chapter will provide a research methodology and a preliminary framework for the chapters to follow.

1.2 MOTIVATION OF THE RESEARCH TOPIC

I agree with Pauw (1995:10–11) that it is the duty of a university to provide scientifically inspired career education to students. A student studying for a career should be able to gain knowledge about the field of study and gain the necessary skills to be used in practice. Thus, students in Public Administration should not only have knowledge about the subject Public Administration, they should also be able to act as professional public servants that can serve the public (Denhardt 2001:529). If Mafunisa (2004:62) is correct in his view that a professional is somebody that has the necessary training, is intellectual in character and has received education and training at an acknowledged higher education institution, then students in Public Administration should not only gain academic knowledge and skills, they should also be equipped to develop these skills in order to effect change in the public service and act professionally as public servants. Public officials are therefore supposed to understand the context of their future work environment (Pauw 1995:46). In this regard the view of Dall'Alba (2009:35) that the purpose of professional education programmes needs to be conceptualised "in terms of developing ways of being the professionals in question", is of particular relevance to this study. If the curriculum used at the higher education institution contextualises the

knowledge, skills and values (competencies) for students to enable them to become the professional public servant in question, the curriculum will be successful.

Government as an employer usually provides guidelines of competencies that public officials should comply with. In the case of the South African public service these guidelines are stipulated in the White Paper on Public Service Training and Education (South Africa: 1997). These guidelines include, among others leadership, thinking skills, communication skills, judgement, creativity, flexibility and action management. However, these requirements as stated above do not make provision for the learning of information technology competencies by public servants. It seems thus that these guidelines do not reflect everything necessary for the development of public servants to become the professionals the White Paper has in mind. This also seems to be a confirmation of the concerns of the Minister of Public Service and Administration about the lack of computer literacy among public servants.

1.3 PROBLEM STATEMENT

Undergraduate Public Administration curricula play an important role in preparing students to become effective and efficient public servants in the future. Universities undertake to provide the knowledge as well as higher education to students in order to function effectively and efficiently in the workplace. The question can however be raised: "Should universities facilitate the acquisition of practical skills such as information technology competence through undergraduate curricula in Public Administration?"

Secondary questions, which arise from the above question, include the following:

1. What learning should be facilitated by a university?
2. What is meant by “practical skills”?
3. What is the meaning of information technology competence?

4. What do the undergraduate Public Administration curricula at universities in South Africa look like?

1.4 OBJECTIVE AND AIMS OF THIS RESEARCH

The main objective of this thesis is to understand the appropriateness of the facilitation of the acquisition of practical skills such as information technology competence through undergraduate Public Administration curricula at a university. The unit of analysis for this study will be South African universities offering Public Administration as a subject. The points of focus will be the role and function of universities in specific and higher education in general, the current curricula that are being used by South African universities to teach Public Administration to undergraduate students, and the needs of the South African public service.

The research will firstly aim to explore the changing environment or paradigm shift that took place in higher education, the role and function of universities and the development in Public Administration. This research intends to provide new and topical information about the relevance and tuition of the subject Public Administration.

This study will secondly aim to analyse and describe undergraduate Public Administration curricula at all the South African universities, including comprehensive universities and universities of technology (former technikons).

A third aim of this research is to evaluate the facilitation of information technology use in Public Administration curricula that might be in use at some universities, comprehensive universities and universities of technology in South Africa to determine the usefulness in providing information technology competence to students.

Finally this research will also look at the needs of the South African public service as identified by the then Minister of Public Service and Administration, Geraldine Fraser-Moleketi, with regard to the use of information technology by public servants.

The findings of this study could benefit lecturers of Public Administration at South African universities, as well as students studying Public Administration, by providing information about curricula that are currently being used by universities in South Africa and the use of information technology competence in these curricula. This research could further provide knowledge about information technology competence that could benefit the South African public service in improving public service delivery.

1.5 CONCEPTUAL ANALYSIS

The conceptual analysis provides a clarification of the key concepts in the problem statement and the research objective, which are as follows:

University: Defining the term "university" according to Allen (1988:9) can be difficult since various authors have various definitions and opinions. However, Allen concludes that the best definition of a university should include "an institution with the power to award their own degrees and are pre-eminent in the field of research". A university according to the *Oxford Paperback Dictionary* (1988:894) can be described as "an education institution that provides instruction and facilities for research in many branches of advanced learning and awards degrees". A university can also be described as "a public tertiary education institution that is primarily concerned with advanced learning and knowledge, research and teaching to a postgraduate level" (Ministry of Education New Zealand 2007:online). For this research a "university" is therefore an institution of higher learning that a student will attend after completing high school to obtain specific knowledge, for example knowledge about Public Administration. In this research the word university will specifically refer to South African universities offering Public Administration to undergraduate students and will include the comprehensive universities and universities of technology that are found in South Africa.

The term "university of technology" is used to refer to the previous technikons that were present in South Africa. Universities of technology offer practically oriented diplomas and degrees, including diplomas and degrees in Public Administration.

Comprehensive universities are a new type of institution that were created by the merger of technikons with traditional universities. A comprehensive university therefore offers traditional university programmes, as well as career-oriented, former technikon or university of technology programmes.

Apart from referring to universities, the concept “higher education” will also be used in this research. According to the *Oxford Paperback Dictionary* (1988:381) “higher education means education above the level given in schools”. Higher education can also be described as a non-compulsory level of education that follows after the completion of school and includes undergraduate and postgraduate education. Higher education results in the receipt of certificates, diplomas or academic degrees (*Oxford Advanced Learners Dictionary* 2005:703).

Facilitate: According to the *Oxford Paperback Dictionary* (1988:285) the word “facilitate” means “to make something easy, to lessen the difficulty”. The *Oxford Advanced Learner’s Dictionary* (2005:523) states that “to facilitate, or facilitation, is used to describe any activity that is made easy”. Very simply put, facilitation is providing the resources, assistance and means to a group, class or individual to accomplish its goals in the easiest practical way.

Acquisition of practical skills: The word “acquisition” is explained in the *Oxford Paperback Dictionary* (1988:7) as “acquiring something”. “Practical” is explained by the *Oxford Paperback Dictionary* (1988:633) as “involving activity as distinct from study or theory, for example having practical experience”. “Skills” can be explained as being “highly trained or experienced in a field of work, the ability to do something well” (*Oxford Paperback Dictionary* 1988:764). “Skills are abilities that are minimally involved with understanding, that are essentially physical and that are perfected by practice at the activity itself” (Winch & Gingell 1999:221). “Ability” can be seen as the quality that makes an action or process possible, for example the capacity or power to use information technology (*Oxford Paperback Dictionary* 1988:2). In this research the

acquisition of practical skills are related to a student's ability to acquire practical experience and to have the skills to use information technology.

Technology: The concept "technology" is widely used in scholarly and non-scholarly literature related to public service delivery (cf Rocheleau; Garson; Mayer-Schonberger & Lazer). A literature review has shown that although various authors use the word technology, they probably have different concepts (meanings) in mind. In an essay published in 1991 the South African philosopher Fanie de Beer points out that the word "technology" is used mostly haphazardly referring to either technical objects (apparatus), technical activities (technics), the domain of the technical (technique), and technology as the logos about the technical including a critical reflection on the technical. De Beer argues that the application of the word "technology" by some authors while they have the concept "technique" in mind, eliminates (perhaps unconsciously) the critical possibility of the concept "technology". De Beer finds himself in good company in his analysis of the concept "technology", namely in the person of Hickman, a philosopher specialising in technological culture within the twentieth-century context. He observes that there seems to be a "high level of ambiguity with respect of our use of the term technology". De Beer and Hickman therefore identify four possible meanings for the word "technology", namely:

- techniques, tools, and artefacts (equivalent to De Beer's concept "technical objects" or "apparatus")
- systems that "exhibit and depend on such things" (equivalent to De Beer's domain of the technical or the concept technique)
- the application of scientific theories (equivalent to De Beer's concept "technical activities")
- systematic inquiry "into such things" (equivalent to De Beer's logos about the technical – the concept "technology")

Information Technology: Apart from technology, many definitions and explanations are available for the term “information technology”. The Information Technology Association of America (ITAA 2007:online) explains information technology as “the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware”. ITAA (2007:online) continues to say that information technology is the capacity to electronically do functions such as input, process, store, output, transmit and receive information. Information technology is concerned with the use of technology in managing and processing information. In this regard information technology makes use of electronic computers and computer software to convert, store, protect, process, transmit and retrieve information. According to the *Oxford Paperback Dictionary* (1988:416) information technology means “the study or use of processes, especially computers, microelectronics and telecommunications for storing, retrieving and sending information of all kinds, for example words, numbers and pictures”. For this research “information technology” would mean the use of computers to manage and process information. This will include the knowledge and skills to use computers and computer software practically to provide improved service delivery in the public service.

Competence: According to the *Oxford Paperback Dictionary* (1988:162) the word “competence” means having the ability or authority to do what is required. The Informal Education homepage (2007:online) provides the best explanation stating that competence can be reduced to competencies – a series of activities that people should possess; the necessary skills, knowledge and understanding to be effective. Competence is also concerned with what a person can do, for example the skills and knowledge that a person possesses to do something successfully. For this research the concept “competence” will include the knowledge, skills and understanding that students have or should have to make proper use of information technology.

Undergraduate curriculum: The concept “undergraduate” refers to **“**a member of a university who has not yet taken a degree” (*Oxford Paperback Dictionary* 1988:890). In this research “undergraduate” means the first, second or third year level a university

offering of learning. According to the *Oxford Paperback Dictionary* (1988:197) curriculum is a course of study. The word "curriculum", however, has various meanings to different authors. Kelly (1999:3) states that curriculum is "the content or the body of knowledge that should be transmitted or a list of the subject to be taught". Farrant (1988:12–25) states that "curriculum is that set of broad decisions about what is taught and how it is taught, that determines the general framework within which lessons are planned and learning takes place". Farrant continues by saying that a curriculum represents the distilled thinking of society on what it wants to achieve through education. Thus, curriculum mirrors a society by reflecting the society's aims, values and priorities by identifying the physical and mental skills that is important to the society. The Wikipedia Encyclopaedia (2007: online) describes curriculum as a set of courses and their contents offered by an institution such as a university. Although the above definitions the concept "curriculum" refer to inter alia the "what" and "how"' that is taught by an academic institution, this study will only focus on the "what" (content) of Public Administration offerings being taught to first, second and third year students at universities, comprehensive universities and universities of technology in South Africa. For the purpose of this research the concept "undergraduate curriculum" refers only to the content descriptors of the curricula of the subject Public Administration. This definition, therefore, does not include the structuring and content of the degree programmes within which the subject is offered.

Public Administration: The concept "public administration" consists of two words, "public" and "administration". The word "public" according to the *Oxford Paperback Dictionary* (1988:650) can be used to refer to all the citizens in a country or a mass of people making up a community. The word "administration" refers to human beings jointly engaged in working towards a common goal. Administration can be found in all spheres of human activity and people are surrounded by administration. Following this line of definition, the concept "public administration" can therefore be explained as administration that is taking place in the public sector or the administrative side of government. Pauw (1999:16), however, argues that "in trying to understand the meaning of 'public administration', separating the two words 'public' and 'administration'

and attempting to discern which two things they are the names of, is a semantic mistake". He regards public administration as "the organised, non-political, executive functions of the state" (Pauw 1999:22). This definition is in line with chapter 10 of the Constitution of the Republic of South Africa, 1996 that refers to public administration as something to be "governed by democratic values and principles enshrined in the Constitution" (Section 195(1)) and as an entity including the public service (Section 197(1)). Public Administration education can be seen as the study of government activities by students. Pauw (1999:10) states "that using capital letters in 'Public Administration' denotes the subject and the lower case in 'public administration' denotes that which is investigated by the subject". In this research Public Administration written with a capital "P" and "A" refers to the subject content or curriculum and public administration with small letters ("p" and "a") refers to the practice of public administration. The study of Public Administration is of recent origin and will be explained in detail in chapter 3. Public Administration is also referred to differently at some universities in South Africa, for example the terms "Public Management and Administration", "Government studies" and "Public Planning and Administration" can be used to refer to the study of Public Administration. Public Administration in this research is the study of the content of the subject Public Administration at first, second and third year level at universities, universities of technology and comprehensive universities in South Africa.

"Universities", "facilitate", "information technology", "Public Administration" and "competence" are only some of the above mentioned concepts that was explained to give a clear understanding of what their meaning in this research will be. The conceptual analysis does not include other important terminology that will also be used in this research.

1.6 OTHER TERMINOLOGY ASSOCIATED WITH THE RESEARCH

Apart from the conceptual analysis, other important terminology and abbreviations that will be used in this thesis include the following:

Education: According to Allen (1988:13) the word “education” is derived from the Latin word *educare* meaning “to raise”, “to bring up” or “to train”. Today education is seen as the process by which an individual is encouraged and enabled to develop knowledge and skills. The *Oxford Paperback Dictionary* (1988:256) states that education is the “systematic training and instruction designed to impart knowledge and develop skills”. Farrant (1988:18–24) states that education is a universal practice that takes place in all societies, at all stages of development. Education describes the total process of human learning by which knowledge is imparted, faculties trained and skills developed. Education implies the gaining of new knowledge and experience as well as growing and developing. Hirst and Peters (1970:19) state that education involves the development of knowledge and understanding. For this research education will mean the transfer of knowledge and skills at any level of development.

Effectiveness: “Effectiveness” in this research is the measure of success that an institution or person can achieve by doing something good and achieving the stated objectives or goals.

Efficiency: “Efficiency” in this research is the ability to achieve a goal or set of outputs with the minimum inputs.

Government: Government can be seen as the responsible institution that has the responsibility to provide services to the South African community.

IT: Information Technology

ICT: Information and Communication Technology

Knowledge: The *Oxford Advanced Learner’s Dictionary* (2005:821) states that “knowledge” is the information, understanding and skills that you gain through education or practical experience for example by doing a practical exercise like working on a

computer to learn the various computer commands such as the storing, retrieving and sending of information.

NQF: National Qualification Framework – specifying national standards of qualifications.

Public service: "Public service" is a term used to describe the services provided by a government to its citizens. The *Oxford Advanced Learner's Dictionary* (2005:1174) explains "public service" as a service such as transport or health care that a government or an official organisation provides to people in general in a particular society.

SAQA: South African Qualification Authority – ensuring the acceptable standard of qualifications.

Standards: "Standards are norms against which educational performance can be measured and assessed" (Winch & Gingell 1999:228), for example the standard of knowledge that a student should have to perform a proper public service, or the standard of knowledge that a student should have to use a computer properly. Standards are also described as "statements of what students should know and be able to demonstrate" (NCREL 2007:online).

Teaching: "Teaching is a method that focuses on the process of understanding as the goal of learning rather than simply the development of specific skills. Teaching focuses on forming connections and seeing relationships among facts, procedures, concepts and principles and between prior and new knowledge". (NCREL 2007:online).

1.7 PRELIMINARY LITERATURE REVIEW

The preliminary literature review includes books, articles, journals, newspapers, official documents and the World Wide Web (www; also referred to as the "internet"). For this research the books, journals, newspapers, legislation and World Wide Web were used to obtain information about the following:

- New and relevant literature on higher education, curriculum use and development, universities and Public Administration.
- Relevant legislation and policy documents on skills development, training and education as well as the South African Qualifications Authority (SAQA) requirements.
- The World Wide Web was used for obtaining new and relevant information about information technology.
- Speeches and policy documents by the then Minister of Public Service and Administration.
- The needs and problems being experienced by the South African public service with the help of newspaper reports.

The preliminary research revealed information relevant to Public Administration, higher education, the role and function of universities, curricula and information technology. However, none of the information reviewed specifically focused on the undergraduate Public Administration curricula that are currently being used at South African universities and the use of information technology competence in these curricula. The research is not a duplication of any previous research that has been undertaken in this regard.

1.8 RESEARCH DESIGN AND METHODOLOGY

Bearing in mind that the research objective is to understand the appropriateness of the facilitation of the acquisition of practical skills such as information technology competence through undergraduate Public Administration curricula at a university, it is necessary to select an appropriate research design (either empirical or non-empirical) to conduct the intended research (cf Mouton 2001:55).

1.8.1 Research design

As the unit of analysis for this research, namely universities, are as real-life objects part of the so-called World 1 (Babbie & Mouton 2001:84), the appropriate research design

for this study seems to be an empirical design. The above research objective implies that the research will focus on three aspects of the unit of analysis; namely its characteristics (which universities in South Africa offer Public Administration and what their curricula look like), their orientations (legislation, policies, and curricula) and their actions (their way of facilitating learning). A variety of units of observation (data sources) for this research project will consequently be needed.

1.8.2 Units of observation

A considerable portion of the research material will be scholarly literature. A literature survey of the most topical books and journal articles will help in providing insight into the various discourses on the role and function of a university, Public Administration curricula and the relevance of information technology. According to Van der Ven and Scherer-Rath (2005:35) the normative approach consists of norms and guidelines that help in guiding an individual's thoughts and actions. A normative approach is used to answer the question "what should be?" For example: "Should universities facilitate the acquisition of practical skills such as information technology competence through undergraduate curricula in Public Administration?"

Information about higher education will also be collected from official documents, for example policy papers, Acts, bills, curriculum statements as reflected in the calendars of the various institutions, curriculum information provided by the webpages of the various institutions, and lecturers in Public Administration. The internet will be used as a secondary source to obtain information about information technology. This research will also rely heavily on reading and analysing official documents. Accordingly reading and analysing of texts can be seen as the main method of research.

1.8.3 Research methods

Bearing in mind that the units of observation for this research are predominantly written material, the methods that will be applied can be classified as content analysis. Content

analysis is defined by Neuman (2000:292–293) as “a technique for gathering and analysing the content of text. The content refers to words, meanings, pictures, symbols, ideas, themes or any message that can be communicated. The text is anything written, visual, or spoken that serves as a medium for communication. It includes books, newspapers or magazine articles, advertisements, speeches, official documents, films or videotapes, musical lyrics, photographs, articles of clothing, or works of art. Content analysis dates back nearly a century and is used in many fields – literature, history, journalism, political science, education, psychology, and so on”.

Apart from the sources and methods mentioned above, interviews will also be conducted with lecturers in the field of Public Administration to obtain a clear perspective of curricula use and needs. These interviews will be of a qualitative nature. According to Brynard and Hanekom (1997:29) qualitative research undertakes a commitment from the researcher to see the world through the eyes of the author, other person or the subject. Neuman (2000:148) states that a qualitative researcher interprets data by giving it meaning, translating or making data understandable. Wessels (1999:389–390) states that “qualitative methodologies refer to research procedures which produce, in a holistic way, descriptive data about the object of a study”. There is also a need in this research to understand and interpret the undergraduate curricula in Public Administration and the needs of the public service.

1.9 FRAMEWORK FOR THIS RESEARCH PROJECT

The preliminary framework for this research project will include the following guidelines for the relevant chapters:

Chapter 1 includes a general introduction as a frame of reference, the objective and aims of the research, the problem statement, possible research contributions and the research approach and methodology.

Chapter 2 will report on a literature survey on the development, role, function and responsibilities of universities and changes that have taken place in higher education.

Chapter 3 will look at the development and importance of Public Administration education in South Africa. The requirements for Public Administration education with regard to the higher education framework and the National Qualification Framework (NQF) will also be considered in this chapter.

Chapter 4 will describe information technology competence as required by the South African public service. This chapter will also explain why information technology is important in the South African public service along with the need for proper educated information technology users. The possible future needs of the South African public service will also receive attention in this chapter.

Chapter 5 will provide an overview of the undergraduate curricula of the subject Public Administration as offered at universities, universities of technology and comprehensive universities in South Africa.

In chapter 6 an in-depth study will be made of the undergraduate Public Administration curricula at South African universities where information technology is included in these curricula.

Chapter 7 will include an evaluation of the literature reviewed and the findings of the research with regard to undergraduate Public Administration curricula and information technology competence at South African universities. Recommendations will be made with regard to undergraduate Public Administration curricula at South African universities and information technology competence.

CHAPTER 2
THE ROLE AND FUNCTION OF UNIVERSITIES AND HIGHER EDUCATION

2.1 INTRODUCTION

Chapter 1 provided an overview of the research that will be undertaken in this thesis. Chapter 2 will show how universities, higher education and curricula grew and developed through history, philosophy and religion. The Buddhist monks of Tibet, the Hindu priests of India, the Muslim imams of Persia, the Mandarins of China and the Christian monks of France all developed systems of higher education, learning and curricula that helped to reflect their belief system and values (Poe 2004:online).

Apart from the role and functions of universities and higher education, this chapter will also show the important paradigm shift and changes that are taking place in higher education. Universities are under increasing pressure to keep up with the changing demands and needs that are taking place in higher education (Duderstadt 1997:online). Lastly, this chapter will look at the university of the future and the future requirements that the information technology age is putting on higher education and universities.

This chapter relied heavily on the reading and analysing of books and journal articles. A literature study was done for chapter 2 to get a clear understanding of the development, role and functions of universities and to get an overview of various authors' opinions about what the future of a university should be.

2.2 THE PHILOSOPHY OF HIGHER EDUCATION

The idea of higher education existed long before the first universities were formed (Rudy 1984:13). The scribes and priests of ancient Egypt and Babylon, for example, pursued advanced studies and carefully preserved their own forms of higher learning as early as the second millennium BC. The word “philosophy” according to Akinpelu (1981:1–2) comes from the Greek word *philosophia,* which means the “love of wisdom” or the “love of knowledge”. Philosophy can also be characterised by logical, consistent and systematic thinking so as to reach conclusions that are sound, systematic and consistent. Allen (1988:15) states that the beginning of higher education philosophy can be traced back to the civilization of India in the fourth century BC. However, two Chinese philosophers, Confucius and Lao-tse (sixth century BC), contributed greatly towards higher education philosophy with their conflicting theories. Confucius stated that education in general is a process for integrating individuals into society and that knowledge should be acquired for the sake of harmony in society. Lao-tse emphasised the cultivation of the individual and stated that learning is for the sake of understanding (Allen 1988:14–15).

In the Western world the first philosophy of general education, not higher education, can be found in the writings of Plato, Aristotle and Socrates. These three educational thinkers represented the Greek tradition. The Greek educational tradition at this period was state controlled and had a single objective of producing patriotic, obedient and militarily efficient citizens. All children were raised for the state; although the emphasis was on being a versatile man. The school curriculum at this time was fairly balanced by combining gymnastics, music, reading, writing, literature and the arts. It was to the credit of this rounded education that distinguished scholars and literary men like Plato, Aristotle and Socrates were formed. Plato (427–348 BC) was an Athenian and a disciple of Socrates. Plato was particularly disturbed by the absence of special training for the rulers of the state. Higher education was explained by Plato as the cultivation of the individual for the sake of an ideal society. Education and training should be specialised at higher education institutions so that the individual could become prepared

for the functions in which he was naturally talented. Plato's principle of professional preparation was based on another more fundamental principle, which he learnt from his teacher, Socrates, namely "that knowledge is virtue" and "ignorance is vice". The individual will obtain inner peace through higher education and this would allow the state to benefit from the harmony of satisfied citizens fulfilling their proper roles. Aristotle (384–322 BC), in turn, was an Athenian and a disciple of Plato. His writings on education are few and scattered in different books. Aristotle felt that education was to prepare the individual for the active enjoyment of leisure. The theological contributions of Plato and Aristotle resulted in important ideas on the development of the western intellectual traditions, the creation of higher education and universities (Allen 1988:15; Akinpelu 1981:32–37; Poe 2004:3).

During medieval Christianity the concept of education was seen as a means of attaining salvation through the use of faith, hope and charity. All the disciplines being taught at this point in time related in some way to Christianity and religion. Later in the middle ages the belief arose that the goal of higher education is the pursuit of truth and learning, and universities became institutions that were dedicated to the advancement of knowledge and the training of scholars. The Renaissance period saw learning and education as contributing towards the development of well-rounded individuals (Allen 1988:15; Poe 2004:4).

During the sixteenth, seventeenth and eighteenth century various philosophers like Montaigne, Bacon, Galileo, Comenius, Rousseau and Locke contributed greatly towards the philosophy of higher education. This period placed an emphasis on the training of a student to cope with any eventuality with intelligence and good judgment. Comenius (1592–1670) stated that the objective of higher education is the development of human intellect to be able to study and know God. According to Comenius everybody has the potentiality to know God and hence education is the birthright of everybody. Jean-Jacques Rousseau (1712–1778) stated that the method of education should be adapted to the stages of mental development of the individual and should take into

account his readiness to learn something new (Allen 1988:15–16; Akinpelu 1981:41–56).

Allen (1988:16) writes that the philosophy of higher education during the nineteenth century has a direct bearing on current education being used by universities. It was during this time that extensive writing was done on the topic of higher education. The philosopher that contributed greatly during this period was John Henry Newman. Born in 1801 in London, Newman regarded his function to be of a religious nature. Newman wrote a number of influential books, including *Grammar of assent and Essay on the development of Christian doctrine*. His book *The idea of a university* was first published in 1852. This book was aimed as an intellectual manifesto for the Catholic Church (Allen 1988:17–18). Newman was in favour of a liberal education rather than vocational or professional instruction that is designed to develop the individual's intellect as broadly as possible. Newman's beliefs were popular in the United States of America where a liberal arts education was followed (Newman 1996:xv).

The twentieth century is rich in contributions of educational philosophers. Writers that wrote inclusively and comprehensively on higher education during this period are Alfred North Whitehead and John Dewey. These writers were contemporaries and were familiar with each other's work and writings on education in general. Whitehead (1861–1947) was a distinguished British mathematician, physicist and philosopher. Whitehead stated that the individual has physical and mental elements that have to be developed together for a stable personality. Curricula must therefore be comprehensive. He also placed an emphasis on aesthetic education, which can include for example the beauty of ideas, like the beauty of art, literature, science and technical subjects. John Dewey (1859–1952) was a great writer with 40 books and 700 journal articles to his credit (Akinpelu 1981:142). Dewey best represents the philosophy of pragmatism in education. The philosophy of pragmatism is the United States of America's greatest contribution to the philosophy of modern education. This philosophy is concerned with the material benefit or practical usefulness of any activity or idea. Dewey defines higher education as the continuous reconstruction or reorganisation of experiences which adds

to the meaning of experience and which increases the ability to direct the course of experience. The aim of higher education according to Dewey is therefore the development of the learner's ability to deal with future problems, that is, the development of his intelligence to solve problems. Higher education is the process of developing the habit of problem solving, and there is no limit to the development of the individual's ability. Man and his needs are the major determinant of what is valuable and important in higher education (Akinpelu 1981:141–145).

From the above it can be seen that philosophers have been thinking and writing about education for centuries. Closely related to the philosophy of higher education is the origin, traditional role, functions and responsibilities of universities, which will be explained next.

2.3 ORIGIN AND TRADITIONAL ROLE AND FUNCTION OF UNIVERSITIES

Professor Eric Thomas, vice-chancellor of the University of Bristol stated in September 2002 that "human society requires universities – they are an essential part of the fabric of our civilisation, our educational provision, our search for new knowledge and our civic life" (Thomas 2002:online). The choice for the oldest university in the world is between Al-Azhar and Nalanda University. According to India Places (2008: online), Nalanda University was founded in Bihar India around the 5th century BC by the Gupta emperors. The subjects taught at Nalanda University included philosophy, grammar, astronomy, mathematics and medicine. The university conferred academic degrees to its graduates that came from China, Korea, Sri-Lanka, Indonesia and all the regions of India and also offered post-graduate courses. Apart from Nalanda University, Dodge (1961:4–17) states that Al-Azhar University founded in Egypt in the 10th century was a centre of education and legal development and is the oldest university in the world. Lectures at the university were called "Sessions of wisdom". The university offered a variety of post graduate degrees and is regarded as the first fully fledged university. According to *Islam for today* (2006:online) Al-Azhar University provided seminars of an academic nature from the start. The university attracted teachers and students from all

over the Islamic world. Students at the university studied medicine, mathematics, astronomy, geography and history.

Rudy (1984:16) states that it is difficult to give a precise date for the foundation of the first university in the west. Medieval universities spontaneously started as a result of gathering scholars or the teaching of charismatic figures. Solerno in southern Italy was a meeting place for Greek, Latin, Arabic and Jewish scholars that gathered informally. Solerno, which was widely known for its medical instruction, became an official university in 1231. According to Medieval Universities (2005:online) the first university to be founded by a secular ruler was in Naples. Frederick II, King of Sicily and Germany and Emperor of the Holy Roman Empire, wanted trained judges and other administrators. The University of Naples Federico II, named after Frederick II, was founded on 5 June 1224. At Bologna, student associations were the first to receive recognition under the term *universitas*. Satisfactory completion of study in fields of law, medicine and theology, tested by an oral examination, entitled a student to become a master and if a student chose to continue studying, a doctoral degree could have been obtained in these fields of study (Medieval Universities 2005:online).

Rudy (1984:20) states that the University of Paris like that at Bologna was never founded at a specific time; instead it slowly evolved over time. Students already gathered in Paris since 1100 AD to study logic with famous masters in preparation for a career in theology. “Colleges” were first founded in Paris in the late twelfth century. The Sorbonne was established in 1257 by Robert de Sorbon. The name Sorbonne (*La Sorbonne*) is commonly used to refer to the historic University of Paris in France. The Sorbonne was the first significant college of the medieval University of Paris. During this time the university was a community of scholars that had the authority to confer degrees (Medieval Universities 2005:online; University of Paris IV Sorbonne 2007:online; Wikipedia Encyclopaedia 2007:online).

According to Allen (1988:35) Oxford University (founded in 1214) and Cambridge University (founded in 1318) were the only universities in England for 500 years. These

universities were founded to promote the training of the clergy, doctors and lawyers. In the process of training those professional classes the universities came to emphasise the pursuit of truth and learning.

The University College London was founded in 1826 and in 1836, along with King's College London, became the University of London. The University of London put pressure on the older universities to reform their curricula to make provision for training the middle class in Britain. National needs with regard to the necessity for education in Britain were discussed, reviewed and brought into focus during 1851. The public began to realise that in order to maintain Britain's position in the world, universities would have to strengthen and expand their education. At this time there was an increasing awareness of the success and growth of German universities that focused on *Wissenschaft* – the university as a centre of research. In German universities research formed a very important basis, along with *Lernfreiheit* – the freedom that students had to participate in their education and learn what they wished and perceived as important and *Lehrfreiheit* – the freedom of the teacher to teach what he (or she) wishes and sees as important knowledge.

The growth of universities especially in Britain was very slow during this period. In the late nineteenth century Germany had 22 universities for a population of 50 million while Britain only had 7 universities for a population of 31 million. The 1930s saw the development of new universities for example the universities of Birmingham, Liverpool, Leeds, Sheffield and Bristol. During this time universities focused on general education, vocational training, research and scholarship (Allen 1988:35–53).

According to Wikipedia Encyclopaedia (2007:online) the word "university" had been used in the United States of America in a diverse manner for a long time. It is only since 1880 that a proper attempt was made to distinguish between colleges and universities. Harvard, William and Mary, and Yale were founded during colonial poverty on the basis of the English universities such as Oxford and Cambridge. According to Harvard University (2007:online), Harvard was founded 16 years after the arrival of pilgrims to

Plymouth in 1636. During the start of Harvard the university followed a classic academic course based on the English university model. Graduates of Harvard, and later Yale, carried British traditions to other places and colleges were started in New York, Pennsylvania, New Hampshire and Rhode Island. Universities and the need for higher education spread around the world including to South Africa. The University of Cape Town (2007:online) was founded in 1829 as the South African College and is the oldest university in South Africa. The College had a small tertiary education facility that grew substantially after 1880. The College developed into a fully-fledged university during 1880–1900.

Many authors, for example Gasset (1946), Jaspers (1965) and Kerr (1963) followed the example of John Henry Newman's book *The idea of a university* and wrote extensively about the idea, function and traditional role of universities. John Henry Newman (1996: xv) stated that a university is a "school of universal learning". This description includes, according to Newman, the assembly of strangers from all parts of the world in one area. Thus it would embrace professors and students from every department of knowledge. According to Newman a university is in its simplest form a "school of knowledge of every kind, consisting of teachers and learners from every quarter". Newman also saw the university as a human institution with the function of producing persons with broad knowledge, critical intelligence, moral decency and social sensitivity. According to Newman a university should provide a liberal education rather than vocational or professional instruction (Newman 1996:xv; Allen 1988:16).

A literature survey as discussed hereafter reveals a variety of sometimes conflicting points of view on the idea, function and traditional role of a university. Whitehead (1927:4) writes that the function of a university is simply the acquisition of knowledge. Ortega Y Gasset, a Spanish professor that wrote his book on the *Mission of the university* in 1946, stated that the basic function of the university was the teaching of "culture". Culture according to Gasset includes physics, biology, history, sociology and philosophy (Gasset 1946:46). Karl Jaspers, whose book *The idea of the university* was first published in 1923 and was extensively revised in 1946, states that the university is

simultaneously a professional school, a cultural centre and a research institute. Jaspers (1956:53) also states that the university has to provide “professional training, education of the whole man and research”. Jaspers continues to say that the university is a special school that should not just provide instruction to students, but rather students should participate actively in research and learn to think independently. Jaspers book *The idea of the university* was written almost 100 years after Newman wrote his book *The idea of a university.* The aim of Jaspers’s book was to reaffirm the purpose of the university as an institution of knowledge. Like Newman, Jaspers also stated that it is the duty of the university to provide professional education and knowledge. However, where Newman wrote extensively about theology and knowledge in his book, Jaspers focused more on the important role of research, the intellectual life and the objectives of the university.

Clark Kerr’s book *The uses of the university* (first published in 1963 and a revised edition in 1973) states that universities should be useful to the society in which it exists. Kerr also states that knowledge is one of the great moving forces in any society (Kerr 2001:132). Liam Atchison (1997:1–9) writes that universities play an important role in the development of thought and culture. Universities are unparalleled as an agent of innovative thought, creative dialogue, social change and a training ground for positive influences. According to Ubersfeld (1998:357–358) “universities play a crucial role in society as a place in which knowledge is created and in which teachers and researchers are trained through their participation in this creation. Universities are a place in which knowledge is passed on to those who need it”.

Rosenstone (2001:1–2) writes that the idea of a university should be put into focus by looking at the core defining characteristics, chief purposes and primary responsibilities of a university. He states that the function and idea of a university should include the following core functions and responsibilities (Rosenstone 2001:1–2):

- The advancement of knowledge through basic research and creative work.

- The extension of knowledge through liberal education that enables students to think creatively and with a broad understanding of the ideas that shape the physical, social, cultural, economic and political worlds in which students live.
- The dissemination of knowledge through publication and civil education.

Short (2002:143–144) refers to the four broad functions and responsibilities of "the Unites States university" as follows:

- To provide a general education for all students; in other words how to conduct one's activities as a citizen and as a person.
- To provide for the education of specialists; in other words how to carry out a particular human activity or profession.
- To provide for the education of researchers.
- To provide for the education of educators.

For the purposes of this research it can be concluded that the traditional role, functions and responsibilities of a university should include the following aspects:

- The creation, pursuit, acquisition and spread of knowledge.
- Building a research and education capacity for the scholarly community.
- The training of lecturers and researchers to contribute to the improvement of society.

The idea, function and traditional role of universities have developed through the years, with many philosophers and scholars writing about this topic. Newman played the biggest role in determining the idea, function and traditional role of a university by stating that a university is a "school of universal learning". Various authors agree that the traditional role of a university include teaching, the gain of knowledge and research. Through the years universities and higher education has also gone through many changes, renewals, paradigm shifts and developments.

2.4 CHANGING ROLE OF UNIVERSITIES AND HIGHER EDUCATION

Universities and higher education in general have been part of society for many years. Universities remain important and meaningful because they represent and respond to the human need of understanding and learning. However, as society changes and develops there is a need for universities and higher education to change and to accommodate the new needs, values and expectations of society.

For many years student education and achievement were seen as the most important functions of a university. Higher education and universities have been dominated by a single paradigm: a teacher in a classroom speaking or lecturing to his/her students. Schuyler (2007:online) states that a paradigm shift occurs when difficulties begin to appear in the functioning of existing paradigms in that they cannot function properly anymore. The paradigm that was used by universities was one that defined a university as an institution that exists to provide instruction. Currently universities are shifting towards a new paradigm where a university is becoming an institution that exists to produce learning. The new paradigm was developed to accommodate and solve new problems. A paradigm shift in higher education has to make provision for new aspects such as student outcomes, student assessment, lifelong learning, distance education, online study, new technology and globalisation. The responsibility of the lecturer in the paradigm shift is also changing. In the new educational paradigm the lecturer is not the “centre” of knowledge, but the provider of learning opportunities for learners. The development and use of technology has forced universities to adapt their teaching and look at the needs of students and future employers (Gubbins, Clay & Perkins 1998:3). The paradigm shift that is taking place in education can be depicted in table 2.1 as follows:

Table 2.1: The paradigm shift in education

Long-standing education practices	New preferred education practices
Teachers lecture, students listen	Teachers guide, coach, motivate and facilitate. Learners participate.
Working as an individual is prized	Working together is prised
Content is balkanised into "subjects"	Subjects are more integrated
Fact centred curriculum	Problem-solving centred curriculum
Teacher is the primary source of knowledge	There are many rich sources of knowledge
Teachers word and printed media are the primary means of communication	There are ample opportunities to explore concepts using a variety of media
Students' success is based on ability to memorise and report back information	Students' success is presumed when students solve problems, communicate ideas, present information and learn how to learn
Universities are largely separated from the rest of the community	Learning takes place throughout the community. Computers connect the world to the classroom and the classroom to the world

Source: Gubbins, Clay & Perkins (1998:3–5).

In Table 2.1 it is noticeable that long-standing educational practices are changing and being replaced by new preferred practices, which emphasise aspects such as motivation, group work, community involvement and problem-solving. The latter model of education is thus in absolute contrast to the traditional method of education. Kroukamp (2004:29) also states that a paradigm shift in education and training could include aspects such as learning and not just providing instruction; students should construct and discover knowledge, a powerful learning environment should be created and quality of learning should take place rather than just merely instructing a student.

Jacobs and Farrell (2001:1–15) state that a paradigm shift in education should include the following important aspects and changes as set out in Table 2.2:

Table 2.2: The aspects of a paradigm shift

Concept	Explanation
Learner autonomy	The learner should be autonomous. The learner should be aware of his/her needs with regard to higher education and learning.
Cooperative learning	Providing for student-student interaction and having students work together in groups by making use of new techniques and technology.
Curricular integration	Various subject areas should be taught jointly and be interrelated. This will help students to see links between subjects and to develop deeper knowledge and understanding.
Focus on meaning	Students should focus on the meaning of a subject and the meaning that the subject has on his/her life and real life situations.
Diversity	Having students with different ethnic, religious, social, gender, and achievement levels, learning styles and learning strategies will bring a different understanding and new information to students about subjects.
Thinking skills	The ability to use information to solve various problems. The ability to use information in different and new ways.
Alternative assessment	Assessment of students should mirror real life conditions and problems.

Source: Adapted from Jacobs and Farrell (2001:1–15).

Schuyler (2007:online) states that the main problem facing higher education institutions is the difference in the needs of a society on the one hand and the education being provided by universities on the other hand. He sees the present structure of universities as inadequate in meeting the changing needs of employers, students and society. A new paradigm in higher education could, according to Schuyler (2007:online), include the following aspects:

- Providing education that is tailored to the needs of the individual student.
- Providing education that involves the mastery of functions rather than the short-term learning of facts and text.
- An organisational climate that fosters a belief that student learning is the main and important objective of the university.
- Cross-disciplinary teamwork with specialists that work collaboratively to increase student competency.
- The design of learning methods with less emphasis on traditional lecturing.
- Creating an environment at universities that will create experiences that will bring students to construct knowledge for themselves rather than the simple transfer of knowledge.
- Creating a system of providing access to educational services for learners as they need information.
- A continued identification, development, testing, implementation and assessment of a range of new learning technologies that include computers and Information Technology.

Jacobs and Farrell (2001:online) and Schuyler (2001:online) agree that a paradigm shift in higher education is important and that students should have a choice of what to study, when to study, the composition of the curriculum and be responsible for their own learning. Students and society along with technology are changing fast. Universities are expected to keep up with the changing needs of students and society.

However, not all authors are happy about the paradigm shift that is taking place in higher education. Readings (1995:2–3) wrote in his study, *The university in ruins* that “it is no longer clear what role the university is playing in society. The structure of the contemporary university is changing too rapidly and universities have little understanding of what precisely these changes will bring”. Readings (1995:3) also states that the new university is a corporation that is driven by profits and not by thought. Rothblatt (1997:386–389) agrees with Readings in his book, *The modern university and its discontents* and states that the university has become a shell where role confusion is taking place. Rothblatt further states that the university has moved away from Newman’s vision of a university as an enclosed or singular institution and has become fragmented. The university has also moved away from the German philosophy and the work of British thinkers of what the role, function and aim of the university is. This is also stated by Mayor (1997:12) who writes that “the university management is focusing on strategic planning, mission statements and performance indicators that has nothing to do with the traditional role of the university”. Mayor also states: “... the further the university moves from the old structures the more it loses its institutional uniqueness and looks like just another corporation”. In a corporation the focus is on business and profit, not the gain of knowledge. The new paradigm in higher education focuses on market logic, funding and consumers. These aspects are far removed from the traditional focus of a university that included teaching and the gain of knowledge.

Apart from the paradigm shift in higher education and the demands on universities to keep up with changing technology and the needs of students, the university of the future also demands some change. The challenges and demands of the university of the future will be explained next.

2.5 THE UNIVERSITY OF THE FUTURE

Throughout the world societies are expecting more from universities and, as seen above, there is a paradigm shift and changes taking place in higher education. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) stated in

1998 in their *World declaration on higher education for the twenty-first century: vision and action* that higher education systems should enhance capacity, bring about change, address social needs, promote scientific rigour, attain a good level of quality and should place students at the centre of education so as to allow their full integration into the global knowledge society. According to UNESCO (1998:3–4) the mission and function for higher education and universities should include the following:

- The provision of highly qualified graduates able to meet the needs of human activity, by offering relevant qualifications including professional training which combine high level knowledge and skills to meet the future needs of society.
- Provide prospects for higher learning and for learning throughout life with an opportunity for individual development.
- Advance, create and disseminate knowledge through research and provide services to the community by assisting with cultural, social and economic development.
- Help to understand, interpret, preserve, promote and disseminate culture to better understand diversity.
- Protect and enhance society values.

In the book *Changing university teaching* by Evans and Nation, Peters (2000:11) states that university graduates in the emerging information society will need to have qualifications and competencies that are different from what universities are used to have. Therefore, Peters (Evans & Nation 2000:11) states that in the future there needs to be a greater emphasis on the ability to:

- communicate to learners independently and autonomously
- communicate to others deliberately and on a differentiated basis
- collaborate with others in a group
- show social sensitivities
- accept social responsibility
- be ready and willing to be flexible

Consequently the following changes and requirements will form part of university teaching in the future (Peters 2000:12–13):

- Teaching will continue to be an essential task of the university.
- As academic education and further education stretches over the complete adult life, universities need to admit and look after adults of all ages.
- Universities will be open universities. Open universities will give students more flexibility and freedom over their form and pace of study.
- Due to increasing student numbers a traditional on-campus approach will not be sufficient. A different and cheaper teaching system is necessary which will enable many more people to obtain a university qualification.
- In order to be more flexible learning should not be prescribed by location and time.
- One of the important aims of the university in the future should be to prepare students for the information society. Students should be able to work in the virtual environment and in groups.
- The curriculum should not be uniform, and fixed for long periods of time, but needs to be adaptable to current needs for example the challenges and demands of a professional life.
- Students should not only get cognitive education but social skills.
- There should be a conversion from a teaching to a learning culture at universities.

From the above it can be seen that learning and teaching at universities should be adapted to meet the needs of aspects such as continuing education and lifelong learning that is becoming increasingly important. Universities in the future might be more student, practice and future orientated.

Uebersfeld (1998:362) agrees that universities of the future will look different and is of the opinion that in the future the university will have a new mission and a new way of

communicating to students to participate in the creation of knowledge and the information society. The new mission of the university of the future, according to Uebersfeld, can be seen in Table 2.3.

Table 2.3: The new mission of the university

Aspect	Explanation
A mission of service to society as a whole	The university should be open to and be aware of the needs of society and should not be isolated and closed to the society.
A diversified training and educational mission in the form of multiple partnerships	Universities will have to be in collaboration and engage with partners that do not see the university as they do. The university should be open to dialogue about different cultural worlds and the new needs of employers.
Dialogical relationships with learners	In view of continuing education, universities should regard their teaching function as if they are teaching adults and not traditional students. The learning needs of adults are different in the sense that they are more responsible and like to work independently and universities should find the best way of adapting to new learners.
The use and development of new technology	In the future teaching staff will have to be trained in the use of new technology to change old university teaching methods.
Research on the education process	Research centres should be put in place that will aid the university in setting specific training objectives for learners based on their backgrounds and learning abilities.

Source: Adapted from Uebersfeld (1998:362–364).

Apart from the new mission of the university Duderstadt (1997:13) writes "... the rapid evolution of information technology is making it possible for a new class of institution: the 'virtual university' an institution without walls and perhaps even without faculty – capable of providing education anytime, anyplace, at modest cost. As higher education breaks away from the constraints of space and time – and as the needs for advanced education in a knowledge driven civilization become more intense – there are already signs that a new class of global universities is forming". According to Duderstadt the aspects characterising the university of the future can be seen in Table 2.4.

Table 2.4: The university of the future

Aspect	**Explanation**
Lifelong learning	The commitment of universities to provide lifelong learning to citizens and the commitment of the citizens to continue learning.
A seamless web	All levels of education are interrelated and blended together.
Asynchronous (anytime, anyplace) learning	Breaking the constraints of time and space by making learning more compatible with lifestyles and needs of students.
Affordability	Providing education that is within the resources of all citizens – low cost.
Interactive and collaborative	Appropriate for the digital age – the technology generation.

Source: Adapted from Duderstadt (1997:13).

From the above it can be concluded that the use of new technology and the new information society has a big influence on the university of the future and how education

will be provided to students. The importance of the information society can be seen in the following section.

2.6 THE INFORMATION SOCIETY

The United Nations Educational, Scientific and Cultural Organization (UNESCO 2003:online) stated that "a fundamental transformation of human society, perhaps comparable only to those engendered by the invention of the alphabet and the printing press, is the emergence of the Information Society. In this dynamic environment, a new culture is emerging with prospects of having an impact on all aspects of human life".

The concept of the “information society” was first used by the economist Fritz Machlup during the 1950s and 1960s. Machlup's breakthrough study *The production of knowledge in the United States*, was published in 1962 and introduced the concept of the knowledge industry (*Concise Encyclopaedia of Economics* 2008:online). After Machlup, various authors wrote about the information society as it grew and developed globally.

2.6.1 The development of the information society

According to Webster (2004:1) the information society developed as a new society different from the industrial and agricultural society which preceded it. Minnaar and Bekker (2005:39) also state that a few times during the history of the world a new civilisation emerged that brought with it new ways of thinking and working. According to Minnaar and Bekker, three such revolutions or paradigm shifts can be identified that led to the development of the information society (see Table 2.5).

Table 2.5: The development of the information society

Society	Explanation
The agricultural society	This society began about 10 000 years ago when a seed was deliberately planted and nurtured. The agricultural society was important because people moved from nomadic wandering and hunting and settled into villages. This society is symbolised by the cow.
The industrial society	This society was an expression of machine muscle. This society began in the 1700s after the American Civil War, and is sometimes referred to as the Industrial Revolution. People started leaving their farms to work in city factories. The symbol of this society is the assembly line.
The information society	This society is based not in the muscle but in the mind. This society is driven by knowledge and information technology. In the information society, wealth is measured not by money but by the amount of information that an individual knows or possesses. Livelihoods are increasingly made by the use of information. This society is symbolised by the computer.

Source: Adapted from Finley (2002:online); Minnaar and Bekker (2005:39); and Webster (2004:1).

According to Van Audenhave (2003:online) the information society as a concept of the post-industrial society has become part of the public and political life of many countries and since the 1990s the concept has been widely used by academics, citizens and government. As the information society develops, it has become increasingly important to get a clear understanding of what is meant by the term “information society”.

2.6.2 The concept: information society

The United Nations Educational, Scientific and Cultural Organization (UNESCO 2003:online) explains the concept “information society” as "a society that makes extensive use of information networks and information technology, produces large quantities of information and communication goods and services and has diversified content industry".

Masuda (2004:15) is of the opinion that the information society is a new type of society; the basis of which is the production of information that will be the driving force in the society. Duderstadt (2002:4) also states that the transformation and movement into a knowledge driven society is powered by the use of modern technology, computers, telecommunications and new networks like the internet. These technologies have changed the way citizens work, study and communicate. In the information society, technology enables citizens to send and receive information quickly to and from distant, even remote areas (Duderstadt 2002:4). Zurawski (2002:online) also agrees with Duderstadt and states that the information age is changing every aspect of human life. In the information society the foremost commodity will be the exchange of information.

Targowski (2002:online) stated in 1991 that the electronic global village is a set of information societies and each society is linked to various cities, countries, economies, the global marketplace, global culture, global travel systems, international trade and the international production systems of multinational corporations in order to produce longer lasting and more knowledge intensive products and services. The global information society generates a new global culture where knowledge plays the biggest role, and

where information is freely available at any time or place (ISOC 2008:online; The Atlantic 2002:online).

The Information Society Commission (2008:online) states that the term "information society" is used to describe a society and an economy that make the best possible use of new information and communication technology. In this society, people will get the full benefit of new technology in all aspects of their work, homes and their lives.

It can therefore be concluded that the information society relies heavily on the use and development of technology in every sphere of human life. Apart from understanding the concept of the information society, it is also important to look at the characteristics that make up the information society.

2.6.3 The characteristics of the information society

The characteristics of the information society include the following aspects (ALIA 2002:online; Soros 2008:online; and Minnaar & Bekker 2005:40–42):

- Distance poses no obstacle to development, social interaction, learning, adequate health care and business success. Full participation in society activities is possible from anywhere in the world through the use of technology.
- Knowledge is increasingly available to everyone at any time and any place; knowledge is packaged in a manner to meet individual, social, literacy and cultural needs and easily available to almost everyone.
- In the information society, learning and working will take place where it is most comfortable or productive.
- Knowledge-based service industries form a significant proportion of the GDP (gross domestic product) and there is an awareness in government that knowledge technology can foster business competitiveness and economic and employment empowerment and growth.

- Public sector activities complement the information society by setting the example in electronic service delivery; this will include the delivery and rapid access to government information by means of the World Wide Web.
- Lifelong learning will be essential to individuals in the information society. Individuals will need the capacity to absorb and interpret new and changing information and technology.
- Individuals will have open and timely access to information and knowledge. This contributes to the free flow of information and ideas within a society.

From the above it can be seen that in the information society, information and access to information is considered by most users of information technology to be of great importance. The implications and the development of the information society can be seen globally in business, government, higher education and in South Africa as will be indicated in chapter 4.

2.7 CONCLUSION

This chapter showed the development of higher education and universities through many centuries. Various authors contributed and wrote extensively about the development of universities and higher education. John Henry Newman through his book, *The idea of a university*, contributed to a dialogue with many academics and authors discussing the traditional role and function of the university. Newman and other authors are in agreement that the traditional role and function of the university include teaching, the gain of knowledge and research.

Since the writings of Plato, Aristotle and Socrates, universities and higher education went through many stages of change and development and various authors wrote about the importance of a paradigm shift that is taking place in higher education. Long-standing educational practices are changing and are being replaced by new preferred practices such as group work, community involvement and problem solving.

However, it is the use and development of new information technology that is having a big influence on universities and higher education. Some authors hold the view that universities are not keeping up with the needs and demands from the society and future employers with regards to education and information technology, while others feel that the university is changing too fast and is losing the idea of a university as seen by philosophers ages ago.

The university of the future is largely influenced by the needs of an information society. New technology is driving the use of computers, the internet and telecommunications. In the information society universities will have to change and adapt to the global marketplace, global village and global culture. As part of the information society, lifelong learning and adult education is becoming more important and are aspects the university of the future should focus on.

Many authors have various views about what the role and function of universities should be. By looking at what learning should be facilitated by universities, the answer is difficult. Newman believed that the university should only provide students with knowledge. Many agree with Newman's point of view. However, there are also many authors, for example Schuyler, that are of the opinion that the university should provide in the changing needs of the community and adapt to the information age and the new paradigm shift that is taking place in higher education. This will include providing practical skills such as information technology to students. This point of view is also supported by various authors, communities and future employers.

Apart from the importance of universities and higher education, the next chapter will look at the development of Public Administration as an academic subject as well as the importance of studying Public Administration at universities in South Africa.

CHAPTER 3
THE DEVELOPMENT AND RELEVANCE OF PUBLIC ADMINISTRATION EDUCATION

3.1 INTRODUCTION

In the previous chapter the development, traditional role and function of higher education and universities were looked at along with the development of curricula. Chapter 2 showed the important paradigm shift and changes that took place in higher education and showed that universities are under increasing pressure to keep up with new needs and rising demands from future employers and society. Chapter 2 also provided an overview of the university of the future and its role in meeting those needs.

Chapter 3 will look at the development of Public Administration and the relevance of technology in the development of Public Administration. At university level the study of Public Administration as an academic discipline is of recent origin. Public Administration has gone through many phases and paradigms of development since Woodrow Wilson published his essay *The study of administration* in 1886. An important development is the use of technology in Public Administration. Therefore chapter 3 will also determine whether there is evidence of a presence of information technology in the development of Public Administration education.

Various authors internationally and in South Africa have written extensively about the development of Public Administration as an academic discipline and the importance of studying Public Administration. This chapter will also determine the relevance of Public Administration education in South Africa. The requirements and standards for Public Administration education with regard to the South African Qualification Authority (SAQA) and the National Qualification Framework (NQF) will also form part of chapter 3.

This chapter consists of a comprehensive literature study that relied heavily on the reading and analysis of books and journal articles. A literature study was done in order to get a clear understanding of the development of education in Public Administration as well as the presence of the use of information technology in Public Administration education. A literature study was also done to get relevant information about the standards, guidelines and requirements for Public Administration education nationally and internationally.

3.2 THE DEVELOPMENT OF PUBLIC ADMINISTRATION EDUCATION

As the development of Public Administration education forms an important part of this chapter, a comprehensive study was done to get a clear understanding about the development of Public Administration education and the content, relevance and use of information technology in the subject. Rabin, Hildreth and Miller state in the *Handbook of Public Administration* (2006:4–5) that the 1880s were the seedtime of public administration. The first theoretical writings on Public Administration in the English speaking world are attributed to Woodrow Wilson. For many students of Public Administration, Woodrow Wilson, who became the 28th President of the United States of America, was the first thinker to use the concept "public administration" referring to a separate discipline of study. Wilson's contribution *The study of administration*, published in the *Political Science Quarterly* in 1887, laid the foundation for a systematic study of Public Administration. Wilson integrated history, philosophy and the concept of the good society in his study. Wilson's views as expressed in *The study of administration* led to many controversies, interpretations and an ideological basis for reforms in administration in the 19th century (Prasad et al 1989:3–4). According to Henry (1992:21), Wilson's contribution resulted in the realisation that Public Administration should be studied. Wilson maintained that Public Administration was worthy of academic study and reasoned that "… it is getting harder to run a constitution than to frame one", meaning that the complexity of the executive activities of government makes it impossible for a public official without specific training, equipped with only a layman's knowledge of governmental activities, to cope successfully with his or her

executive function, because as Wilson postulated "… mere unschooled genius for affairs will not save us from sad blunders in administration" (Wilson 1886:online).

Various authors wrote extensively about the different stages, paradigms, phases and generations in the development of Public Administration as an academic discipline, however, not all authors had the same point of view about the importance and development of the subject. According to Thornhill (2006:793–821) the following four generations can be identified as being important in the development of Public Administration:

Table 3.1: The four generations of Public Administration

Generation	Explanation
The pre-generation	This generation includes thinkers such as Plato, Aristotle and Machiavelli. The emphasis lay principally in moral and political issues. From the 16th century European states needed an organisation for the implementation of law, order and for setting up defensive structures. A need for civil servants with knowledge about administration and military grew. The need for administrative experts became even more important during the 18th century.
The first generation	Lorenz von Stein, a professor in Vienna, contributed greatly to the science of Public Administration in Europe during 1855. At this stage Public Administration was considered to be a form of administrative law. This was also the period where Woodrow Wilson contributed greatly towards the science of Public Administration.
The second generation	In this generation Luther Gulick and Lyndall Urwick integrated the ideas of earlier theorists like HenrI Fayol into a comprehensive theory of administration. The Science of Administration focussed primarily on governmental organisations at this time.

The third generation	After 1945 the third generation, which questioned the ideas of Wilson and the second generation, arose. Because of various political scandals Public Administration as a science had to detach itself from politics. This allowed the discipline to develop as an independent discipline with an own body of knowledge.

Source: Adapted from Thornhill (2006:793–821).

Apart from these four generations of Public Administration, various authors, for example Coetzee (1988:134), Hanekom (1988:69–73), Gildenhuys (1987:69–73), Greene (2005:48–74) and Henry (1992:21–45), state that other different phases and paradigms can also be used to explain the development of the study of Public Administration. However, the contribution of Nicholas Henry in his book *Public Administration and Public Affairs* (1992:21–45) provides a comprehensive explanation of the development of Public Administration and is used in this chapter as a main source of reference and information. Although these authors, including Henry, wrote extensively about the development of Public Administration, they did not include information technology as part of Public Administration. This research will therefore include the development, use and relevance of information technology competence as part of Public Administration. The development and study of Public Administration as an academic discipline, according to Henry, can be separated into the following five paradigms:

3.2.1 Paradigm 1: The politics/administration dichotomy, 1900–1926

The year 1900 is recognised as the starting point of the idea of the separation of politics and administration. The start of this paradigm corresponds to the publication of books written by Frank J Goodnow (1900) and Leonard D White (1926). In his book *Politics and administration: a study of government*, Goodnow states that there are two distinct functions of government namely politics and administration as stated in the title of his book. Goodnow (in Shafritz & Hyde 1997:27–29) shows a separation between political processes and administrative processes. Although information technology did not exist

at that time, Goodnow opened the way for a focus on work based competence, for example the use of technology in administrative processes. His view was that public administration concentrated on executive government institutions and not on the policy making processes that precede the executive functions. Policy making was seen as the function of politicians rather than administrators (Goodnow in Shafritz and Hyde 1997:27–29).

The emphasis of paradigm 1 was on locus – where public administration takes place. According to Goodnow and other authors of this period public administration should focus on the government's bureaucracy. Public administration received its first serious recognition from scholars during this period because of the public service movement that was taking place in American universities. Formal training programmes in public administration started at American universities between 1914 and the late 1920s. However, as information technology did not exist, it was not included in training programmes. As Goodnow (Goodnow in Shafritz and Hyde 1997:27–29) stated, training programmes at this time focused mainly on government bureaucracy. Public administration became even more important in the 1920s with the publication of Leonard D White's *Introduction to the study of Public Administration* in 1926, the first textbook entirely devoted to the field of Public Administration study (Henry 1992:21–23). White's textbook focused on the scope and nature of Public Administration and the emergence of administration. In chapter 1 of this book White states that "the objective of public administration is the most efficient utilization of resources at the disposal of officials and employees. In every direction good administration seeks the elimination of waste, the conservation of material and energy, and the most rapid and complete achievement of public purposes consistent with economy and the welfare of the worker" (White in Shafritz & Hyde 1997:45). Even at this time when information technology did not exist, White realised that resources must be utilised to eliminate waste and that public work should be completed as quickly and effectively as possible.

3.2.2 Paradigm 2: The principles of administration, 1927–1937

During 1927 WF Willoughby's book, *Principles of Public Administration* was published as the second textbook in the field of public administration (Henry 1992:23). Other influential writers that contributed to this paradigm include, Mary Parker Follet's *Creative experience,* HenrI Fayol's *Industrial and general management* and James D Mooney and Alan C Reiley's *Principles of organisation.* All these writings included important aspects of administration.

Another important contribution was made by Frederick W Taylor's *Principles of scientific management.* Hanekom (1988:70) states that the "scientific management" view of public administration resulted in a need for trained public administrators.

Luther H Gulick and Lyndall Urwick highlighted the principles of administration in their book titled *Papers on the science of Administration,* a landmark study for Public Administration that was published in 1937. This study emphasised the principles of administration or the functions of those involved in administration. This study was written during the industrial revolution and humans were seen as an extension of the machine. Gulick interpreted this as technical efficiency. The introduction of the machine changed the work environment and increased specialisation was needed. Workers were divided into those who can and those who can't use a particular instrument or machine, for example a typewriter effectively (Mosher 1981:148–149; cf Gulick in Shafritz and Hyde 1997:81–83). Although information technology did not exist at that stage, one can argue that writers such as Gulick and Urwick paved the way for the inclusion of technology in administration at a later stage, for example to use a machine along with humans to increase specialisation and efficiency. Gulick and Urwick also proposed the seven principles of administration and gave students of Public Administration the anagram POSDCORB. Each letter in the word represents one important function that a public official should do (Prasad, Prasad & Satyanarayana 1989:95). The anagram is explained in Table 3.2:

Table 3.2: The anagram POSDCORB

Anagram	Explanation
P – Planning:	Clarification of goals and objectives.
O – Organising:	Developing of programmes and procedures to transform inputs into outputs.
S – Staffing:	Provision for competence of personnel and appropriate distribution of tasks.
D – Directing:	Decision making and communication of decisions.
CO – Coordinating:	A unifying approach to combine a variety of operations into one approach.
R – Reporting:	Feedback both internally, and externally, from the organisation.
B – Budgeting:	Allocating of available resources for example money.

Source: Adapted from Arora (1979:5–6).

Stene (1940:1–2) writes in the book *Perspective in administrative theory* that the concept of POSDCORB has been cited as the symbol of traditional or "classical" theory of Public Administration. These recognisable steps were seen as the principles of administration. These steps represent the functions of those engaged in administration (Stene 1940:2). In this phase of the paradigm the subject matter of Public Administration was identified for the purpose of study (Henry 1992:23). It was also during this time that students of Public Administration established the American Society for Public Administration (ASPA) which functions as the primary association of scholars and practitioners of public administration and is responsible for the journal *Public Administration review* (Henry 1992:24).

3.2.3 Paradigm 3: Public Administration and Political Science, 1938–1947

During this time, Public Administration as a discipline and as an activity was challenged and received a lot of resistance from various authors. In 1938 Chester I Barnard's *The function of the executive* was published. The impact of Bernard's book on Public Administration was not overwhelming but it had a considerable influence on Herbert A Simon when he was writing his critique on the field of Public Administration (Henry 1992:25). Simon's article *The proverbs of administration* that was published in the *Public Administration Review* stated that there could not be any principles of administration. Simon stated that for every principle of administration, an equally plausible and acceptable contradictory principle can be found (Simon in Shafritz & Hyde 1997:127).

As a result of this critique, writers left the field and the study of Public Administration and the subject was deprived of an own identity (Henry 1992:29). In 1952 Roscoe Martin published an article in the *American Political Science Review* stating that political science should continue to dominate Public Administration (Martin 1952:665). Dissent from public administration accelerated and students of Public Administration returned to the field of Political Science. Public Administration was threatened by absorption into other branches of administrative sciences such as business administration. Public Administration was critiqued heavily at this time and as a result nearly disappeared (Henry 1992:29). Although it was during this time that Konrad Zuse started developing the first computer in Germany, technology still did not form part of Public Administration education or government (Computer hope 2009:online).

3.2.4 Paradigm 4: Public Administration as Management, 1956–1970

During this period some Public Administration writers and practitioners began searching for alternatives, for example the use of management to develop the study of Public Administration again. According to Henry (1992:33) there is an overlap in time for paradigm 3 and 4; both the political science and management paradigms had a loss of

trust in the study and identity of Public Administration. However, management as a paradigm provided a new focus and during the 1960s a new school of thought developed known as the "New Public Administration" (Henry 1992:33). Public Administration was still at this time part of Political Science programmes but in the United States of America the need developed for administration to be studied as a part of management. By 1962 nearly a fifth of the business administration programmes in the United States of America, Canada and Mexico combined the study of Business Administration with the study of Economics, Public Administration and other social sciences (Henry 1992:34).

A conference held at Syracuse University in 1968 with Dwight Waldo and a group of young Public Administration thinkers and students produced, *Towards a new Public Administration,* published in 1971, that remains the most important work in this area (Greene 2005:60). Paradigm 4 also saw a rise in professionalism for the practitioner and the founding of the National Academy of Public Administration in 1967. Although a new wealth of literature was produced in the subject area (Greene 2005:60) and although information technology and the use of computers grew during the 1960s with an increased use of memory space for computers and the selling of computers for the use in businesses, technology as a field of study was still not part of Public Administration education. However, mention of technology was made in an article by Douglas M McGregor titled *The human side of enterprise* published in 1957 that stated "it has become trite to say that industry has the fundamental know-how to utilize physical science and technology for the material benefit of mankind ...." (McGregor in Shafritz & Hyde 1997:192). Although the technology mentioned by McGregor refers to new development in industry, it does lead the way for including technology in Public Administration.

3.2.5 Paradigm 5: Public Administration as Public Administration, 1970 to date

In 1970 the National Association of Schools of Public Affairs and Administration (NASPAA) was founded (Henry 1992:43). At this time Public Administration was known

and acknowledged as a separate field of study and focused on areas of state, local government, executive management, administrative law and aspects of public interest (Henry 1992:43). The curricula of graduate Public Administration programmes reflected these aspects (Henry 1992:43).

NASPAA adopted standards of excellence for Public Administration education and members of the association agreed to vigorously pursue the goal of bringing a strong professional focus to the field of Public Administration (Uveges 1982:93). Since the start of the 1970s Public Administration has been well established in the United States of America with its own professional associations, accreditation and professional journals. Public Administration has developed as a rich body of literature that is multidisciplinary and theoretical (Henry 1992:43–45).

Public Administration scholars in the United States of America contributed greatly to the development and progress of Public Administration as an academic discipline. However, in Europe, France took the lead in developing the theory and practice of public administration (Cloete 1986:41). According to Cloete (1986:41) writers like Jean-Charles Bodin with his *Principes d'administration publique* in 1808, Vivien's *Etudes administrative* in 1845 and Aucoc's *Conferences sur Ladministration et le droit administrative* in 1969 contributed greatly to the development of Public Administration in France. Lorenz von Stein (1815–1890), a German economist, sociologist and public administration scholar (Wikipedia 2010:online) is widely regarded as the founder of Public Administration as an academic subject in Europe (Thornhill 2006:794). At the time when Von Stein was a professor in Vienna, Public Administration was considered as being part of administrative law (Thornhill 2006:794). This was in line with the administrative thought in the rest of Europe, which strayed into a purely judicial approach resulting in the Administrative Law turning into the focal point of scholarly interest in most European studies in Public Administration (Langrod 1961:71).

Von Stein is known for applying Hegel's dialectical method of argumentation to Public Administration trying to improve the systematic nature of the subject (Wikipedia

2010:online). Although Von Stein may be recognised as the founder of Public Administration as a separate subject field in Europe, Langrod (1961:74) points out that he developed his ideas on the work of other scholars who actually deserved to be credited for founding this subject field. He argued that scholars such as Fisch, Phieffer, Rossig, Jung Seckendorff, Gasser and Dithmar provided the transition from the somewhat abstract approach to a more concrete approach in describing Public Administration in Europe (Langrod 1961:74).

In Britain, nothing was written about Public Administration as a field of study for many years (Cloete 1986:41). The authors who entered the field of Public Administration did so indirectly in their writings on Political Science and History (Cloete 1986:41). Even during the twentieth century very little was done in Britain to develop Public Administration. As a result, Britain was far behind the United States of America and Europe in the development and education of Public Administration (Cloete 1986:41).

Chapman (1993:166) states that Public Administration courses at British universities were provided in departments of politics as part of a political degree. Although not a requirement, university courses in Public Administration were established already between 1926 and 1936 (Chapman 1993:169). These courses were continued and even expanded after World War II, but according to Langrod (1961:94), most of the research and writing was either purely descriptive, judicial and extremely specialised, or technical. Although a number of university professors were engaged in accumulating and constructing practical Public Administration knowledge, they were, according to Langrod (1961:94), hesitant to refer to Public Administration as a science. It was only during the 1940s that the first chair of Public Administration was established at Oxford University (Chapman 1993:167–168).

However, important changes during the 1960s and 1970s in Britain led to unprecedented expansion of university education while the government, in addition, created a new category in higher education called polytechnics (Chapman 1993:168). Six of these polytechnics launched full-time degree programmes in Public

Administration involving practical experience or placements in public administration (Chapman 1993:168). Not only have the programmes of these institutions been designed for vocational purposes, but they have expanded their technological focus by acquiring contracts “at home and overseas for offering training programmes or public sector management consultancies” (Chapman 1993:169).

Since 1970 information technology and computers developed rapidly along with the internet (Spaulding 2009:online). It was also during this time that writers started thinking about and including information technology in Public Administration education. Klay (1982:7), for example, stated that the computer holds great promise to convey technical knowledge and skills to the administrator of the future. Snellen and Van de Donk (1998:5) write in their book *Public Administration in an information age* that the acquisition, storage, handling and communication of technology are directly related to all aspects of public administration.

Kramer et al (1986:595) state that knowledge and skills about the use of computers are important assets for Public Administration graduates to have. They also say that computing needs to be integrated into the Public Administration curriculum and taught to students, since many students do not have computer knowledge or skills. Therefore, Public Administration education in the growing information society could include computer literacy; computer literacy can be seen as a form of literacy like, for example, reading, writing and mathematics. Computer literacy means the ability to use a computer and to understand how a computer works (Wikipedia Encyclopaedia 2007:online).

Computer literacy also includes having an appreciation of how a computer can relate to the work situation and the ability to create and complete work with a computer (Wikipedia Encyclopaedia 2007:online). Bustamante (2008:online) agrees with Kramer and states that the use of technology in Public Administration education will prepare students with knowledge and skills to function properly in the public service. A wealth of articles, books and conference papers on information technology and Public

Administration was written during this time, for example *The computer revolution in public administration: the impact of information technology on government* by Pitt and Smith, published in 1984, and *Information technology and computer applications in public administration: issues and trends* by Garson, published in 1996.

Electronic government also became a relevant topic at this time with authors writing on various topics related to technology and e-government, for example *e-Government: information and communication technology in public administration* by Trauner that was published in 2002. Garson's book *Public information technology and e-government: managing the virtual state* that was published in 2006 and *e-Government research: policy and management* that was published by Norris in 2008, focus on the worldwide use of e-government and the development of web government. The next section will show that authors in South Africa also wrote extensively about the development of Public Administration education, information technology and e-government.

3.3 THE DEVELOPMENT OF PUBLIC ADMINISTRATION EDUCATION IN SOUTH AFRICA

The development of Public Administration education in South Africa went through many stages of development and also includes the use of information technology. According to Cloete (1988:81) public administration was brought to the Cape of Good Hope on 6 April 1652 by the Dutch settlers.

At this time public administration mainly consisted of the maintenance of law and order. The first education in Public Administration at university level was provided by the Transvaal University College (TUC) since 1955 (Cloete 1988:95). This institution was a college of the University of South Africa (UNISA) until it became the University of Pretoria on 10 October 1930.

The students of TUC had to write the examinations of UNISA for the BEcon (Public Administration) degree. During the 1950s and early 1960s courses in Public Administration were offered by this University's Department of Political Science.

The University of the Orange Free State was the first university in South Africa to create a Department of Public Administration separate from the Department of Political Science in 1962. The first courses in Public Administration at the University of Pretoria consisted of a number of randomly selected aspects that were selected by lecturers in consultation with past students and officials working in state departments and municipalities (Cloete 1988:95–96). In 1987 twelve South African universities (including universities in the four former independent national states) had a department of Public Administration separate from Political Science (Cloete 1988:95–96).

Various authors and academics contributed greatly during the early years to the development of Public Administration education in South Africa. Gildenhuys (1988:21–22) identifies some of the first generation of academic pioneers that contributed to the growth and development of Public Administration education in South Africa as can be seen in Table 3.3 on the next page.

Table 3.3: Academic pioneers of Public Administration education in South Africa

Name	Contribution
Edgar Harry Brookes	This academic pioneer of Public Administration helped to establish Public Administration at the Transvaal University College.
Edward Batson	Batson was appointed to the first chair of Social Science at the University of Cape Town. He took an interest in Public Administration and directed the establishment of the subject at the University.
Ernst Frederik Willhelm Gey van Pittius	Professor Gey van Pittius became the head of the Department of Political Science and Public Administration at the University of Pretoria in 1953. This academic pioneer wrote and published seven books in the field of Political Science, Public Administration and Municipal Administration.
Michael HH.Louw	Louw travelled extensively to look at Development Administration in third world countries. Louw worked as a lecturer at the University of Pretoria, UNISA and the University of the Witwatersrand. Later he worked for the United Nations and published various articles related to Public Administration.
Jacobus Johannes Nicholaas Cloete	Professor Cloete is an eminent pioneer of Public Administration in South Africa. He wrote 26 books and published 58

	articles on Public Administration. He helped with the establishment of the South African Institute of Public Administration and was also editor of the *SAIPA Journal of Public Administration*. Professor Cloete received many awards for his contributions to the development of Public Administration in South Africa.
Willem A Kleynhans	Professor Kleynhans wrote the first study guides for Public Administration at UNISA in 1947. During 1950 Professor Kleynhans was appointed head of the Department of Political Science and Public Administration at UNISA. He held this position till 1986.
Philipus Coenraad Fourie	As a lecturer in Public Administration at the University of the Orange Free State, Professor Fourie introduced Municipal Administration as a separate academic discipline. He published 48 articles on Public Administration and presented 103 papers and lectures at conferences and seminars.
Willem Benjamin Vosloo	Professor Vosloo was appointed as head of the Department of Public Administration and Political Science at Stellenbosch University from 1966 till 1981. He played a key role in the establishment of the South African Institute of Public Administration.

Barend Johannes Roux	Professor Roux was a lecturer in the Department of Political Science and Public Administration at UNISA. In a short academic career he wrote 70 articles on Public Administration, Political Science and Semantics.

Source: Adapted from Gildenhuys (1988:23–44)

Of these contributors the work contributed by Professor JJN Cloete is of great importance for the discipline. Cloete started his academic career at the University of Pretoria in 1954 and took immediate steps to base undergraduate and post-graduate courses in the functions that constitute the phenomenon known as Public Administration.

Coetzee (1988:57) states that the generic group of functions that was classified by Cloete was a foundation or rational frame of reference for the practice and study of Public Administration in South Africa. The generic group of functions are explained in detail in Cloete's book and include the following:

- Policy making
- Organising
- Providing and using of personnel
- Determining of work methods and procedures
- Financing
- Control (Cloete 1981:56–197)

Hanekom (1988:73–74) states that the generic group of functions provided a focus point and framework of study and training in the discipline. Cloete's first publication entitled *Inleiding tot die Publieke Administrasie* was published in 1967 and a translated copy of this book was printed in 1981. Cloete's work was, and is, widely used by lecturers and students studying Public Administration at South African Universities and Technikons.

Cloete produced a large number of written material in a short time covering a variety of topics that are still relevant to students studying Public Administration (Du Plessis 1988:55).

During the 1980s the discourse of whether management should be included in the study of Public Administration started (Thornhill 2006:799). This debate on management focussed on the complexity of the public sector (Thornhill 2006:799).

Schwella campaigned strongly for the introduction of management and proposed the concept "Public Management" (Thornhill 2006:799). Schwella's article, titled *Public Administration or Public Management – another perspective or why not Public Administration and Public Management,* appeared during 1985 in the *SAIPA Journal of Public Administration*. In this article Schwella (1985:40–41) states that internationally the term "public management" is used in many instances but that it is avoided in South Africa. Schwella therefore asks for a compromise in his article between "public management" and "public administration". The article represented a shift in the study of Public Administration in South Africa.

Public Administration could be studied with the inclusion and acknowledgement of management concepts. The area of study was broadened and concepts from the private sector were used to benefit the discipline. The debate enriched the study of Public Administration and contributed to the development of the quality of the public service by including new theories and practices formerly considered to be the domain of business management (Thornhill 2006:800).

In 1987 an article by Van de Werken, with the title *The influence of computers on the public sector* was published and presented at the Quo Vadis 100 years of Public Administration conference at UNISA. This article states that "… the situation may at first seem very alarming, but managers are constantly feeling the pressures of having to have access to more and more information faster and faster, in order to make bigger and better management decisions". This article also states that there has been an

impact on organisations that have harnessed computers. This impact is a new department, new functions, new skills required and a new breed of people to use these technologies (Van de Werken 1987:109–110). This article already indicated at an early time the importance of computers in the public service in South Africa and the skills needed to use them.

The 1990s were significant for South African Public Administration with the introduction of the New Public Administration Initiative (NPAI) that resulted from the Mount Grace Conference that was held in the Magaliesburg during November 1991 (Schwella 1999:337–338).

The New Public Administration concept was an initiative and commitment to transformation in a changing South Africa. This was a process to develop the capacity of institutions to train a future civil service. The approach beckoned for a new way of studying, teaching and practicing Public Administration (Schwella 1999:338–339). This initiative was a call to re-consider the study of Public Administration and also introduced a debate for a paradigm shift in the study of the discipline.

Schwella was of the opinion that the generic administrative approach of Cloete dominated Public Administration education in South Africa and that a new approach was needed (Schwella 1999:335–336). At this time attention was given to new political and social programmes to provide in the needs of the newly demarcated and integrated society in South Africa.

The Mount Grace Conference indicated that the study of Public Administration should emphasise scientific analysis, explanations and predictions, be socially and professionally relevant and be development oriented (Mount Grace Papers 1991:5–24). This process paved the way for an effort to ensure that the field of Public Administration will be relevant in South Africa and to strengthen the link between the academic discipline and the practice.

In 2000 the Mount Grace discourse was continued through the publication of the debates of the second conference of experience since 1991 (Thornhill 2006:801). The deliberations focussed on the South African context of study, the current realities and challenges facing the country and discipline, the training needs of public officials the assessment of the contributions to the development of society and meeting the changing needs of the South African society (Thornhill 2006:801).

At this conference Cloete stated that “The discipline of Public Administration and Management will in future also have to deal with the consequences of globalisation and the electronic information revelation that is increasingly replacing the industrial nature of especially more developed societies”. Cloete also stated that governments cannot isolate themselves from the global village and that good governance in the future will increasingly rely on electronic communications (Cloete 2000:21).

3.4 THE RELEVANCE OF PUBLIC ADMINISTRATION EDUCATION IN SOUTH AFRICA

In South Africa as in the rest of the world, the public service provides products and services that members of society might need. It therefore goes without saying that, in order to be able to provide these services, the South African public service is in need of educated, trained and professional public servants. It is therefore the purpose of this section to look at the relevance of Public Administration education in South Africa to provide the country with an educated, trained and professional public service.

One of the important prerequisites of the Constitution of the Republic of South Africa, 1996, is the maintenance of a public service that is efficient, effective and career oriented (Constitution of the Republic of South Africa, 1996, section 195). The former South African Minister of Public Service and Administration stated in the Budget vote speech of 2002 and on various other occasions as mentioned in chapter 1, section 1.1 that the public service was in need of new skills and knowledge to serve the public (Fraser-Moleketi, 2002:online).

This need for competent public servants was also reiterated in 2005 when the then South African Minister of Public Service and Administration led a delegation to India with the specific purpose of reaching an agreement between the two countries based on the Indian public service being willing to help South Africa through the transfer of Indian public servants, as well as training interventions and mentorship programmes for South African public servants (Fraser-Moleketi 2005:online).

In 2007, in a speech to the South African Local Government Association (SALGA), the former Minister Fraser-Moleketi, stated that the public service was required to continue with its mandate of providing services, but that the government found it hard to attract and retain people with the required skills. Government is currently considering various options in order to expand its existing skills base by looking, for example, at foreign skills exchange programmes (Government Communication and Information Services speeches 2007:online). In May 2008, during the launch of the "Human Resources Development Strategic Framework for the Public Service: Vision 2015", the former Minister of Public Service and Administration stated that "one of the handicaps in improving service delivery and ensuring a better life for all is the lack of suitable skills by functionaries of the state."

The public service has at present approximately 1 056 244 employees, which represents about 9% of the total employment in South Africa. As the major employer in most jurisdictions, and as a sector with significant economic impact, the Public Service must compete for the nation's skills. This constitutes a major challenge for public organisations as they seek to maintain an adequate skills base, especially in occupations and areas where skills are scarce. The government is therefore moving towards a system of self-development. The responsibility for developing the capacity to enhance job performance in the public service should be an individual's responsibility. The intention is to move towards a system where people can improve and develop themselves so that their performance can be improved on an ongoing basis (Fraser-Moleketi 2008:online).

3.4.1 Advantages of training and education in building human capacity

According to Kroukamp (2003:7) education and training can help the public service to develop the professional capacity of public servants and to promote institutional change. Training is also supposed to equip public servants with the knowledge, skills and competencies they need to carry out their jobs effectively, as reflected in the following expectations by the White Paper on Public Service Training and Education (South Africa 1997:19). According to this White Paper training and education in the public service can:

- help to equip public servants, whether workers or managers, with the necessary knowledge, skills and competences to carry out their jobs effectively in pursuit of the vision and mission of the public service
- enable public servants to deal effectively and proactively with change and the challenges of a dynamic working and external environment
- enable public servants to acquire a new development oriented professionalism
- help to address issues of diversity, while also promoting a common organisational culture to support unity at the workplace and the ethos of a single public service
- be a powerful instrument for anticipating, as well as facilitating, the introduction of institutional changes within the public service
- assist public servants in developing a better understanding of the needs of the communities which they are serving, as well as the capacity to respond to these needs

The above list of educational and training aims set by the White Paper can be regarded as a conceptualisation of what is described by Dall'Alba (2009:35) as "developing ways of being the professionals in question, rather than simply ... knowledge and skills acquisition".

3.5. REQUIREMENTS FOR PUBLIC ADMINISTRATION EDUCATION IN SOUTH AFRICA

The Higher Education Act 101 of 1997, provides for the establishment of quality assurance bodies for higher education in South Africa. These bodies include the Higher Education Quality Committee (HEQC) and the South African Qualification Authority (SAQA) and are responsible for regulating higher education qualifications and improving the quality of higher education provided in South Africa.

3.5.1 The Higher Education Quality Committee

The HEQC is a permanent committee of the Council on Higher Education (CHE). The HEQC is responsible for quality promotion and quality assurance in higher education (CHE Council on Higher Education 2009:online). The functions of the HEQC are to:

- promote quality in higher education
- audit the quality assurance of higher education institutions
- accredit programmes of higher education (Council on Higher Education 2009: online)

All higher education programmes, including Public Administration programmes, must be accredited by the HEQC before they can be offered by a public or private higher education institution (Council on Higher Education 2009:online). A programme, according to the HEQC, can be defined as a purposeful and structured set of learning experiences that leads to a qualification. The HEQC also describes a programme as a planned combination of learning outcomes leading to a qualification registered at the National Qualifications Framework (NQF) (Council on Higher Education 2009:online). A qualification is a formal recognition and certification of learning achievement awarded by the accredited provider. To be accredited by the HEQC a programme must be a full qualification complying with the rules and regulations stipulated by the South African Qualification Authority (SAQA) (CHE, Council on Higher Education 2009:online).

3.5.2 The South African Qualification Authority (SAQA)

SAQA was established to provide for an integrated qualifications framework and functions as set out in the SAQA Act 58 of 1995 (SAQA 2009:online). The SAQA Act forms the basis to provide quality within the National Qualifications Framework (NQF) (NQF 2009:online). The NQF comprises registered standards, units and qualifications at eight levels of learning (NQF 2009:online). SAQA is responsible for overseeing the development and implementation of the NQF. The objectives of the NQF are to:

- create an integrated national framework for learning achievements
- facilitate access to, and mobility and progression within education, training and career paths
- enhance the quality of education and training
- accelerate the redresses of past unfair discrimination in education, training and employment opportunities
- contribute to the full personal development of each learner and the social and economic development of the country at large (NQF 2009:online).

SAQA is made up of representatives from education and training institutions with expert subject knowledge to provide for quality qualifications. The functions of SAQA are twofold and include the following (SAQA 2009:online):

- To oversee the development of the NQF by formulating and publishing policies and criteria for the registration of bodies responsible for establishing education and training standards or qualifications and for the accreditation of bodies responsible for monitoring and auditing achievements in terms of such standards and qualifications.
- To oversee the implementation of the NQF by ensuring the registration, accreditation and assignment of functions to the bodies referred to above, as well as the registration of national standards and qualifications on the framework.

SAQA must also take steps to ensure that provisions for accreditation are complied with and where appropriate, that registered standards and qualifications are internationally comparable.

When it comes to Public Administration, Clapper (2000:56) writes that “within the South African educational and training context SAQA and its dictates have become the new orthodoxy – determining what public administration should look like and how it should function – a primary, perhaps only, focus on short-sighted and often ill-conceived outcomes”.

Clapper (2000:56) continues to say that the important question for SAQA is “what must a public official be able to do?” This however, puts a strong emphasis on task only and overshadows the need for innovative scholarship and independent thinking in Public Administration. According to Wessels (2005:1504) there are eleven proposed main categories of unit standards for Public Administration and Management. Although these unit standards were not formally accepted, academic and practice stakeholders participated in the process of compiling them and agreed on the following:

- Policy analysis and management
- Developmental management
- Public organisational development and management
- Managing public service delivery
- Human resource management
- Financial management and procurement
- Information, knowledge, communication and technology management
- Public management ethics
- Public Administration and management history, theory and research
- Disaster studies
- Intergovernmental relations (Wessels 2005:1505).

The above proposed SAQA unit standards emphasise information technology with the inclusion of the management of information, knowledge, communication and technology as one of the unit standards.

3.6. INTERNATIONAL STANDARDS FOR PUBLIC ADMINISTRATION EDUCATION

Apart from the proposed SAQA unit standards for Public Administration, international organisations and associations, for example, the International Association of Schools and Institutes of Administration (IASIA) and the National Association of Schools of Public Affairs and Administration (NASPAA) also provide standards for Public Administration education, as can be seen next.

3.6.1 The International Association of Schools and Institutes of Administration (IASIA)

The International Association of Schools and Institutes of Administration (IASIA) is an association of organisations and individuals that focuses on Public Administration (IASIA 2009:online). IASIA seeks to provide an opportunity to exchange information, ideas, experiences and materials on Public Administration (IASIA 2009:online). Due to the importance of Public Administration education IASIA also aims to study issues relevant to the public sector and to advance their professional knowledge and expertise and to foster international support for Public Administration education, training and management. According to IASIA (2009:online) the public seeks high quality services, therefore the public sector must be high performing. In order for public servants to perform proficiently, persons working in the public sector should have a high level of skills and preparation. It can then be expected that the institutions that educate and train these persons must be striving for a high level of Public Administration education. IASIA believes that the purpose of Public Administration education and training is to provide public administrators with the competencies and capacities to contribute to the improvement of the quality of life of society (IASIA 2009:online).

The IASIA standards of excellence in Public Administration are divided into two groups; the first being those concerned with the organisational nature and characteristics of the institution providing the Public Administration programme and secondly the criteria that relate to the programme. The criteria that relate to the programme include the following aspects: the programme development and review, the programme content, programme management and programme performance (IASIA 2009:online). For the purpose of this research Public Administration programmes or curriculum content will be the main focus area (IASIA 2009:online). According to the IASIA standard the curriculum components should enhance the students' competencies, values, knowledge and skills to act ethically, equitably, effectively and efficiently (IASIA 2009:online). IASIA states that the Public Administration curriculum should include the following (IASIA 2009:online):

- The management of public service organisations:
    - Human resource management
    - Budgeting and financial processes
    - Information management, new technology application and policy
    - Administrative and constitutional law
    - Effective communication skills
    - Organisational and management concepts
    - Non-profit and private sector relationships and grant management

- Improvement of public sector processes:
    - Development of high performance organisations
    - Management of networks and partnerships
    - The delivery of public goods and services
    - Management of projects and contracts
    - Supporting workforce diversity
    - Motivation and design of public sector organisations

- Leadership in the public sector:
    - Creative and innovative problem solving
    - Leading institutional and organisational transformation
    - Conflict prevention and resolution strategies
    - Promoting equity in service delivery
    - Developing approaches to poverty alleviation
    - Promoting democratic institutional development
    - Public sector ethics

- The application of quantitative and qualitative techniques of analysis:
    - Institutional and developmental economics
    - Policy and programme formulation, analysis, implementation and evaluation
    - Decision-making and problem solving
    - Strategic planning

- Understanding public policy and the organisational environment
    - Political and legal institutions and processes
    - Economic and social institutions and processes
    - Historical and cultural context
    - The management of economic development
    - Acknowledging and reconciling cultural diversity (IASIA 2009:online).

IASIA recommends that all academic programmes preparing individuals for the public sector, address public sector ethos, public sector skills and the nature of the public sector by including the following:

- Democratic values
- Respect for life
- Social equity
- Transparency and accountability

- Recognition of global interdependence
- Analytical and critical thinking
- Dealing with complexity
- Dealing with uncertainty
- Lifelong learning
- Internationalisation and globalisation
- New modes of communication
- Collaborative government (IASIA 2009:online).

From the above it can be seen that the IASIA standards of excellence for Public Administration education also include the use of information technology, for example information management and new technology application.

3.6.2 The National Association of Schools of Public Affairs and Administration (NASPAA)

The need for Public Administration education contributed to the foundation of NASPAA in 1970. NASPAA is a national and international resource for the promotion of excellence in education and training for the public service (NASPAA 2009:online). NASPAA has the following purpose (NASPAA 2009:online):

- Developing appropriate standards for educational programmes through a peer review and accreditation process.
- Representing to government the objectives and needs for Public Administration education.
- Encouraging curriculum development and innovation and providing a forum for publication and discussion of education scholarship, practice and issues.
- Undertaking surveys to provide more information on educational issues.
- Promote internship opportunities for students and employment for graduates of Public Administration.

- Undertaking collaborations through conferences, consortia and joint projects on Public Administration.

NASPAA created their first guidelines and standards for undergraduate degree programmes in Public Administration in the United States of America in 1976. Since then the original guidelines have been amended and reviewed and the last set of guidelines was accepted in 1997. These guidelines serve as a guide and are not prescriptive. The aim of these guidelines is to emphasise the importance of Public Administration education and to provide high quality of Public Administration education that includes the following (NASPAA 2009:online):

- To provide an adequate foundation in the subject area that is fundamental to professional education and preparation for career objectives by including:
    - Understanding economic, legal, political and governmental institutions, systems and processes.
    - Development of analytical/quantitative abilities and skills for defining and solving problems.
    - Developing of communication abilities and skills, for example written, oral and electronic skills.
    - Understanding of human behaviour and developing abilities and skills for analysing and coping with behavioural situations.
    - Understanding of administrative/management systems and processes.

- Five major subject areas cover the knowledge and skills that should be included in professional Public Administration undergraduate degrees:
    - The political, social, economic and legal environment of Public Administration.
    - Analytical tools: Quantitative, qualitative and computer applications.
    - Individual/group and organisational dynamics.
    - Policy analysis.

- Administrative/management processes and ethical considerations (NASPAA 2009:online).

NASPAA continues to state that these topics should not be regarded as separate entities. They should rather be perceived in terms of their inter-relationships. What is important is how well the student has assimilated, integrated and demonstrated his or her ability to use the knowledge and skills reflected in the major subject areas (NASPAA 2009:online).

By the development of electronic skills as stated above it can be seen that NASPAA is also of the opinion that computer applications, for example electronic communication, is important and should be reflected in the subject area.

3.7 CONCLUSION

This chapter provided an overview of the development and relevance of Public Administration education internationally and in South Africa. Internationally Woodrow Wilson contributed greatly to the development of Public Administration education and in South Africa Professor Cloete made a big contribution. Aspects like the politics/administration dichotomy, the principles of administration and the New Public Administration formed part of this chapter.

Chapter 3 showed the development of information technology in Public Administration and indicated that various authors wrote about the use of computers and information technology in Public Administration education and government. The use and benefits of information technology in Public Administration was already being discussed and written about in 1982 when Klay stated that the computer holds great promise for the administrator of the future.

The last part of this chapter focused on the legislative requirements for Public Administration education in South Africa. An overview was given of the Higher Education Quality Committee and the South African Qualification Authority. International

standards, requirements and guidelines were also looked at by focusing on the International Association of Schools and Institutes of Administration and the National Association of Schools of Public Affairs and Administration.

This chapter found that the standards, requirements and guidelines for Public Administration education, whether national or international also include computer skills, knowledge and the use of technology. It can therefore be concluded that the acquiring of information technology skills can benefit students of Public Administration to perform their tasks more effectively and provide services faster by for example using technology. Linking to this, chapter 4 will look at the information technology requirement of the South African public service.

CHAPTER 4
INFORMATION TECHNOLOGY IN THE SOUTH AFRICAN PUBLIC SERVICE

4.1 INTRODUCTION

The previous chapter provided an overview of the development of Public Administration education internationally and in South Africa. The standards, guidelines and requirements for Public Administration education were covered at in chapter 3.

Chapter 3 also explained the various phases of development and paradigm shifts that took place in the development of Public Administration education as well as the introduction of information technology in Public Administration education. Chapter 4 considers the use of information in government and the information technology needs of the South African public service.

Chapter 4 will indicate the use of technology by the South African public service by looking at some of the technology developments and initiatives, for example, e-government that is being used in the public service to provide information and services to citizens. This chapter will also describe the information technology competencies or skills required by a public servant to be effective and efficient in the public service in the information society. The possible future of government in a virtual world where technology is becoming increasingly important will also receive attention in this chapter.

This chapter consists of a comprehensive literature study that relied heavily on the reading and analysing of books and journal articles. During the literature study books and journal articles were critically reviewed to obtain information that focused on information technology, information technology skills and the public sector. Books and journal articles that focused specifically on information technology and the public sector in South Africa were given preference due to their relevance to the topic of the chapter.

This chapter also made use of a comprehensive internet search to find relevant information about the technology needs and requirements of the public service and the future of government with regard to information technology.

4.2 INFORMATION TECHNOLOGY USE IN SOUTH AFRICA

South Africa is situated at the southern tip of the African continent with a size of 1,219,090 sq km and a population of 49,052,489 (*World fact book* 2009:online). The literacy level in South Africa of people 15 years and older that can read and write is 86,4%. The unemployment rate in 2008 was established at 22,9% with 50% of the population living below the poverty line (*World fact book* 2009:online). South Africa currently has 4,425 million main telephone lines in use with 45 million cellular telephone users (*World fact book* 2009:online).

During 2008 South Africa had 5,1 million internet users. However Thlabela, Roodt, Paterson and Weir-Smith (2006:online) found that computer use largely takes place in big cities and businesses. Household use of computers and the internet is limited to only 13,6% leaving most citizens, especially citizens in rural and remote areas in South Africa, out of the information society (Thlabela et al 2006:online). To improve citizen access to information and technology the South African government initiated a number of centres with community access points where information technology services are made available to the public. The information technology service centres include:

- Multipurpose community centres
- Telecentres and cyber labs
- Public information terminals
- Public libraries

These service centres are each a one-stop centre where local, provincial and national government, as well as other service providers offer services and information to local communities that probably would not have access to information technology otherwise (Thlabela et al 2006:online). This initiative shows the government's commitment to

using information technology to communicate and inform citizens (Thlabela et al 2006:online). According to Jensen (2001:4) South Africa has the largest information technology infrastructure on the African continent. IST Africa (2009:online) agrees and states that South African websites attract highly educated users everyday and that South Africa's internet use has grown 121% since 2007, indicating that technology has become an important part of citizens' lives.

4.3 THE BENEFITS OF USING INFORMATION TECHNOLOGY IN THE PUBLIC SERVICE

Van Straaten already stated in 1984 that using computers in government provides certain benefits, for example the programming of information to make it easily available and to improve effectiveness. Using computers also provide quick and better results for storing and retrieving large quantities of information and improve decision making in the public service (Van Straaten 1984:56–60). Boddy (1984:42) and Meadowcroft (2001:online) state that using a computer provides the following benefits:

- **Capturing of information**: a computer can process, accumulate, monitor and measure information easily.
- **Storing of information**: information can be converted to a digital form and can be retained and retrieved when needed.
- **Manipulate information**: a computer can rearrange information and make new calculations with available information.
- **Distribute information**: a computer can transmit, move and display information electronically.

According to the Economic Commission for Africa (2003:online) information technology is one of the key strategies that governments can use to reform and improve public service delivery. Information technology also improves accountability in government by making information quickly and easily available to citizens. Technology allows citizens

to participate more effectively in the global information economy, society and government.

The e-Government toolkit (2009:online), a toolkit that assists policy makers in developing countries to initiate successful e-government projects, states that using technology in government can benefit the public service, business and society in general. Some of the perceived benefits of using technology in government include the following:

- **More convenience**: By using government services online citizens don't have to wait in lines to be served at the counter. Citizens are able to save time, not miss work and can make use of government services when and where it is convenient for them.
- **Better customer service**: Technology can assist the government in providing better customer service by translating information quickly online or by giving access to government policies and information easily. Disabled citizens can have easy access to government information and services and citizens can get up to date news.
- **More information access**: Technology gives citizens access to information 24 hours a day seven days a week. Citizens can get government information over weekends and can search for information that is relevant to them instead of reading through irrelevant information. Technology can also provide governments with an opportunity to make economic, tax and investment opportunities available to investors or businesses.
- **Improved value for money**: Citizens can get quality services online at a lower cost than for example travelling to a government department. Government can also provide a simplified and fast service to citizens online and save time and money.
- **Improved productivity**: Improved productivity not only for the public servant but also for the citizen and the country's economy by being able to complete work faster and more effectively. Online transactions are faster to complete than face-

to-face transactions (ICT for government 2006:online; e-Government toolkit 2009:online). The European Institute of Public Administration (2005:18) also states that technology can make routine functions easier leaving public servants free to undertake more interesting and specialised tasks.

- **Supports legitimacy**: Every citizen gets the same treatment online with the same access to information ensuring equality and accountability. (ICT for government 2006:online; e-Government toolkit 2009:online).

According to an article by the Organisation for Economic Co-operation and Development (2002:online) technology gives government the opportunity to offer public services and to provide information and execute policies more efficiently. The Organisation for Economic Co-operation and Development (2002:online) also states that if more public services can be delivered through technology, government can save time and money by processing documents, such as licences or collecting taxes electronically. Apart from the perceived benefits that technology provides to government, information technology can also influence decision making in the public service.

Kotze (1985:42) and Shinnick and Ryan (2008:776) state that information is very important for a public servant to make effective decisions. To make effective decisions information that is made available to a public servant should be accurate, relevant and timely (Kotze 1985:42). Van Straaten (1984:40) states that making decisions in the public service has serious implications and inadequate information can lead to poor decision making and administration. Therefore, government should design information systems that can keep up with a changing world. Computers can make a significant contribution to improving decision making by processing data rapidly and storing large quantities of data until they are needed for decision making. Shinnick and Ryan (2008:776) state that individuals and businesses alike are using technology to collect and interpret information in their decision making activities. When decisions are taken information about the decision and its outcomes can be made available to all interested citizens quickly and easily (Economic Commission for Africa 2003:online). Ströh

(2007(b):140) states that the value of computers in decision making lies in the accuracy of calculations and the rapid rate at which information can be gathered, processed and made available to decision makers. The benefits of computers in decision making according to Ströh (2007(b):140–142) include the following:

- **Electronic data processing, storing and retrieval:** The memory of a computer can store large amounts of information in relatively little space. Data processing software can also be used to speed up calculations and make information available to public servants without delay. Computers can store large quantities of information that can be retrieved at a later stage or the information can be processed to provide new information. Ströh (2007(b):140) also states that it is impossible for a computer to make value judgements for a public servant. A computer needs input in the form of data and can then process such data into information and make the information available for value judgement and decision making to a public servant.
- **Expediting decision making:** Computers can improve the flow of information so that information can be made available more rapidly and expedite decision making. Computers can make information on comparisons or relations between alternative solutions available to public servants in a much shorter time. The benefit to public institutions for using computers to make complicated calculations in an instant is that a problem can be identified before it becomes very serious. Early identification of problems makes it possible for officials to bring such problems to the attention of public servants to enable them to make decisions on particular problems sooner.
- **Thorough analysis of alternative solutions:** The speed at which a computer can do complicated calculations enables public managers to classify and analyse large volumes of data within a relatively short period of time. This allows public servants more time to analyse alternatives and to solve problems. Public servants have more time to look at possible solutions and alternatives before making decisions. Through the analysis of alternative solutions public servants are able to predict the implications of their decisions with greater accuracy.

Holsapple (2008:843) also states that new knowledge can be obtained from existing knowledge by looking at different approaches and filtering the existing information in new ways to make innovative and better decisions.

- **Greater availability of time:** Occasionally public servants have to make a decision in which time is of the essence. Computers alleviate this problem because information can be made available to public managers more rapidly and this will allow them more time to consider proposals and alternatives. Having more time available to consider alternatives, makes it possible for public managers to delay their decisions. This provides public servants with the opportunity to collect additional information on alternative solutions and to reduce the risk of making the wrong decision. Without the assistance of a computer, data would have been produced slowly and decisions would have to be taken faster which may increase the risk of making the wrong decision. Burstein and Cowie (2008:638) agree and state that the development and speed of technology has increased the accessibility of data which in its turn has influenced the way that decisions are made, especially in critical situations.
- **Providing appropriate information:** A computer can be programmed to confine the available information to the problem being investigated. Selective availability of information means that public servants don't have to sift through large quantities of information and then analyse the information to get the relevant bits of information to solve a problem. Information that has been confined to the problem is summarised briefly and made available in an appropriate and useful format to public servants to improve decision making.
- **Reliability:** When doing complicated calculations manually, mistakes can be made, which can be prevented by using computer technology. Computer calculations take very little time and are accurate up to many decimal points. According to Sanders (1972:134–135) an individual would make one error in every 500 to 1 000 operations with a desk calculator. A computer can perform hundreds of thousands of arithmetic operations every second and can run calculations errorless for hours and days at a time.

- **Versatility:** The versatility of computers makes it possible to use information in many different ways. Public servants can approach sensitive issues from several angles before making their final decisions based on the timeous and versatile information at their disposal.
- **Sharing data:** The accelerated pace of getting, saving, communicating, publishing and distributing documents have facilitated working in groups and sharing documents and information quickly with others for more effective decision making (Rosenthal-Sabroux, Grundstein & Infrate 2008:585).

4.4 THE USE OF INFORMATION TECHNOLOGY IN THE PUBLIC SERVICE

Apart from the perceived benefits and use of information technology for decision making information technology in the public service can also be used to improve service delivery. Various service delivery initiatives have been undertaken by the South African government. These initiatives highlight the role that information technology plays in the South African Government. Before these initiatives are dealt with, however, the role of information technology in improving service delivery will be briefly looked at.

4.4.1 Role of information technology in improving service delivery

Seneviratne (1999:44) states that government is by nature an information intensive organisation. Large amounts of information are required to deliver public services, for example pension and unemployment administration (Seneviratne 1999:44). All government information must be stored, protected and made available when needed. Before the use of computers, information and reports were handled and completed manually (Seneviratne 1999:44).

The introduction of computers in the public service during the 1960s changed the process of information use and handling. Computers provide the opportunity to process large amounts of information in a shorter time (Seneviratne 1999:44). Zemanek (1983:13) states that the computer is a tool to administer, transform and retrieve information. The computer has shifted the limitations of quantity, speed and size.

A computer can be used to permanently accumulate and develop new tools and programmes, which assist in information storing and retrieving and can be useful in many new ways in government (Zemanek 1983:13). Kotze (1985:42–56) emphasised the importance of information for public officials, political office bearers, and the public- and interest groups:

For public officials information is important to:

- complete work and tasks allocated to them
- provide political office bearers with accurate advice and support
- provide the public with information and services that are relevant to them
- identify community needs and issues of importance
- communicate and interact with private business and institutions
- negotiate and communicate properly with other government departments and institutions
- create data that can be used for decision making and planning within the public service
- participate in the policy making process
- assist in organisational decision making
- improve problem solving
- draw up a budget and do financial planning
- complete reports and investigations quickly and easily

For political office bearers information is important to:

- make effective decisions for the government
- choose the best alternative to solve a problem
- meet the expectations and needs of the community they serve;
- formulate the needs of government properly
- do short, medium and long term planning to complete their tasks properly
- determine important issues that have to be discussed and debated
- draw up the yearly budget and allocate funds in government

- give guidance to the public servants and various government committees
- negotiate with outside organisations and businesses

For members of the public and interest groups information is important to:

- be informed
- participate in government decision making and create a more informed and engaged citizenry (National Research Council 2002:3)
- participate in government policy making
- gain access to government services (Kotze 1985:42–56)

Van Straaten (1984:5) and Potekar and Giragaonkar (2004:online) state that the use of information is increasingly important in government; government should continuously pay attention to information use, development, implementation and changing circumstances, for example using a computer in government to do information programming and planning.

Using information systems and technology properly assists the public servant in eliminating useless and duplicated information and improves the quality and effectiveness of service delivery and decision making in government.

Apart from providing services and making decisions, Van Straaten (1984:52) also states that information systems can assist the government in retrieving and saving information and making predictions on information that is available on a more cost effective basis. Computers also assist public servants in processing large, complicated and scientific information to improve service delivery.

Brown and Brudney (1998:423) state that apart from improving decision making and service delivery, technology can also streamline work processes, enable easier access to information, assist in providing better products, save money by avoiding workforce expansion, speed up transactions and provide better data security.

Lodge and KalitowskI, (2009:39) state that technology has developed quickly over the past decades and was initially embraced by the private sector to encourage innovation. The public sector, however, also has an important role to play to investigate the benefits of information technology to improve innovation and productivity, reduce costs and create new ways of providing public services.

Computer technology more recently paved the way for the development of a knowledge based economy and information society. According to the South African Department of Trade and Industry (2009:online) the internet for instance, contributed to the development of new applications and services in the areas of knowledge management and communication that can be used by governments to educate, inform and provide services to citizens.

The use of technology at work and at home has increased worldwide. According to the Department of Trade and Industry (2009:online) the amount of information on the internet is estimated to double every 100 days. The demand for and use of information technology in a knowledge based economy and information society has prompted many governments to provide citizens with more information and better services by making use of technology (DTI, South African ICT sector development framework 2009:online).

4.4.2 Government actions confirming a sensitivity for the importance of information technology

In South Africa the government has also accepted the importance of the growing information society and the benefits of using technology in government. The South African government's commitment to improving information dissemination and use across the population was already illustrated in 1995 when Mr Thabo Mbeki, (the then Deputy President of the Republic of South Africa) stated at the G7 Information Society meeting in Brussels, "… we must strive to ensure that each individual, whatsoever his or her station in life, plays a meaningful role in decision making and in governance. One of the ways this can be done is to ensure that citizens have access to information" (Mbeki

1995:online). The South African government published a Green paper on e-commerce" in November 2000 (Fraser-Moleketi, Budget vote speech 2002:online). This was done to make people aware of the influence that information technology has and could have on South Africa. The Green Paper (2000:15) formulates the view of the South African government regarding the influence of information technology as follows:

> … the increasing pace of technological innovation such as the rapid integration of the Internet and other telecommunications based activities into nearly every sphere of life has given rise to new ways of communicating, learning and conducting business. The Internet has facilitated the establishment of a borderless environment for communications and the electronic delivery of certain services. Convergence of technology is the major driving factor that contributes to the exponential growth of electronic commerce. Convergence goes beyond the use of technology to develop new products and services and is seen as a vehicle to improve the quality of life of society in South Africa and other developing countries (South Africa Department of Communications Green paper on e-commerce 2000:15).

Along with the Green paper on e-commerce the Department of Public Service and Administration was mandated to promote the use of information technology to improve public service delivery in South Africa. One of the projects that were undertaken by the Department of Public Service and Administration was the development of the State Information Technology Agency (SITA) that was established in 1999. SITA focuses on the effective and efficient provision of information technology products and services across the three spheres of government, namely, national, provincial and local government. SITA is committed to providing information and communication technology as a strategic resource for the South African government (SITA 2007:online). The functions of SITA include the following (SITA 2007:online):

- to improve service delivery to the public through the provision of information technology, information systems and related services, in a maintained

information systems secure environment, to government departments and public entities

- to promote the efficiency of government departments and public entities through the use of information technology
- certification of information technology goods and services
- perform information technology research on behalf of departments
- compile and maintain an up-to-date inventory of information systems of government departments (SITA 2007:online).

Apart from SITA the Department of Public Service and Administration was mandated by government to promote the use of information technology and information management to improve service delivery in the public service (DPSA 2009:online). The objectives of the Department of Public Service and Administration with regard to information technology include the following (South Africa Presidential Review Commission Report 1998:6):

- promote the concept of information as a strategic resource
- facilitate the creation of a culture of sharing and using information
- promote the principle of aligning information and technology strategies, objectives and processes
- promote the concept of re-engineering of processes to ensure that they add value to the service being provided
- identify and coordinate information sources and needs
- investigate and establish norms, standards, principles and mechanisms to enable information sharing
- build capacity in government to better manage information (South Africa Presidential Review Commission Report 1998:6).

To obtain these objectives the Department of Public Service and Administration led the process in the establishment of the Government Information Technology Officer's Council (GITO) (DPSA 2009(c):online). The Council was created to assist government

on a continuous basis to intervene in the interest of enhancing service delivery to citizens (DPSA 2009(c):online).

The Council participated in the formulation and development of an information technology security policy, e-government policy and information technology procurement guidelines (DPSA 2009(c):online). The Council also assists in monitoring information technology projects in government to prevent duplication and to facilitate the development of a single access window to government services for citizens (DPSA 2009(c):online).

Other functions of the Government Information Technology Officer's Council include (Department of Public Service and Administration 2001:14):

- monitoring the impact of information technology on government programmes
- determining information technology skills needed to enhance government service delivery for the medium and long term
- assisting in doing information technology research to enhance service delivery
- implementing a communication strategy to promote the importance of information technology initiatives (Department of Public Service and Administration 2001:14).

The Department of Public Service and Administration drafted an e-government policy in 2001 (DPSA 2009(b):online). The policy outlined a ten year implementation plan for implementing e-government in South Africa. According to the Department of Public Service and Administration (2009(b):online) e-government can be defined as the use of information and communication technology to promote a more efficient and effective government, facilitate more accessible government services, allow greater access to information and to make government more accountable to citizens (DPSA 2009(b):online).

According to South Africa info (2009:online) e-government is the integration and use of information and communication technology within government departments to improve

the delivery of services to the public by making use of e-services to provide, for example, education, health and administration to citizens (South Africa info 2009:online). An important e-government initiative that the Department of Public Service and Administration undertook was the development of the South Africa Government Online gateway.

This gateway that was initiated in 2002 is a single electronic gateway that facilitates access to all information about and services provided by the government. The overall vision of the gateway is to provide access to government services, any time, any place, within a clearly defined and executed e-government strategy. Access to public services is the most important aspect of the gateway.

The South Africa Government Online gateway has since its inception increased the government information that is available to the public (DPSA 2009(b):online). Information that is available on the gateway includes the following:

- Access to all government department web-sites.
- Access to all government documents.
- Obtain government reports.
- Download various government forms, for example: visa applications, passport applications, birth certificates, marriage certificates, death certificates, temporary residence permits, permanent residence permits, application for registration as a voter and unemployment insurance fund registration.
- Download all government speeches.
- Get an overview and information about South Africa.
- Obtain information about travel and tourism in South Africa.
- Access to government notices.
- Download the various Acts, Bills and draft Bills.
- Look at new government tenders and tender regulations.
- Frequently asked questions about the South African Government system.

- News statements and press releases made by the South African Government (DPSA 2009(b):online).

After the inception of the South African Government Online gateway other e-government projects were initiated, for example, the Cape Province Gateway project, e-filing of tax, the 2010 FIFA world cup website and the Department of Trade and Industry (DTI) Broad Based Black Economic Empowerment website (B-BBEE).

This website was created in partnership with a number of non-profit organisations to develop a database of black economic empowered (BEE) companies through the use of technology. The first phase ended in March 2003 with a database of 250 companies. The second phase added an additional 600 companies to the list, making it one of the most up to date lists of its kind in South Africa (DTI, 2009:online). The website is a valuable tool to provide BEE companies with a powerful marketing platform to showcase their companies and initiatives to both local and international businesses, organisations and interested persons (DTI, 2009:online).

Apart from the initiatives by the Department of Public Service and Administration, the Public Administration Management Bill (47 of 2008) states that a "minister must promote the use of information and communication technology in institutions to enhance the efficiency of their internal and administrative operations". This includes the development of a framework to facilitate and coordinate the development and enhancement of electronic services and to create a positive environment for the use of e-government in South Africa (Public Administration Management Bill 2008:Section10).

Another government department that promotes the use of technology in government is the Department of Science and Technology (DST). This Department aims at introducing measures that will put science and technology to use to make an impact on growth and development for all South African citizens. The Department of Science and Technology provided South Africa with an information technology roadmap that provides ideas of

what future technology can exist and what can be expected of technology over a ten year timeframe (DST 2009(a):online).

Apart from the roadmap, the Department launched the Meraka Institute in April 2005. This Institute, which includes the Centre for High Performance Computing and the South African National Research Network, is responsible for information technology research (DST 2009(a):online). The technology and research that the Institute develops are being used in a number of African countries and have linked rural areas in South Africa to information networks, for example, Telehealth (DST 2009(a):online). Telehealth provides clinic sisters in rural areas with access to doctors and data and information in city hospitals. Telehealth makes use of wireless, voice and video technology and allows for better healthcare in rural areas (South Africa info 2004:online).

The Department of Communications (DOC) has the mandate to create a favourable information and communication technology environment that ensures South Africa has capacity to advance its socio-economic development goals and to support the renewal of the continent (DOC 2009:online). To do this the Department assists in developing information technology policies and legislation, develops affordable technology infrastructure and strengthens technology regulators (DOC 2009:online).

In 2007 the Deputy President of South Africa at the time, Phumzile Mlambo-Nqcuka (2007:online), stated that ICT is crucial for the future economic and social development of South Africa. She also stated that technology should be used to make a better life for all the citizens of the country. In 2008 the Minister of Public Service and Administration stated that “there should be no wrong door when a citizen needs to access a service, regardless of what the service is and through which government department it is offered. Information and communication technology is at the heart of this; it provides the means by which government officials are able to access data which underpins the provision of any service” (ITWEB 2008:online).

This was also reiterated by the new Minister of Public Service and Administration in September 2009 when he stated that information technology should be used to improve the lives of citizens and that citizens should be at the heart of all technology initiatives (DPSA 2009:online). However, the Department of Communications stated that, for South Africa to participate fully in the information society, information and communication technology literacy and skills at all levels of society and government are becoming increasingly important (DOC 2007:online).

4.5 INFORMATION TECHNOLOGY SKILLS REQUIRED BY PUBLIC SERVANTS

Information technology skills that are required by society at all levels have lead to the Department of Communications' (DOC 2007:online; cf PNC 2007:online) classification of information technology skills into three areas, namely:

- information and communication technology skills needed for modern life outside the workplace, known as digital literacy or e-literacy
- information and communication skills in the workplace to respond to changes in business and industry
- information and communication technology skills for specialists in the information technology industry (DOC 2007:online; cf PNC 2007:online)

The skills area "information and communication skills in the workplace", mentioned in the second bullet above, is the focal point for this research. These skills include skills for working with information systems and computers in the public service (Van Straaten 1984:72–73). Apart from the areas into which information technology can be divided Van Straaten (1984:72–73) also states that information technology skills for public servants is an important aspect that should be remembered when working with information systems and computers. Kotze (1985:52–53) states that public servants need to gather information and data to be able to do their jobs as professional administrative functionaries of the government. Public servants need the skills to gather and use information to complete government tasks, do planning and to provide information to political office bearers and the public.

Computer skills for public servants were already highlighted in 1988 when the National Association of Schools of Public Affairs and Administration (NASPAA) added computing as a skill in the Masters of Public Administration (MPA) programme (Pavlichev & Garson 2004:264). More recently Northrop (1999:14–15) states that a person looking for employment in government will be expected to have some computer skills. Northrop provides a list of generic computer skills that any professional public servant should have. These skills include the following (Northrop 1999:14–15):

- **Word processing:** Word or WordPerfect is being used by governments, business and citizens and a general knowledge of how to use these programmes is important to work on documents and information.
- **Spreadsheets:** spreadsheets are used in the accounting function of any department of government. Spreadsheets can also be used for working out formulas and for public works administration.
- **Graphics:** according to Northrop the ability to do graphics is very important. Pictures are remembered better and can therefore make a report or presentation clearer and more powerful.
- **Data management:** database management allows a public servant to keep track of everything that he/she is working on from spreadsheets to mailing lists.
- **E-mail:** E-mail helps public servants to communicate faster while saving time and money.
- **Internet:** governments are making use of the internet to communicate with citizens. The internet is also used by governments to provide services to the public.
- **GIS:** Geographic Information Systems are used for planning, public works and assist with mapping areas.

Northrop (1999:18–19) also states that a public administration graduate needs hands-on skills in computer applications that include the generic computer skills mentioned above. Graduates of Public Administration that will become public servants need to

manage, use and understand information technology and computer applications to be effective and efficient in their jobs. Holden (1999:76) states that information technology has become an important part of the public service and can therefore not be left to the domain of “computer graduates”, public servants should know how to collect, process, store and disseminate information and use technology.

According to the European Institute of Public Administration (2005:17) the use of information technology and the internet in public administration calls for new skills to assist change in government. Information technology, the internet and e-government imply a modernised way of service delivery, sharing data and communicating. Apart from basic technical skills, public servants need an understanding of information management and the information society (European Institute of Public Administration 2005:17).

The European Institute of Public Administration furthermore states that public servants should have traditional skills, for example human resource management, organisation skills, financial management skills and policy making skills as well as new information management skills. These information management skills include basic knowledge of computers and standard computer programmes. More advanced information technology skills for example, software development, web design and database design can be required depending on the type of work the public servant does (European Institute of Public Administration 2005:17–18).

The Organisation for Economic Cooperation and Development (OECD) (UNU 2007:online) agrees with the European Institute of Public Administration and states that information technology skills are relevant to government employees; the increasing integration of information and communication technology into public administration means that technology skills should be included in the work and knowledge of public servants. Public servants should understand how technology can be used to accomplish or improve government processes and work. According to the Organisation for

Economic Cooperation and Development the information technology skills that a public servant should have, include the following categories (UNU 2007:online):

- **Information technology skills**: These are technical skills that a public servant needs to implement, for example e-government. Information technology literacy is as important as technical technology skills, for example, what is hardware, software, technology networks, database, support services for technology and what kinds of communication tools that can be used. Ongoing information technology skills-training is important to ensure the effective use of technology in government.
- **Information management skills**: This implies the sharing of knowledge and information within a department or the sharing of knowledge with citizens outside a department. Information management skills are important to coordinate and collaborate within – and outside a department to provide public services and information.
- **Information society skills**: These skills include the ability to use information and communication technology resources to provide government services. The skills include an understanding of new technology and how technology can relate to service delivery in government.
- **Acquisition skills**: This includes the ability to define, use and maintain information technology products and services.
- **Information professionalism skills:** Basic information professionalism skills include the sourcing, storing, retrieval, dissemination and archiving of information.
- **End user skills:** This includes general basic information technology skills (UNU 2007:online).

According to the Directors General Responsible for Public Administration in the European Union (2003:online), basic information technology skills for public servants are no longer relevant. Public servants currently need more advanced information technology skills to make proper use of document management and government

databases. This is also confirmed by the European Institute of Public Administration (2005:18) that states that modern working conditions require more advanced skills and technology competencies in fast changing government work.

According to techlearning.com (2009:online) and evalutech (2009:online), two websites that look at the importance of technology and education, information technology skills that are required in the 21st century by learners to be able to enter into any profession include the following:

- **Information and communication skills:** this means being able to use communication, information processing and research tools for example word-processing, email, groupware, presentation software, and the internet to access, manage, integrate, evaluate and communicate information.
- **Thinking and problem solving skills:** using problem solving tools such as spreadsheets, decision support and design tools to manage complex problems and to think critically.
- **Interpersonal and self directional skills:** being able to use personal developmental and productivity tools, for example e-learning, time management and collaboration tools to enhance productivity and personal development.
- **Digital technology and communication tools skills:** using digital technology and communication tools to access, manage, integrate and evaluate information, construct new knowledge and communicate with others effectively by using e-mail, presentation software, the internet, spreadsheets, decision making programmes, design tools, e-learning and collaboration tools (techlearning 2009:online; evalutech 2009:online).

In South Africa the *Report of the Presidential Review Commission on the Reform and Transformation of the Public Service in South Africa* (1998:25) states that an emergency development programme for information technology training of public servants should be initiated. In February 1998 the Presidential Review Commission (1998:30) further reported that in order to address the critical skills shortage in the public service a skills

development plan will be designed and implemented to train new entrants in the public service in information management and technology.

According to the Department of Public Service and Administrations' publication, *Electronic government: the digital future* (2001:10), the development of information technology skills in the South African government cannot be left to chance. To transform any government to make better use of information technology, the technology skills of public servants must be developed. The development of information technology skills in South Africa is also confirmed by the SITA 2008 Annual Report (2008:15) that sees the shortage of information technology skills in the country as a major challenge in the public and private sector.

To address these challenges, the Meraka e-Skills Institute was developed under the auspices of the CSIR and the Department of Science and Technology. Training is provided by the institute to government officials, working professionals, community development workers and graduates. Training programmes at the institute focus on information and communication technology practitioner skills, information technology user skills, electronic business skills and electronic literacy skills (DST 2009(b):online).

Apart from providing skills the e-Skills Institute supports South Africa's commitment to the World Summit on the Information Society Plan of Action that took place in Genève during 2003. At the Summit world leaders from all countries met to create a shared vision, mission and action plan for the development and use of information and communication technology and to build a people-centred, inclusive and development-oriented information society. In this information society all citizens should have access to information and knowledge as well as education and training in this regard to be able to develop and improve their quality of life by acquiring the necessary skills and knowledge to understand and participate in the information society.

Technology should be used in the information society to educate, train and develop human resources (World Summit on the Information Society 2003:online). The

Department of Science and Technology agrees with the World Summit on the Information Society and states that the development and availability of appropriately skilled human resources is the most important resource in developing and building the country. They conclude by stating that “skilled people are the lifeblood of the knowledge-based economy” (DST 2009(b):online).

4.6 INFORMATION TECHNOLOGY SKILLS IN THE PRIVATE SECTOR

Apart from the public service, information technology has been used in the private sector for some time. The information technology needed to respond to changes in business and industry has been used with success in the private sector and has enabled the private sector to increase productivity and competitiveness (ICT Skills Monitoring Group 2002:online). Borade (2010:online) states that the advantages of using technology in business include improving business administration, production, communication and timeliness, and streamlining business processes.

The use of the internet has made many businesses more productive and has resulted in greater profitability through access to global clients. Online businesses are available 24 hours a day, seven days a week from remote locations, giving them the opportunity to communicate with clients and to receive and exchange more products, services and ideas (Borade 2010:online).

The effective use of technology in business has led to the use of the term "e-business" (Wikipedia 2010:online). E-business includes all business processes, for example the electronic purchasing of products, processing orders electronically, completing all customer services online and cooperating and communicating with all business partners electronically (Wikipedia 2010:online). Andam (2003:online) states that in e-business, information technology is used to enhance business opportunities; this includes any process that takes place within a business. According to Andam (2003:online) and Leonard (2010:online), the benefits of having an e-business include the following:

- **Easier production processes**: including easier procurement, ordering and replenishment of stocks; processing of payments; electronic communication with suppliers; and production control processes.
- **More customer-focused processes:** including easier promotional and marketing efforts, selling via the internet, fast processing of customers' purchase orders and payments, and fast and easy customer support.
- **Convenient internal management processes:** simplified employee services, training, easy internal information-sharing and convenient online recruiting of personnel.
- **Removal of location and availability restrictions**: A business does not need a physical location. A physical location is restricted by size and limited to only those customers who can get there, while an online business has a global marketplace with more customers online than would be the case during normal working hours. The cost of maintaining an online site is less than renting a physical location.
- **Improved customer service**: customers receive more customised and specialised service, with less time spent travelling to businesses and waiting in line. An online business is never closed and information is quickly and easily available to clients.

These are some of the advantages of having an e-business; however, as with the public service, employees in private business also need technology skills to benefit from the advantages that technology offers them. The ICT Skills Monitoring Group (2002:online) states that the rapid growth of information technology in business has led to an increased demand for technology skills for business. According to Kolding and Kroa (2007:online) the information technology skills needed for business include basic and advanced technology skills.

Basic information technology skills for business include the ability to use e-mail, the use of word processing tools, the ability to obtain, store, retrieve and disseminate information, as well as the ability to use spreadsheets and presentation software.

Advanced information technology skills for business include the use of software tools and specialised tools that support business, for example, using technology to do accounting, sales or marketing online, as well as improving planning, decision making, implementation, monitoring and evaluation.

From the above it can be seen that information technology has benefited business in various ways by, for example, improving customer service and providing services and products faster. The information technology skills that are needed for business include some of the skills that have already been mentioned as skills that are also relevant in the public service. The ability to use word processing skills, e-mail and spreadsheets, for example, is mentioned as being important for both the public and the private sector. Such skills include the ability to obtain, store, retrieve and disseminate information. Accordingly, it can be concluded that some technology skills (especially those skills in the workplace) are important for both the public and the private sector to function properly.

Although the other two categories of skills in the classification system of the Department of Communication (information and communication technology skills needed for modern life outside the workplace, known as digital literacy or e-literacy and information and communication technology skills for specialists in the information technology industry) are also important in the broader sense of the Department's responsibility, they do not directly impact on workplace skills, which form the focal point for this research.

Apart from looking at the current information technology skills that is needed in the public and private sector, AllAfrica.com (2008:online) an African news, government and information website, states that government should also look at the future of technology and the future skills that will be needed in the public service, economy and global market in this regard.

4.7 THE FUTURE OF TECHNOLOGY

Citizens are becoming more vocal about their needs and the pressure to improve public services is increasing with high expectations being placed on governments throughout the world (Accenture 2009:online). Improvements in private sector goods and services have led people to expect better, more personalised, responsive and efficient public goods and services as well.

The development and use of technology that has been used by the private sector could also assist the public sector in this regard (Accenture 2009:online). Deloitte (2009:online) states that with the development of Web 2.0 technology, life has entered a new phase that includes low cost collaboration tools that have a big impact on citizens and governments.

Web 2.0 includes social networking web sites, blogs and wikis that create a shift in how people communicate and how governments currently and in future will communicate with citizens. Web 2.0 is a cultural advance that views the internet as a platform to create new ideas, design new policies and to provide services. Web 2.0 technology creates the opportunity for more interaction, collaboration, citizen participation and the sharing of ideas (Deloitte 2009:online).

Accenture (2009:online) states that business has already seen the benefits and advantages of using technology such as Web 2.0, but this technology can also benefit governments. Web 2.0 represents a move to more citizen centred and participatory government. The French government is already making use of a Web 2.0 website and created a discussion forum with wikis and videos to increase debate on government issues and to get citizens participating in government.

Candidates for the European elections also made use of social networks and technology to support their campaigns. The candidates in the 2008 Presidential election campaign in the United States of America used technology and social networks

including blogs, Twitter, Facebook and text messaging very successfully in their Presidential campaign. Since the election, citizens and government departments in the United States of America are encouraged to use Web 2.0 technology.

The Department of Health and Human Services in the United States of America, for example, used Web 2.0 to create a blog about an influenza pandemic. This blog was accessed by experts and citizens and created an influx of new thinking, participation and ideas for government (Accenture 2009:online).

The Government of Finland maintains a discussion forum that enables citizens to comment on government initiatives. Citizens can use a message board or connect with ministers for online chats. The Finnish Government sees this as an opportunity to create citizens' participation in government by also using e-voting and the electronic submission of new motions and ideas (Accenture 2009:online).

According to IBM (2009:online) virtual worlds have now come to the fore as the most interactive form of engagement available on Web 2.0. Virtual worlds is a new way of gathering people together and communicating in real time, in a customised environment, the metaverse, and presents new possibilities for the public service of reaching and communicating with citizens.

The virtual world that was created in Second Life, a three dimensional world that has residents known as avatars that build the virtual world, also has new implications and possibilities for governments to use virtual applications to promote government to citizens (itworldcanada 2009:online). Second Life has digital infrastructure including homes, vehicles, jobs, nightclubs, shops, landscapes, clothes, islands, schools, companies and governments. Second Life has an economy based on Linden dollars, with about 265 Lindens to the US dollar. Second Life is a good place to meet, reach and leave messages for people on various topics including health, science, education and current issues in government (America gov 2007:online).

According to IBM (2009:online) the virtual environment in, for example Second Life, offers the following opportunities:

- a new and unique opportunity to engage with people from around the world in "real time"
- a new way to observe how individuals interact with – and react to each other
- a unique opportunity to look at how individuals form friendships and alliances
- an opportunity to see how individuals and organisations employ social networking for both personal and professional purposes

IBM (2009:online) states that these opportunities found in the virtual world can help in the exchange of information and ideas between citizens and public services making the government more effective.

The American National Oceanic and Atmospheric Administration (NOAA), The National Aeronautics and Space Administration (NASA), the National Institute of Health (NIH), the Centre for Disease Control (CDC), The Central Intelligence Agency (CIA), the US Army, the US Air Force and the US House of Representatives all form part of Second Life. Of all the US government agencies in Second Life, NOAA is the best represented with its own island where visitors can experience a hurricane, rise through the atmosphere by using a weather balloon, stand on the beach during a tsunami, or walk on a virtual glacier to explore the impact of global warming. It is also possible to obtain real world weather information while being in the virtual world (American gov 2009:online).

In Canada the Vancouver Police Department uses Second Life to recruit new employees that are highly skilled, and who understand and use technology. IBM (2009:online) states that "as we move into the future, we're going to need people who understand technology, that are conversant with it, that understand the impact of it and understand how to use it".

The Ontario Government has two islands in Second Life that also have helped the government to recruit and reach out to citizens in an interactive way. The first Ontario Island was the Ontario Public Service (OPS) careers island that provides information on employment in the Ontario public service. The island has a central hub with information on available public service careers and allows for five interactive job experiences. Digital Ontario Island provides visitors with information about the Ministries' social and economic planning. Each of the government's focus areas has its own designated station to explain and demonstrate its purpose and goals. A number of images, videos, and interactive features are used to connect and communicate with citizens. Each station provides citizens with the opportunity to give feedback, ask questions and express their feelings and concerns about government activities (modderncommunication 2009:online).

The City of Birmingham also established an island in Second Life and is using the virtual world to interact and provide services to the public. Birmingham Island integrates other online applications such as Google Maps and RSS feeds (a RSS feed is known as a "Really Simple Syndication" that is used to publish frequently updated information, for example news headlines). RSS feeds are used on Birmingham Island to provide citizens with a map of Birmingham and a physical city centre. This also allows visitors to experience the city, get information about key buildings in the city, browse attractions and amenities and promotes tourism to Birmingham (publictechnology 2009:online).

Italy is also using Second Life to promote tourism by making use of Toscana Island where visitors can explore Tuscan art, culture and landmarks, for example the Tower of Pisa. This island includes the Intoscana Store where virtual world visitors can purchase real world items (IBM 2009:online).

Apart from tourism, a number of countries have opened virtual embassies in Second Life, for example, the Maldives, Sweden, Estonia, Kazakhstan and Serbia have all opened their embassies in the Diplomatic Quarter of Diplomacy Island (IBM 2009:online).

According to itworldcanada (2009:online) time and space boundaries are eliminated in Second Life with virtual conferences taking place and meetings being scheduled in real time in the virtual world. IBM (2009:online) states that the benefits of having meetings or conferences online include the following:

- overcoming the isolation of workers dispersed in remote locations
- allowing for more interaction, collaboration and connectedness between workers in multiple sites in the virtual world
- reducing the need for people to travel to be able to participate in a meeting or conference (creating more time for them with their families)

IBM (2009:online) also states that in 20 years' time meetings and conferences in the virtual world will be commonplace while at the same time benefiting the economy and environment. With more than 12 million members Second Life is already becoming the preferred way of communication and interacting for a new generation (itworldcanada 2009 online).

IBM (2009:online) further more states that by 2011 all active internet users will have a second life in the virtual world. This next generation of technology users will demand that government functions differently and provides services distinctly to meet their needs (itworldcanada 2009 online).

IBM (2009:online) also states that by the year 2020 virtual worlds will be as widespread as the internet is currently and may actually replace the internet. The South African Scenario 2025 (2008:online) states that in future, in approximately the year 2025, billions of people will have access to information technology that will allow users to network and connect in dynamic new ways. This will change productivity and the way people work, travel, form relationships and interact with government.

Cordis (2009:online) states that in future citizens will live in a world of networks where citizens will be permanently connected from anywhere to all information. Information will change faster and technology will become cheaper and benefit more citizens. In future citizens will be more involved in creating information and working with information will be an important part of every citizen's life (technorealism 2009:online).

From the above it can be seen that the use and development of technology is increasing throughout the world and is affecting the way governments will work and provide services in the future. Many governments are already using technology to communicate with citizens and to provide them with services.

Technology users are also becoming more sophisticated and expect that services will be provided to them by making use of technology. It is therefore becoming increasingly important for public servants to have the skills and abilities to use these technologies and to meet the needs of a technology literate society.

In future a public servant will use technology to communicate with citizens, provide them with services, make more and important decisions on the information that is available and make use of a virtual world to attend meetings and to complete tasks. Universities will also be under increasing pressure to adopt a curriculum that will provide public servants with the skills and knowledge they need to function in the future's virtual world.

4.8 CONCLUSION

This chapter showed that information technology is increasingly being used in the public service. Various authors including Van Straaten already stated in 1984 that information and computers can benefit the work of government. The ability to use, store, retrieve and format information is relevant to every public servant's work. Kotze also stated in 1985 that information allows public servants to make effective decisions and to perform their functions properly.

The South African public service is also aware of the important role that technology can play in government departments, for example, the Department of Public Service and Administration and the Department of Science and Technology making use of technology to provide information and public services to citizens. To be able to provide these services and information online, public servants need the skills to make use of technology. Northrop gave a list of technology skills that a public servant should have; these include the utilising of word processing, spreadsheets, graphics, data management, e-mail, internet and GIS.

But apart from the skills that a public servant needs currently, various authors state that basic technology skills in an information society are not sufficient and that public servants in future will have to look at more advanced technology skills to keep up with a changing world. The future of technology in a virtual world will require of public servants to work online in a three dimensional world to meet the needs of a new generation of information technology users.

The next chapter will provide an overview of the curricula that comprehensive universities, traditional universities and universities of technology are currently using to teach Public Administration to students in order to determine if the curricula include modules or courses in information technology.

CHAPTER 5
UNDERGRADUATE PUBLIC ADMINISTRATION CURRICULA IN SOUTH AFRICA

5.1 INTRODUCTION

The importance of information technology for decision making and the provision of public services were indicated in chapter 4. The importance of using technology by public servants, political office bearers, citizens and interest groups was also explained. Chapter 4 provided an overview of the technological skills that are needed by public servants to perform their tasks properly and to complete their work in a growing information society. Lastly chapter 4 looked at the future of technology in a virtual government and why it is becoming increasingly important for public servants to have computer skills and knowledge.

Chapter 5 provides an overview of the undergraduate curricula of the subject Public Administration at universities, universities of technology and comprehensive universities in South Africa. This chapter will determine if the current curricula that are being used by these higher education institutions include information technology to provide future public servants with the computer skills and knowledge that they need to function properly in a growing information society. This chapter will also provide an overview of the higher education landscape in South Africa and explain the meaning of comprehensive universities, universities and universities of technology.

This chapter consists of a comprehensive literature study that relied heavily on the reading and analysing of books and journal articles to get a clear understanding of the higher education landscape in South Africa. This chapter also made use of a comprehensive internet search to find relevant information about the current Public Administration curricula that are being used by higher education institutions in South Africa. If the curriculum of a particular higher education institution was not available

online, the institution was contacted by e-mail or telephonically to obtain the Public Administration curricula that is being used by the institution. In various cases the calendar or year book of a particular university was obtained and the Public Administration curricula being used evaluated. These curricula were assessed and evaluated to determine whether information technology formed part of the Public Administration curricula for undergraduate students.

5.2 THE HIGHER EDUCATION LANDSCAPE OF SOUTH AFRICA

Prior to 1918 South Africa only had one university, the University of the Cape of Good Hope that was established in 1873, which served as the examining and degree granting body for various university colleges (CHE 2004(c):10). Metrowich (1929:3) states that the University of the Cape of Good Hope was modelled on the lines of the University of London and set the standards for higher education in South Africa. This University remained the only university in South Africa until the end of the First World War, serving as an examining and degree granting body mainly for candidates put forward by the university colleges that emerged in the period before the war (CHE 2004(c):10).

In the Cape Colony this included the South African College, Victoria College of Stellenbosch that emerged out of the Stellenbosch Gymnasium in 1881 and Rhodes University College that was established in 1904 out of St Andrews in Grahamstown (Cooper & Subotzky 2001:4). In Port Natal the Natal University College was established in 1909 in Pietermaritzburg out of the Maritzburg College and with a campus that was later established in Durban. Stimie and Geggus (1972:25) state that after South Africa became a union in 1910 the growth of university teaching was rapid and there was a great deal of controversy, discussion and investigation as to future development. In 1914 a government commission was established that proposed a university for the South.

During 1915 the South African College and Stellenbosch College agreed to support a new Bill of parliament. The Bill that was enacted in 1916, namely The University Act of 1916 granted these institutions full university status. The South African College later

became the University of South Africa (UNISA) that would be administratively based in Pretoria (UNISA HEQC 2008:4–12). The Act also established the University of Cape Town and the University of Stellenbosch.

In the course of 1922 the South African School of Mines and Technology obtained its own university charter from parliament and became the University of the Witwatersrand (Cooper & Subotzky 2001:6). In 1930 the Transvaal University College withdrew from the federal structure under UNISA and became the University of Pretoria (Cooper & Subotzky 2001:6). UNISA was restructured after 1946 as a distance learning university for South Africa (UNISA HEQC 2008:4–12).

After the Second World War the other university colleges became full universities, creating the Natal University in 1949, the University of the Orange Free State in 1950, and Potchefstroom University and Rhodes University in 1951 (Cooper & Subotzky 2001:7). Port Elizabeth University was established in the Eastern Cape in 1964 and in 1967 the Rand Afrikaans University was opened in Johannesburg (Cooper & Subotzky 2001:7).

Due to segregation within the South African higher education landscape universities for different ethnic groups were located in specific rural areas. This included the University of Fort Hare that was established in 1959, the University College of the North that was opened in 1960 in the former Northern Transvaal and the University College of Zululand that was opened in 1960. These university colleges fell under the control of the Minister of Bantu Education and the academic trusteeship of UNISA (Cooper & Subotzky 2001:7). Higher education for coloured groups was provided at the University College of the Western Cape that was established in 1960. In the same year the University College of Durban Westville was opened for Indian groups in Durban (Cooper & Subotzky 2001:8). At the end of 1970 these five university colleges became independent and were seen as full universities (Stimie & Geggus 1972:30).

Throughout the 1970s and 1980s universities were created in the self governing homelands that included the University of Transkei, that was opened in 1977, the University of Bophuthatswana in 1980, and in 1982 the University of Venda and the University of Qwa Qwa were opened (Cooper & Subotzky 2001:8). The Medical University of South Africa (Medunsa) was opened north of Pretoria in 1976 for medical education and training and VISTA University was opened in 1982 with seven campuses around South Africa to provide distance education (Cooper & Subotzky 2001:8).

Technikons as higher education institutions originated from the Colleges of Advanced Technical Education (CATEs) that were established by an Act of Parliament in 1967 stating the importance for the establishing of technical higher education (Academy for Educational Development 1992:81). Technikons were instituted to provide advanced technical education; preparing students for a specific profession or career. Its aim was focused on the practice, promotion and transfer of technology (Academy for Educational Development 1992:81). Technical education was needed from an early stage in South Africa to be used in the mines and railways throughout the country (Cooper & Subotzky 2001:8). Technical colleges provided these technical skills after matriculation with courses in engineering. After the Second World War technical colleges began to expand their post matriculation classes especially in certain engineering fields and new technology (Cooper & Subotzky 2001:9). A polytechnic system emerged in South Africa with the Cape Technikon, Natal Technikon, Pretoria Technikon and the Technikon of the Witwatersrand being formed. Additional technikons were later formed in the Vaal Triangle, Port Elizabeth, and the Free State while the Technikon South Africa was formed to provide distance education (Cooper & Subotzky 2001:9).

Technikons were also created for black, Indian and coloured groups with the formation of the ML Sultan Technikon, Peninsula Technikon, Mangosuthu Technikon, Northern Transvaal Technikon, North West Technikon, Transkei Technikon and Border Technikon. Since the end of the First World War till the late 1980s South Africa had 36 higher education institutions, more than any other country with a population of under 50 million people (Cooper & Subotzky 2001:10).

However, the change to democracy in South Africa after the first democratic elections in 1994 lead to a rethinking of higher education (Department of Education 1997:1). Jansen (2003:30) states that South Africa's transition from an apartheid state to a post-apartheid society lead to a fundamental change at all levels of education.

Historically black universities and technikons were experiencing ongoing conflict and instability with students being unhappy with institutional leadership and study fees (Jansen 2003:31). These historically black universities (HDIs) were mainly located in under-developed, poor rural areas with little infrastructure (Jansen 2003:31). According to Jansen (2003:31) South Africa had a number of higher education institutions spread thinly and unevenly throughout urban and rural areas with differing capacities for teaching, research and development. Jansen also states that, given the racial origins of these institutions, the distribution of higher education was inefficient and ineffective (Jansen 2003:31). As a result of these inequalities the Minister of Education sought the advice of the Council on Higher Education (CHE) in 1999 to reshape the higher education landscape in South Africa (CHE 2004(a):27).

A CHE task team was appointed and a policy development process started that led to institutional mergers and incorporations that started in 2004. These mergers lead to the reduction of the number of higher education institutions in South Africa. The CHE (2004(b):28) states that the mergers of the higher education institutions in South Africa was unique because it was driven by a political agenda of transformation and redress as well as improving access to higher education, improving the quality of higher education outputs, increased efficiency and to redress the geographical distribution of higher education institutions.

It was also during the time of the mergers that the technikons proposed that technikons should be called universities of technology since universities of technology will have a stronger appeal to students and will be better recognised internationally (CHE (2004(c):36). Apart from the universities of technology some of the mergers also resulted in the formation of comprehensive universities, because of the merger between

a university and a technikon. The mergers and incorporations that started in 2004 resulted in the formation of the following higher education institutions in South Africa (CHE 2004(a):50):

- **The University of Cape Town (UCT)**
- **The University of Fort Hare (UFH)**, which incorporated the Rhodes University East London campus
- **The University of the Free State (UFS)**, which incorporated Vista University in Bloemfontein and the University of the North's Qwa Qwa campus
- **The University of Pretoria (UP),** which incorporated Vista University's Mamelodi, campus
- **Rhodes University**
- **The University of Stellenbosch (US)**
- **The University of the Western Cape (UWC)**, which incorporated the University of Stellenbosch Dental School
- **The University of the Witwatersrand (WITS)**
- **The University of KwaZulu-Natal,** which resulted from the merger between the University of Durban Westville (UDW) and the University of Natal
- **The University of Limpopo**, which resulted from the merger between the University of the North (UNIN) and the Medical University of South Africa (MEDUNSA)
- **The North-West University**, which resulted from the merger between the Potchefstroom University for Christian Higher Education (PUCHE), the North West University (NWU) and Vista University in Sebokeng
- **University of Venda for Science and Technology**, previously the University of Venda
- **The University of Zululand**
- **The University of Johannesburg (UJ)**, which resulted from the merger between the Rand Afrikaans University (RAU), the Technikon Witwatersrand and Vista University on the East Rand and Soweto

- **The Nelson Mandela Metropolitan University (NMMU)**, which resulted from the merger between the University of Port Elizabeth (UPE), Port Elizabeth Technikon (PET) and Vista University Port Elizabeth
- **The University of South Africa (UNISA)** that merged with Technikon South Africa (TSA) and Vista University Distance Education Centre (VUDEC)
- **Walter Sisulu University of Technology and Science**, which resulted from the merger between the University of Transkei (UNITRA), Border Technikon and the Eastern Cape Technikon
- **The Central University of Technology (CUT)**, which resulted from the merger between the Technikon Free State (TFS) and Vista University in Welkom
- **The Vaal University of Technology**, which resulted from the merger between the Vaal Triangle Technikon and Vista University in Sebokeng
- **Cape Peninsula University of Technology (CPUT)**, which resulted from the merger between the Cape Technikon and Peninsula Technikon
- **Durban Institute of Technology (DIT)**, which resulted from the merger between the Mangosuthu Technikon and the Umlazi, campus of the University of Zululand
- **The Tshwane University of Technology (TUT)**, which resulted from the merger between the Technikon Pretoria, Technikon Northern Gauteng and the Technikon North-West

Currently South Africa has more than a million students enrolled in 11 universities, five universities of technology and six comprehensive universities (South African Info 2010:online).

5.3 PUBLIC ADMINISTRATION CURRICULA AT SOUTH AFRICAN UNIVERSITIES

Of the 22 higher education institutions that are currently found in South Africa, the Department of Public Service and Administration state that the following higher education institutions offer Public Administration education to students (DPSA 2009(a):online):

- Cape Peninsula University of Technology – Department of Public Administration and Law
- Central University of Technology – Department of Government Management
- Durban Institute of Technology – Department of Government Studies
- Nelson Mandela Metropolitan University – Department of Public Management
- North West University – School of Social and Government Studies
- Tshwane University of Technology – Department of Public Management
- University of South Africa – Department of Public Administration and Management
- University of Cape Town – Department of Political Studies
- University of Johannesburg – Department of Public Governance
- University of Fort Hare – Institute of Government
- University of the Free State – Department of Public Management
- University of KwaZulu-Natal – School of Public Administration
- University of Limpopo – Department of Public Administration
- University of Pretoria – School of Public Management and Administration
- University of Stellenbosch – School of Public Management and Planning
- University of Venda – Department of Public and Development Administration
- University of the Western Cape – Department of Public Administration
- University of the Witwatersrand – Graduate School of Public and Development Management
- University of Zululand – Faculty of Commerce and Administration
- Walter Sisulu University of Technology – School of Government

Thus, of the 22 higher education institutions in South Africa 20 currently offer Public Administration education to students. The only two higher education institutions in South Africa that do not offer Public Administration education to students are Rhodes University and the Vaal University of Technology. Although this research focuses on Public Administration curricula and not the various Public Administration degree offerings at higher education institutions it is worth mentioning that at undergraduate

level Public Administration is offered through various three-year bachelor degree programmes namely the BAdmin, BA and BCom and at a vocational level Public Administration is offered through a three year national diploma.

An assessment of the undergraduate learning programmes that are used to provide Public Administration education to students shows that these mainly fall into three categories or streams. The first stream consists of the BA degree with Public Administration as a major subject. The purpose and function of the BA degree can be explained as follows (UNISA 2006(a):online):

- The primary purpose of the BA degree is to provide BA graduates with the knowledge, specific skills and applied competence in a number of fields traditionally associated with the Humanities, thus providing them with opportunities for continued personal intellectual growth, gainful economic activity and enabling them to make a valuable contribution to society.
- A second purpose of the qualification is to provide South Africa (and other countries) with graduates in a number of learning fields in order to ensure that innovative and knowledge-based economic and scholarly activity is widened.
- A third purpose of the qualification is to provide South Africa (and other countries) with people who can understand the constructive role they need to play in their society and who are empowered to play that role.

A characteristic of the BA degree is the emphasis on personal intellectual growth, making a valuable contribution to society, and the widening of innovative and knowledge-based economic and scholarly activity. This degree falls within the category of providing “a general education for all students or society in general, because it is good to be educated” (UNISA 2006(a):online).

The second stream where Public Administration can be offered as a major subject is the BAdmin degree. The purpose of the BAdmin degree can be explained as follows:

- The primary purpose of the BAdmin degree is to provide BAdmin graduates with the knowledge, specific skills, applied competence and the attitudes they need in the fields of development and public administration to make them lifelong learners, employable workers/entrepreneurs, and contributors to development and public administration in various public and civic contexts.
- A second purpose of the qualification is to provide South Africa (and other countries) with graduates in development and public administration to widen the leadership base of innovative and knowledge-based economic and scholarly activity.
- A further purpose of the qualification is to provide South Africa (and other countries) with people who can understand the constructive role they need to play as change agents in the field of development and public administration (UNISA 2006(b):online).

The major difference between the BA and BAdmin degrees is the scope of study. The BA degree focuses on society in general, while the BAdmin degree mainly focuses on the field of public administration and development studies.

The third stream of undergraduate studies in Public Administration is through a national diploma. The national Diploma falls within the vocational category of education. The purpose of the National Diploma in Public Management is “to train and educate learners to master current and future managerial and development skills for the public service, which includes all spheres of government” (Peninsula Technikon 2006:online).

The various Public Administration degree and diploma courses that are currently offered by the 20 higher education institutions in South Africa can be divided into programmes offered by comprehensive universities, universities and universities of technology that will be looked at next.

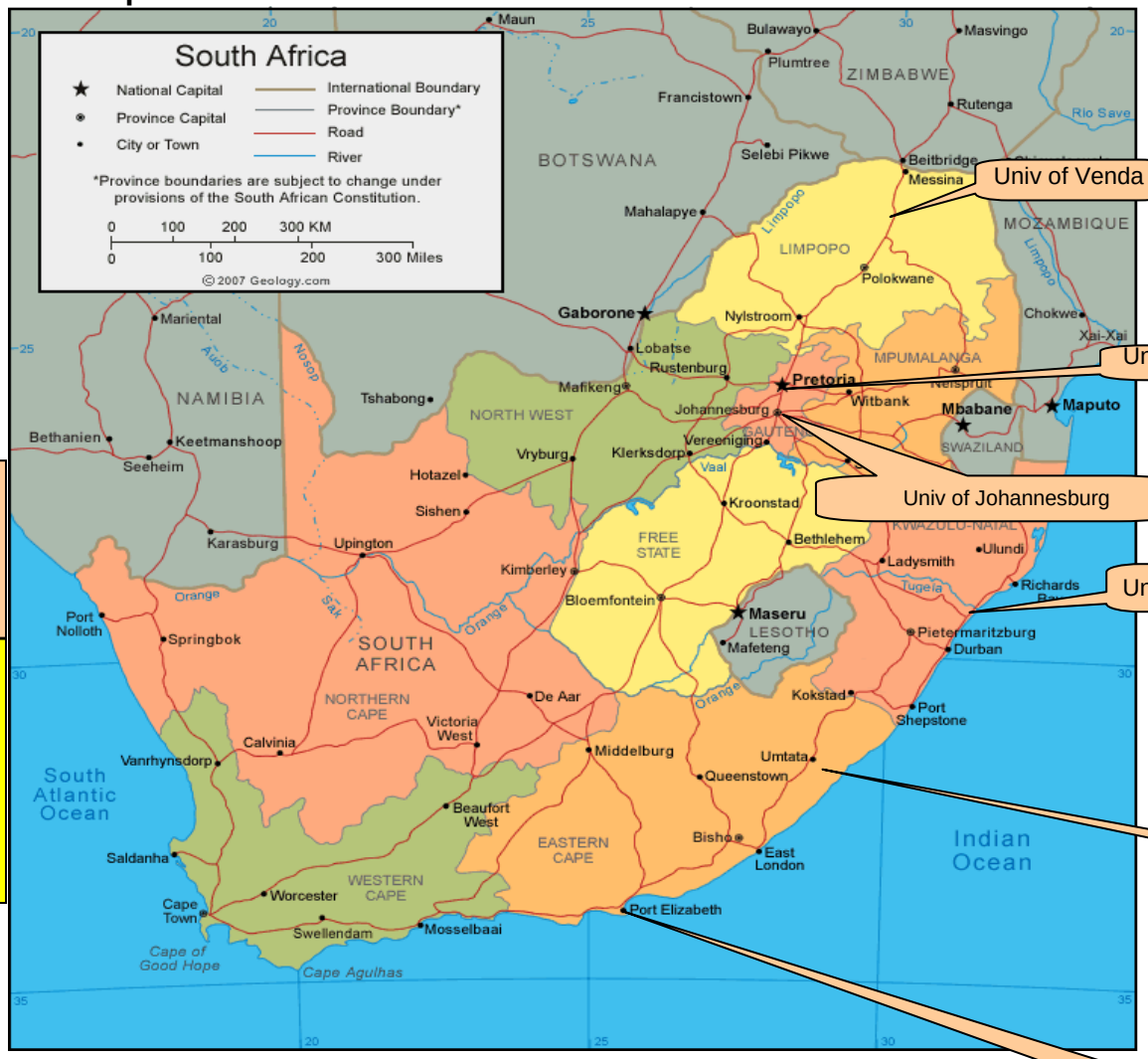
5.3.1 Comprehensive universities

A comprehensive higher education institution (see also section 1.5) is an institution that provides a combination of the philosophies and programmes offered by the former technikons and traditional universities (UNISA HEQC 2008:3). Other universities, for example the University of Limpopo, the North West University and the University of Zululand, were also expected to develop former technikon programmes to make sure that technikon programmes will be available throughout the country and particularly in rural areas (Committee of Technikon Principals 2004:74). The reasons for the development of comprehensive universities include the following:

- Increased access to career focused programmes with students being able to choose from a wider range of programmes with different entry requirements.
- Improved articulation between career focused and general academic programmes.
- Expanding, strengthening and developing research opportunities by combining university and technikon research.
- Enhanced capacity to respond to social and economic needs of a region. (Committee of Technikon Principals 2004:75).

South Africa currently has six comprehensive universities that were created after the mergers that took place during 2004, namely the University of Venda, the University of South Africa, the University of Zululand, Walter Sisulu University, University of Johannesburg and the Nelson Mandela Metropolitan University (CHE 2004(a):50). All six of these comprehensive universities offer Public Administration to students. The six comprehensive universities are situated throughout South Africa as can be seen in Figure 5.1 on the following page:

Figure 5.1: Comprehensive Universities in South Africa



Key

Univ presenting Curricula in Public Admin.
Univ which do not present curricula in Public Admin.

Source: Adapted from Google images (2010:online).

From Figure 5.1 it can be seen that all six comprehensive universities in South Africa are found in areas of the country where a large number of people live, for example the north of Gauteng, KwaZulu-Natal and the East Coast. It can also be seen that all six comprehensive universities in South Africa offer Public Administration to students.

According to Table 5.1 all six comprehensive universities offering Public Administration education to students are evaluated against the following criterion: comprehensive universities in South Africa offering Public Administration also offering information technology as part of their undergraduate curricula. As indicated before (see section 1.5) information technology refers to the ability to use and understand computers to manage and process information. This includes the knowledge and skills to use computers and computer software.

Table 5.1: Comprehensive universities including information technology in their undergraduate Public Administration curricula

University name	Information technology included in curricula	Course name including information technology	Reference
Nelson Mandela Metropolitan University	Yes, technology forms part of the National Diploma: Public Management, but not part of the degree programme.	Public Information Service I Public Information Practices II Management of Information III	Nelson Mandela Metropolitan University, Department of Political and Governmental Studies (2010:online).
University of Johannesburg	No		University of Johannesburg, Faculty of Humanities Regulations for Undergraduate Degrees and Diplomas (2009:58–60)

University of South Africa	Yes, technology forms part of the National Diploma: Public Management, but not part of the degree programme.	Public Information Service I Public Information Practices II Management of Information III,	UNISA Calendar Part 2, Subjects and Syllabuses (2010:127–128). UNISA Calendar Part 4, College of Economic and Management Sciences (2010:76–77)
University of Venda	No		University of Venda, Department of Public and Development Administration. Head of Department, Jaco Vermaak, email
University of Zululand	No		University of Zululand, Department of Political Science and Public Administration (2010:online)
Walter Sisulu University	Yes, technology forms part of the National Diploma: Public Management, but not part of the degree programme	Public Information Service I Public Information Systems II Management of Information III	Walter Sisulu University, Faculty of Business, Management Sciences and Law Prospectus (2010:71–80)

From Table 5.1 it can be seen that half of the comprehensive universities provide some form of technology in their curricula to undergraduate Public Administration students.

The Nelson Mandela Metropolitan University, Department of Political and Governmental Studies provides students with a Bachelor of Administration (BAdmin) degree and a National Diploma in Public Management. The National Diploma in Public Management includes information technology in the following first, second and third year modules: Public Information Service I, Public Information Practices II, and Management of Information III.

The BAdmin degree offered by the Department does not include any information technology and focuses on public policy formulation, government and administration, human resources, public financial management, the functions of the state, the relationship between government and business and international public administration is also provided by the Department (NMMU Department of Political and Governmental Studies 2010:online).

Although the University of Johannesburg is a comprehensive university, the Department of Public Governance only offers a BA (Public Management and Governance) degree with a general humanities focus to undergraduate Public Administration students and does not offer a National Diploma. The BA (Public Management and Governance) degree does not include any information technology and focuses on an introduction to governance, service delivery, decision making and accountability, policy analysis, financial and asset management in public organisations, human resource management, regional and local government, public participation, global governance and integrated governance (University of Johannesburg Faculty of Humanities Regulations for Undergraduate Degrees and Diplomas 2009:58–60).

The Department of Public Administration and Management at the University of South Africa offers undergraduate Public Administration students a general BA degree with Public Administration as a major subject, a general BCom with Public Administration as a major subject, a general BAdmin degree with Public Administration as a major subject and a National Diploma in Public Finance and Accounting, a National Diploma in Local Government Finance and a National Diploma in Public Management. Of these

qualifications it is the National Diploma in Public Management that includes information technology in the following first, second and third year modules: Public Information Service I, Public Information Practices II, and Management of Information III.

The BA, BCom and BAdmin degrees with Public Administration as a major subject focus on the nature, content and scope of Public Administration, the structuring and functioning of public services, the foundations of Public Administration, protection services, welfare and social services, culture and education, environmental affairs, public management skills, public human resource management, public policy, organisational studies in the public sector, public financial administration and management, reflective Public Administration and ethics in public administration and administrative justice (UNISA Calendar Part 2, Subjects and Syllabuses 2010:127–128; UNISA Calendar Part 4, College of Economic and Management Sciences 2010:76–77).

The University of Venda only offers a BAdmin (Public Administration) degree to undergraduate Public Administration students in the Department of Public and Development Administration. This degree includes an introduction to Public Administration in general and an introduction to Public Administration in the South African context. This degree also includes policy making, organising and financing studies as well as staffing, the determining of work procedures and control, management and issues in national and international Public Administration. The Department does not provide a National Diploma or information technology to students (University of Venda: Jaco Vermaak, e-mail).

In the Department of Political Science and Public Administration at the University of Zululand undergraduate Public Administration students can only enrol for a BAdmin (Administration) and a BAdmin (Local Government) degree and not a National Diploma in Public Management. These two BAdmin degrees do not include information technology and focus on an introduction to Public Administration, Public Administration in South Africa, organisation studies, industrial relations in South Africa, financial administration in the public sector, management techniques, public policy analysis, local

government, international Public Administration, comparative Public Administration and personnel administration in the public sector (University of Zululand, Department of Political Science and Public Administration 2010:online).

The Walter Sisulu University offers undergraduate Public Administration students in the Department of Public Management and Local Government a Diploma in Local Government Finance, a National Diploma in Public Management and a BAdmin (Public Affairs) degree. The National Diploma in Public Management includes information technology by offering Public Information Service I, Public Information Systems II, and Management of Information III, to students.

The BAdmin (Public Affairs) degree includes an introduction to Public Administration, public sector management, an introduction to local government, public policy management, public sector financial management, organisational theory, public sector human resource management, research methods in public management and public sector management strategies and techniques (Walter Sisulu University, Faculty of Business, Management Sciences and Law Prospectus 2010: 71–80).

From the above it can be seen that of the six comprehensive universities, three comprehensive universities, namely the Nelson Mandela Metropolitan University, the University of South Africa and the Walter Sisulu University offer information technology as part of their undergraduate Public Administration curricula to students. It is also interesting to see that information technology only forms part of the National Diploma in Public Management and not the degree programmes offered by these comprehensive universities.

Before the merger that started in 2004 the National Diploma in Public Management was offered by the various technikons that provided students with a standardised curriculum. After the merger and the formation of the new comprehensive universities, the curriculum of the National Diploma in Public Management has remained mostly the same.

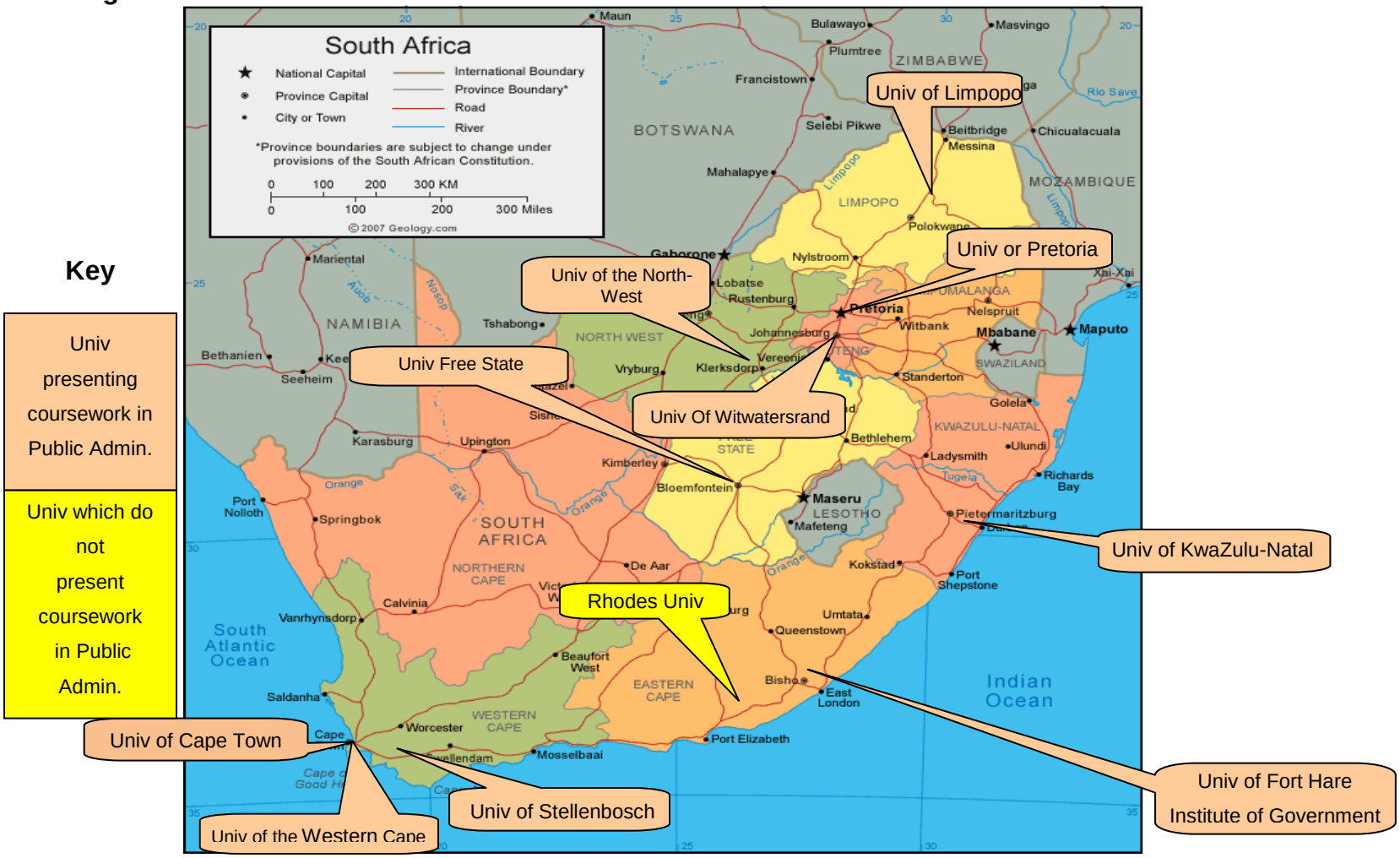
However, UNISA has started a recurriculation process of qualifications that will be implemented in 2012. The National Diploma in Public Management will change to a Diploma in Public Administration and Management and the National Diploma in Local Government Finance will change to a Diploma in Local Government Finance. The new Diploma in Public Administration and Management will still include Public Information Practice I, Public Information Practice II, and Management of Information III, as part of the curriculum (UNISA College of Economic and Management Science's Undergraduate PQM and Teach Out Plan 2009–2015:110–113).

5.3.2 Universities

A university (see also section 1.5) is a higher education institution that awards degrees, postgraduate degrees and does research (*the free dictionary* 2010:online). According to the Committee of Technikon Principals (2004:25) "a university is an academic institution at which research is conducted and teaching/learning is offered within the organised cadre of the contact between lecturer and student and supported by networking, cooperation and collaboration with external academic partners to create, develop and transmit new knowledge".

South Africa currently has 11 universities namely the North West University, University of Fort Hare, University of the Free State, University of KwaZulu-Natal, University of Limpopo, University of Pretoria, University of Stellenbosch, University of the Western Cape, University of the Witwatersrand, Rhodes University and the University of Cape Town. Of these 11 universities ten offer Public Administration programmes to students as can be seen in Figure 5.2:

Figure 5.2: Universities in South Africa



Source: Adapted from Google images (2010:online).

From Figure 5.2 it can be seen that universities in South Africa are distributed throughout the country. The location of universities is also indicative of the various growth areas (for example, population and socio-economic development) in South Africa, with universities positioned in the north of the country, Gauteng, KwaZulu-Natal, East Coast and the Western Cape and one university in the Free State. The less populated Northern Cape has no higher education institution.

Figure 5.2 also indicates that one university, namely Rhodes University does not offer Public Administration education to students. The South African universities that do offer Public Administration education, indicated in orange in Figure 5.2, are evaluated against the following criterion: universities in South Africa offering Public Administration also offering information technology as part of their undergraduate Public Administration curricula to students as can be seen in Table 5.2.

Table 5.2: Universities including information technology in their undergraduate Public Administration curricula

University name:	Information technology included in curricula	Course name including information technology	Reference
North West University	No		North West University, Calendar Faculty of Arts (2010:53–60).
University of Fort Hare	No		University of Fort Hare, Department of Public Administration, 2010 Learners' Handbook.
University of the Free State	No		University of the Free State, Department of Public Management 2010. Head of Department: Liezel Lues e-mail.
University of	No		University of KwaZulu-Natal,

KwaZulu-Natal			Faculty of Management Studies Calendar 2010.
University of Limpopo	No		University of Limpopo, Faculty of Management and Law, School of Economic and Management Sciences Calendar 2010.
University of Pretoria	No		University of Pretoria, School for Public Management and Administration (2010:online).
University of Stellenbosch	No		University of Stellenbosch, School of Public Management and Planning (2010:online).
University of the Western Cape	No		University of the Western Cape, Public Administration Department (2010:online).
University of the Witwatersrand	No, only postgraduate degrees are provided to Public Administration students.		University of the Witwatersrand, Graduate School of Public and Development Management (2010:online).
University of Cape Town	No, only a Department of Political Studies but some Public Administration modules are provided to students.		University of Cape Town, Department of Political Studies (2010:online).

From Table 5.2 it can be seen that none of the universities in South Africa offer any information technology in their undergraduate Public Administration curricula to students. These universities offer various BA, BAdmin or BCom degrees in Public Administration to students with no diplomas being offered.

The University of the North West offers undergraduate Public Administration students the following degrees: BA Public Management and Governance, BA Public Management with Human Resource Management and Labour Relations, BA Public Governance and Politics with Law Subjects, BA Public Management and Governance with Economics and a BA Public Management and Governance with Sociology (North West University, Calendar Faculty of Arts 2010:53–60).

The Public Administration curricula used by the School of Social and Government Studies at the North West University include: the foundations of public management, the locus and focus of public management, public policy and planning, the government and sustainable government, municipal management, an introduction to research methodology, strategic public financial resource management and strategic public human resource management (North West University, Calendar Faculty of Arts 2010:53–60).

The Department of Public Administration at the University of Fort Hare provides undergraduate Public Administration students with a BAdmin Public Administration degree. The Public Administration curricula for this degree include: an introduction to Public Administration, an introduction to government, local government and administration, human resource management, public financial management, public policy and public management (Department of Public Administration, 2010 Learners' Handbook:43–128).

At the University of the Free State in the Department of Public Management, students are offered a BAdmin Public Management degree. The content of the Public Administration curricula in this Department include: an introduction to public

management, public financial resource management, public policy management, macro and micro organisational analysis and human resource management (University of the Free State, e-mail).

The University of KwaZulu-Natal provides students with a BAdmin Public Administration degree in the School of Public Administration. This degree includes: an introduction to public management and an introduction to contemporary Public Administration and politics, an introduction to local government, public sector financial management, public policy management, human resource management, public sector performance management, public service delivery: principles, approaches and processes and organisational change and leadership (University of KwaZulu-Natal 2010:47–49).

At the University of Limpopo students can enrol for a BAdmin degree in the Department of Public Administration. This degree includes: an overview of the scope of Public Administration, the structuring and functioning of the public service, public personnel management and labour relations, public financial management, local government, project management, disaster management, development administration, public enterprises and privatisation as well as public policy analysis (University of Limpopo, Faculty of Management and Law, School of Economic and Management Sciences Calendar 2010:133–137).

The School of Public Management and Administration at the University of Pretoria provides undergraduate students with a BAdmin Public Management degree but students can also enrol for a BAdmin International Relations or a BA Political Science degree to study undergraduate Public Administration. The Public Administration curricula at the University of Pretoria include: the administrative state and characteristics of a state, an introduction to Public Administration and management, planning, decision making and policy making, administrative adjudication and public accountability, public personnel administration, organisational theories, financial administration and municipal administration, leadership and management (University of Pretoria, 2010:online).

At the University of Stellenbosch the subject Public and Development Management with a focus on Public Management, Public Policy Analysis and Development Management is offered as major subjects for a variety of degrees within various faculties for example a BA Socio Informatics, BA Human Resource Management, BA Development and Environment, BA Social Dynamics, BA Politics, Philosophy and Economics and a BCom Management Sciences. The undergraduate Public Administration curricula in the Department of Public Management and Planning include: an orientation to development, society and state, public management and policy, development theory, government studies, public policy, micro development management strategies, public management strategies and integrated development policy and management theory and practice (University of Stellenbosch, School of Public Management and Planning 2010:online).

The Department of Public Administration at the University of the Western Cape provides undergraduate Public Administration students with a BAdmin Public Administration and a BCom Public Management degree. The undergraduate course curricula include: public and local government administration and management, South African politics and government, public sector human resource management, public policy analysis, public administration and democracy, public financial management, urban and rural management, organisational theories in the public sector, research methods in Public Administration, comparative Public Administration, theories and techniques of planning, management in the public sector, development administration, management systems and public enterprise management (University of the Western Cape, Department of Public Administration 2010:online).

At the University of the Witwatersrand a student can complete a BA degree and then enrol for a Diploma or Honours degree in the Graduate School of Public and Development Management. Undergraduate Public Administration is not provided to students at the University of the Witwatersrand but since they do have a School for Public Administration they are mentioned in this research (University of the Witwatersrand, Graduate School of Public and Development Management 2010:online).

The University of Cape Town does not have a specific department for Public Administration but does provide some Public Administration modules at undergraduate level. Students can enrol for a BA or BSocSc in Politics or Public Policy and Administration in the Department of Political Studies. The curriculum in this Department include: an introduction to politics, state, management and administration, the political economy, comparative politics, conflict in world politics, policy and administration, advanced South African politics, international politics, political theory, international relations, public and development administration, South African political thought and traditions, third world politics and urban politics and administration (University of Cape Town, Department of Political Studies 2010:online). From the above it can be seen that the Public Administration content in the BA and BSocSc in Politics or Public Policy and Administration offered by the Department of Political Studies are limited and politics forms the major part of study.

As indicated earlier (see page 22) none of the ten universities that offer Public Administration include any offering in information technology in their undergraduate Public Administration curricula as was seen in chapter 3, section 3.2.5.

Kramer et al (1986:595) state that knowledge and skills about the use of computers are important assets for Public Administration graduates to have. Information technology skills need to be integrated into the Public Administration curriculum and taught to students, since many students do not have computer knowledge or skills (Kramer et al 1986:595). Northrop (1999:18–19) (see chapter 4, section 4.5) also states that a Public Administration graduate needs hands-on skills in computer applications that include generic computer skills.

It can be seen that although information technology is not included in Public Administration education at universities it is important for graduates to have computer skills and knowledge to function properly in the public service. Bustamante (2008:online) (see chapter 3, section 3.2.5) also states that the use of technology in

Public Administration will prepare students with knowledge and skills to function properly in the public service.

Next the universities of technology will be evaluated to determine if they include any offerings in information technology in their undergraduate Public Administration curricula.

5.3.3 Universities of technology

According to the Committee of Technikon Principals (2004:18–20) the name “technikon” was uniquely South African and was used since 1979. It was during the merger in 2004 that technikons became universities of technology (see also section 1.5). Universities of technology exist in many countries for example Germany, Hungary, Australia, the United States of America and Iran. According to the Committee of Technikon Principals some of the benefits of becoming a university of technology include:

- With university status a university of technology can ensure that its diplomas and degrees and graduates obtain the recognition and credibility that they deserve especially internationally.
- Recognition as a university will assist an institution in recruiting and retaining top quality staff.
- Funding opportunities will be better especially with respect to research grants.
- A university of technology will have a stronger appeal as an institution of choice for students and visiting staff.
- Recognition by national and international professional educational associations, organisations and agencies.
- The preparation of a new generation of knowledge workers.
- Better mobility of graduates within the African and international higher education system (Committee of Technikon Principals (2004:21– 22).

Within the context of this study it is significant to note that the Committee of Technikon Principals (2004:25) also states that at a technological university the focus is on the study of technology from the viewpoint of various fields of study, rather than a particular field of study. Of the five universities of technology in South Africa, namely the Central University of Technology, the Cape Peninsula University of Technology, the Durban Institute of Technology, the Vaal University of Technology and the Tshwane University of Technology, four offer Public Administration to students as can be seen in Figure 5.3:

Figure 5.3: Universities of Technology in South Africa

Source: Adapted from Google images (2010:online).

From Figure 5.3 it can be seen that the Vaal University of Technology, indicated in yellow, does not offer Public Administration education to students. The universities of technology that do provide Public Administration education to students are situated in Gauteng, KwaZulu-Natal, the Free State and the Cape Province. The universities of technology that do offer undergraduate Public Administration education to students, as indicated in orange in Figure 5.3, are evaluated against the following criterion: universities of technology in South Africa offering Public Administration also offering information technology as part of their undergraduate curricula to students.

Table 5.3: Universities of Technology including information technology in their undergraduate Public Administration curricula

University name	Information technology included in curricula	Course name including information technology	Reference
Central University of Technology	Yes, as part of the National Diploma: Public Management	Public Information Service I Public Information Practices II Management of Information III	Central University of Technology, School of Government Management (2010:online)
Cape Peninsula University of Technology	Yes, as part of the National Diploma: Public Management	Public Information Service I Public Information Practices II Management of Information III	Cape Peninsula University of Technology, Public Management (2010:online)
Durban Institute of Technology	Yes, as part of the National Diploma: Public Management	Public Information Service I Public Information Practices II	Durban Institute of Technology, Department of Public

		Management of Information III	Management and Economics (2010:online)
Tshwane University of Technology	Yes, as part of the National Diploma: Public Management	Public Information Service I Public Information Practices II Management of Information III	Tshwane University of Technology, Department of Public Management (2010:online)

From Table 5.3 it can be seen that all four of the universities of technology that offer Public Administration include information technology as part of the National Diploma in Public Management. All four of these institutions only offer a diploma to undergraduate Public Administration students and do not offer any degree programmes.

It can also be seen that the four universities of technology are still currently making use of a standardised curricula to teach Public Administration to students. The curricula include the same content on first, second and third year level and include the following:

- Public Service Delivery I
- Public Resource Management I
- Public Office Management I
- Public Information Service I
- Public Decision Making I
- Management I, and Self Management I
- Public Financial Management II
- Public Human Resource Management II
- Public Information Practice II

- Project Management II
- Public Procurement and Logistics Management II
- Fundamentals of Research II
- Public Financial and Procurement Management III
- Public Human Resource Management III
- Management of Information III
- Intersectoral Collaboration III
- Policy Studies III
- Programme Management III
- Public Management Practice III (CUT School of Government Management 2010:online, CPUT Public Management 2010:online, DIT Department of Public Management and Economics 2010:online and TUT Department of Public Management 2010:online)

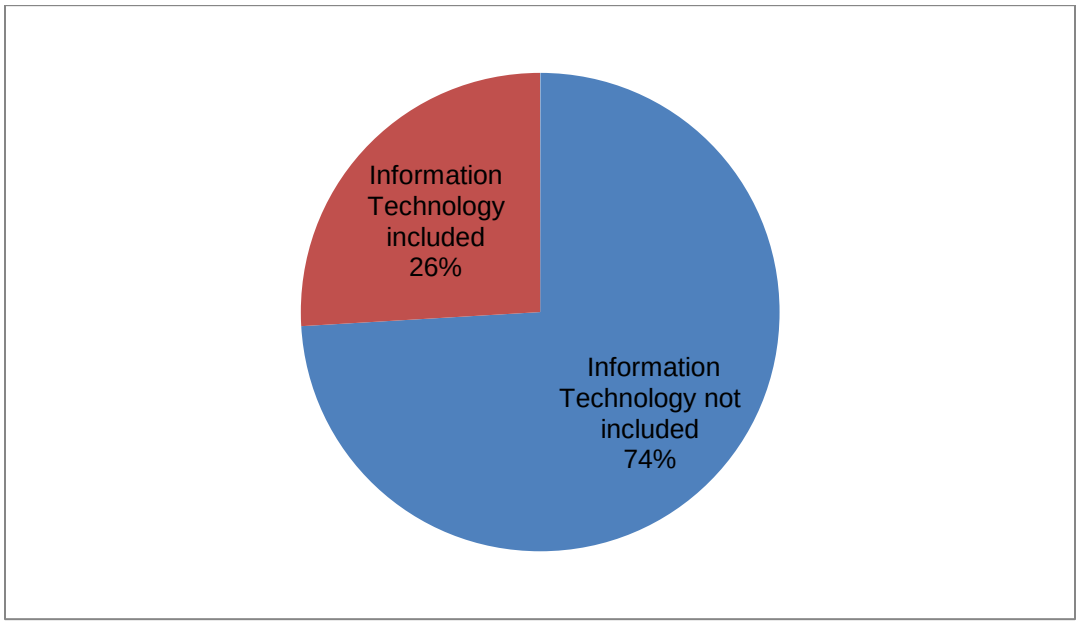
Of these modules offered by the universities of technology Public Information Service I, Public Information Practices II, and Management of Information III, include aspects of information technology and will be discussed in detail in chapter 6.

By evaluating the curricula of the compressive universities, universities and universities of technology that offer Public Administration to undergraduate students it can be seen that only half of the comprehensive universities include information technology in their curriculum, no traditional universities include information technology in their Public Administration curriculum and all the universities of technology that offer Public Administration to students include some aspects of information technology in their curriculum.

It can also be seen that information technology only forms part of the National Diploma in Public Management and not of any of the degree programmes in Public Administration. Figure 5.4 indicates the percentage of higher education

institutions in South Africa that include information technology as part of their undergraduate Public Administration curricula.

Figure 5.4: Percentage of information technology used in undergraduate Public Administration curricula in South Africa



From Figure 5.4 it can be seen that only 26% of higher education institutions in South Africa that provide undergraduate Public Administration to students include information technology in their curriculum and that 74% does not include any information technology in their undergraduate offering to Public Administration students. The 26% that does include information technology include all the universities of technology and three of the six comprehensive universities.

5.4 CONCLUSION

Chapter 5 provided an overview of the higher education landscape of South Africa and the mergers that took place in higher education in South Africa. This chapter also indicated that 20 of the 22 higher education institutions in South Africa offer Public Administration education to students.

The Public Administration curricula of these 20 higher education institutions were evaluated to determine if information technology is included in the undergraduate Public Administration curricula that are offered to students. It was found that three of the six comprehensive universities, none of the traditional universities and four of the five universities of technology that offer Public Administration include separate offerings of learning (eg modules) in information technology in their undergraduate Public Administration curricula.

The information technology offerings of learning that are currently included in the undergraduate Public Administration curricula, only form part of the National Diploma in Public Management and are not included in any of the Public Administration degree programmes. In the national diploma information technology is only provided to students in three Public Administration modules, namely Public Information Service I, Public Information Practices II, and Management of Information III. The content of these three modules will be investigated and evaluated in detail in chapter 6. From the above it can be deduced that offerings of learning in information technology are only included in Public Administration curricula where the curriculum of the subject Public Administration includes the entire programme as is the case with the National Diploma in Public Management. It is not possible to make any conclusion about the presence of information technology modules offered by other subject fields in the degree programmes of traditional and comprehensive universities, as this falls outside the scope of this study.

CHAPTER 6
UNDERGRADUATE PUBLIC ADMINISTRATION MODULES THAT INCLUDE INFORMATION TECHNOLOGY

6.1 INTRODUCTION

In chapter 5 the South African universities that offer Public Administration education to undergraduate students were investigated. These universities were evaluated against the criterion: universities in South Africa offering Public Administration also offering information technology as part of their undergraduate Public Administration curricula to students. Chapter 5 found that of the 22 higher education institutions in South Africa 20 universities offer Public Administration education to students. Of these 20 universities that offer Public Administration to students only seven universities or 26% of higher education institutions include information technology as part of their undergraduate Public Administration curricula.

This chapter will investigate the content of the information technology that is being used by these seven universities or 26% of higher education institutions to teach information technology to undergraduate Public Administration students. The information technology that is provided to students at these seven universities is provided in three modules namely Public Information Service I, Public Information Practice II and Management of Information III as part of the National Diploma in Public Management. These three modules will be reviewed in this chapter to determine the information technology content that is provided to undergraduate Public Administration students. The information technology

content of these modules will also be evaluated against the technology skills that were mentioned in chapter 4 that a public servant should have.

Chapter 6 therefore consists of a comprehensive, in-depth review of Public Information Service I, Public Information Practice II and Management of Information III to determine the information technology content of these modules and to get a clear understanding of the information technology that is currently being provided to undergraduate Public Administration students in South Africa. The information technology content of these three modules will also be evaluated against the information technology skills mentioned in chapter 4 (see section 4.5) to determine if Public Administration students are being provided with information technology knowledge and skills that can benefit them to be successful in the public service.

6.2 INFORMATION TECHNOLOGY IN UNDERGRADUATE PUBLIC ADMINISTRATION CURRICULA

As was indicated in chapter 5 of this research, of the 22 higher education institutions found in South Africa, 20 offer Public Administration education to students. Of these 20 higher education institutions seven offer information technology as part of their Public Administration curricula. The seven higher education institutions that offer information technology in their Public Administration curricula include three of the six comprehensive universities found in South Africa, namely the Nelson Mandela Metropolitan University, the University of South Africa and the Walter Sisulu University. None of the 10 traditional universities found in South Africa include any information technology in their Public Administration curricula. Four of the five universities of technology that provide Public Administration education to students include information technology in their Public Administration curriculum, namely the Central University of Technology, the Cape Peninsula University of Technology, the Durban Institute of Technology and the Tshwane University of Technology.

Information technology is only provided to Public Administration students as part of the National Diploma in Public Management. The curricula that are currently still being used to teach the National Diploma in Public Management are mostly standardised with all seven higher education institutions making use of Public Information Service I, Public Information Practice II and Management of Information III to teach information technology to students. The content of Public Information Service I, Public Information Practice II and Management of Information III will be reviewed in detail to determine what the information technology content of these modules are that is being provided to Public Administration students. The information technology content of these modules will then also be evaluated against the information technology skills that were mentioned in chapter 4 (see section 4.5) as beneficial to a public servant namely end user skills/word processing skills, spreadsheets/problem solving skills, graphics/presentation skills, data information management skills, e-mail/communication skills, internet skills, Graphic Information Systems (GIS) skills, information technical skills, information society skills, acquisition skills, interpersonal and self-directional skills. This evaluation will be done to determine if the information technology content of Public Information Service I, Public Information Practice II and Management of Information III provides a Public Administration student with the information technology skills to be able to complete tasks effectively in the public service.

6.2.1 Public Information Service I

The module Public Information Service I, is provided to students enrolled for a National Diploma in Public Management on a first year level of study. The module Public Information Service I, is divided into five units of study that include:

- **Unit 1: A definition and contextualisation of public information services**

  The outcomes of this unit include: defining the concepts of public information services, being able to explain how government institutions use and disseminate data and information, understanding the essence of the Access to Information Act 2 of 2000, knowledge of the Government Communication and Information System (GCIS) and understanding the vision and what GCIS is responsible for, understanding the difference between data and information, knowing what knowledge is, understand what decision making is and knowing why decision makers do not always use the information that is available to them (Public Information Service I 2005:3).

  This unit explains the context of public information services by looking at the legislative framework for public information services. As part of the legislative framework the Constitution of South Africa, the Promotion of Access to Information Act 2 of 2000, the White Paper on Transforming Public Service Delivery of 1997 and the State Information Technology Agency Act 88 of 1998 are looked at (Public Information Service I 2005:7–8).

  The Government Communication and Information System (GCIS) is explained in terms of its primary responsibility that exists to ensure proper communication between the government and citizens. Important aspects, for example the difference between data, information, knowledge and decision making, are also looked at in this unit (Public Information Service I 2005:8–16).

  This unit does provide a Public Administration student with knowledge and information about information technology especially legislation in South

Africa that is relevant to the use of information technology. Legislation relevant to information technology was also highlighted in chapter 4 of this research that looked at the role and function of the State Information Technology Agency (see section 4.4.2) and the use of information for decision making (see section 4.4.1).

Aspects like data and information are also explained in this unit's Table 6.1 that is relevant to the data information management skills that a public servant could benefit from.

- **Unit 2: Obtaining, storing and retrieving public information**

The outcomes of this unit include: an understanding of where the government gets its information from, knowledge of what the public sector and government are. Knowledge of the private sector and non-profit organisations, understanding how data are collected, understand why data and information are disseminated, and understand information systems and how they are used in the public service (Public Information Service I 2005:22).

This unit facilitates the learning of the various sources of information, namely information in the public sector, the private sector and non-profit organisations (Public Information Service I 2005:22–26). The production, collection and processing of data are explained by looking at who is responsible for these functions and by determining how data can benefit the government. The management of data and information is explained by making sure that data are structured and used properly to be effective, efficient and economic (Public Information Service I 2005:26–30).

This unit indicates the importance of data and information in the public service just like Seneviratne (see chapter 4, section 4.4.1) that states that government is by nature an information intensive organisation. Large

amounts of information are required by public servants to deliver public services for example pension and unemployment administration (Seneviratne 1999:44). This unit also provides an overview of information systems, what an information system is and how it is used in an organisation (Public Information Service I 2005:30).

This unit is relevant to the end user-/word processing skills that relies on general basic information technology skills that a public servant should have as can be seen in chapter 4 (see section 4.5) and Table 6.1 in this chapter.

- **Unit 3: Information dissemination and communication**

The outcomes of this unit include: an understanding of how information dissemination takes place and why quality information is important to politicians, political office bearers and managers as well as an understanding of what is meant when the term quality information is used (Public Information Service I 2005:42).

This unit explains the reasons for the dissemination of information and the infrastructure that is needed to disseminate information for example newspapers, reports, web-pages, radio, television and the internet (Public Information Service I 2005:43–44). The dissemination of information is an important aspect that was also mentioned in chapter 4 (see section 4.3) that stated that technology can be used to give citizens access to information and to make economic, tax and investment opportunities available to citizens, investors and businesses.

Quality information refers to the relevance of the information, how specific the information is, if the information is adequate and if the information is available when it is needed (Public Information Service I 2005:45–49).

Communication is also included in this unit by explaining vocabulary, construction and sentences, paragraphs, grammar, spelling and punctuation as well as the interpretation of information by the receiver (Public Information Service I 2005:49–53). The last section of this unit that focuses on vocabulary and spelling is not relevant to understanding and using information technology and does not provide a Public Administration student with any technology skills or knowledge. The last part of this unit could be replaced with information that is relevant to the focus of the module, namely Public Information Service.

- **Unit 4: E-Government and other information outlets**

The outcomes of this unit include: an understanding of the State Information Technology Agency (SITA), as well as the functions of SITA, knowledge of what e-government is and being able to explain the principles of e-government, knowledge of what a website, webpage, portal and a gateway is, knowledge of what the South African Government Online website is, an understanding of Umwembi, Communications and knowledge of what the functions of the Parliamentary Monitoring Group are (Public Information Service I 2005:59).

This unit provides an overview of the State Information Technology Agency (SITA) that was also explained in chapter 4 (see section 4.4.2) of this research. e-government is explained in detail in this unit as well as various internet terms for example website, web page, gateway and portal. The term e-government was also explained in detail in chapter 4 (see section 4.4.2) of this research as an integration and use of information and communication technology within government departments to improve the delivery of services to the public.

The Organisation for Economic Cooperation and Development (see chapter 4, section 4.5) states that public servants should have knowledge

about e-government to function properly in the public service (UNU 2007:online). This unit also provides an overview of the South African Government Online website by looking at the information and services that are made available on it. The South African Government Online website is also explained as an important government initiative in South Africa to promote the use of information technology in government as was highlighted in chapter 4 (see section 4.4.2) of this research.

- **Unit 5: The Government Communication and Information System (GCIS)**

  The outcomes of this unit include: an understanding of the internet and what a search engine is, knowledge of the Government Communication and Information System (GCIS), an understanding of the government's communications framework, knowledge about the vision, mission, aims and functions of the GCIS and an understanding of how the GCIS disseminate information to different sectors within South Africa (Public Information Service I 2005:75).

  This unit also explains how the internet is used to disseminate information and how the internet evolved as a communication tool (Public Information Service I 2005:75).

  Apart from the internet, the Government Communication and Information System is looked at in detail by looking at the responsibilities of the GCIS with the main aim being to ensure that a proper communication channel exists between the government and the citizens of South Africa (Public Information Service I 2005:76). The GCIS secretariat, framework, vision, objectives and aims as well as how the GCIS collect and disseminate information are also included in this unit.

This unit is relevant with regard to the internet skills that a public servant needs to make proper use of e-government and to communicate and provide services to the public as can be seen in chapter 4 (see section 4.5) and Table 6.1 in this chapter.

From the above it can be seen that Public Information Service I, includes an overview, information and knowledge about information technology, data, the internet, communication tools and examples of how the South African government uses information and data. All five units that form part of Public Information Service I, provide a Public Administration student with information technology knowledge and skills.

Aspects like the storing, retrieving and dissemination of information and data form part of the end user skills that are explained in Table 6.1 and are basic information technology skills that a public servant will need to complete tasks effectively in the public service. The storing, collection and retrieval of information and data were also mentioned in chapter 4 (see section 4.4.1) where various authors including Van Straaten (1984:5) and Potekar and Giragaonkar (2004:online) state that the use of information and data is becoming increasingly important in government and public servants should know how to use it effectively to be successful in the public service.

Public Information Service I, also provides a student with information and knowledge about e-government and information technology tools that can be used for communication within the public service. This forms part of the email/communication and internet skills that are explained in Table 6.1 that a public servant will need to make proper use of email, the internet and e-government initiatives within the government. Apart from Public Information Service I, the various units that form part of Public Information Practice II, will be reviewed next.

6.2.2 Public Information Practice II

Public Information Practice II, is provided to students enrolled for the National Diploma in Public Management in the second year of study. Public Information Practice II, is divided into seven units of study that include:

- **Unit 1: An introduction to information and communication technology**

  The outcomes of this unit include: an understanding and background knowledge of the internet, knowledge of the difference between the internet and the World Wide Web, how to access the internet, knowledge of web pages and browsers, an understanding of the internet infrastructure and different modes of communication technology (Public Information Practice II 2006:2).

  Apart from these outcomes, this unit also provides detailed information about the development of the internet and how to access the internet. Northrop (see chapter 4, section 4.5) indicates the importance of the internet by stating that governments are making use of the internet to communicate with citizens. The internet is also used by governments to provide services to the public (Northrop 1999:14–15). The World Wide Web (www) and its difference to the internet, is explained in this unit as well as communication technology for example telephones, radio, television, faxes, cellular phones and wireless application protocol (WAP) (Public Information Practice II 2006:3–18).

  This unit is relevant to the internet skills that a public servant needs, as was explained in chapter 4 (see section 4.5) and Table 6.1 of this chapter.

- **Unit 2: Electronic mail for effective service delivery**

  The outcomes of this unit include: an understanding of e-mail and e-mail addresses, knowledge about the advantages of using e-mail, knowledge on how to use e-mail including how to write an e-mail effectively, insight into how e-mails can improve service delivery and knowledge about the institutional rules of e-mail (Public Information Practice II 2006:21).

  This unit facilitates the learning of e-mail in detail. The advantages of using e-mail are explained as increasing productivity since using e-mails is fast, minimal training is needed, e-mails are cost effective and provide proof of communication (Public Information Practice II, 2006:23–25). How to write a proper e-mail is explained as well as how to use an e-mail address and how to send an e-mail. Using e-mail lists, replying to e-mails, forwarding an e-mail, requesting a read receipt and setting an e-mail priority also form part of this unit. E-mail is also mentioned as an important information technology skill by Northrop (see chapter 4, section 4.5 and Table 6.1 in this chapter) that states that e-mail helps public servants to communicate faster while saving time and money (Northrop 1999:14–15).

- **Unit 3: Public sector information technology and software**

  The learning outcomes of this unit include: an understanding of the different software categories, knowledge of the difference between the various types of server and microcomputer systems, knowledge of how the different types of operating systems work and an understanding of the basic functions of different types of application software (Public Information Practice II 2006:41).

  This unit provides a student with information about the different types of computer software and system software for example mainframe or server operating systems, communication software and application software, for

example, application software includes desktop suites, word processing software and database software (Public Information Practice II 2006:42–61).

This unit provides information about information technical skills and the ability and knowledge to use hardware, software, databases and support services to be effective and efficient in the public service as mentioned in chapter 4 (see section 4.5) and Table 6.1 of this chapter.

- **Unit 4: Effective communication**

The learning outcomes for this unit include: an understanding of communication, establishing rapport, active listening, asking effective questions and knowledge on how to respond to communication (Public Information Practice II 2006:67).

This study unit provides students with information about effective communication, which includes verbal, non-verbal and body language. The intention of communication is looked at as well as establishing rapport. Establishing rapport means the feeling of sharing a common world view or experience with another person (Public Information Practice II 2006:68–71).

Active listening and listening skills are looked at as part of the reasons why people do not listen to other people (Public Information Practice II, 2006:74–77). Examples of the types of questions that can be asked are given for example, open questions, closed questions and slightly closed questions (Public Information Practice II 2006:77–78).

Lastly this unit explains the different types of responses that can be used in communication for example implicit responses, descriptive responses and evaluative responses as well as the methods of communication for

example written words, spoken words, symbolic gestures, visual images and multimedia (Public Information Practice II 2006:78–81).

This unit focuses on verbal communication and face to face interaction and provides a Public Administration student with no information technology knowledge and skills. This unit could be replaced with content relevant to information technology that is in line with the focus of the module, namely Public Information Practice.

- **Unit 5: Public sector communication and protocol**

The outcomes of this unit include: an understanding of communication in the public sector, knowledge of internal and external communication, the different methods of internal and external communication, an understanding of government protocol and why government protocol is necessary (Public Information Practice II 2006:90).

In this unit communication in the public sector is explained in detail. This includes internal and external communication as well as upward and downward communication. The acceptance of communication, communication needs, channels of communication and a communication overload is also looked at (Public Information Practice II 2006:91–101). Lastly this unit looks at government protocol and why it is important for the country.

Like the previous unit, this unit also does not provide a student with any information and knowledge about information technology. This unit could also be replaced with content relevant to information technology that is in line with the focus of the module namely Public Information Practice.

- **Unit 6: Conflict management and negotiation**

  The outcomes of this unit include: an understanding of the concept conflict, negotiation, the aspects of conflict, the phases of conflict, the causes of conflict, types of conflict, knowledge of the basic approach to negotiation, negotiation skills, the negotiation process and the various negotiation tactics (Public Information Practice II 2006:107).

  Conflict and negotiations are explained and defined in detail in this unit. This unit explains the different phases of conflict for example the awareness of conflict, experience of conflict, manifestation of conflict, aftermath of conflict and conflict after care (Public Information Practice II 2006:111). The various types of conflict are looked at, this includes intrapersonal conflict, interpersonal conflict, intragroup conflict, intergroup conflict and inter-organisational and community conflict (Public Information Practice II 2006:113). Lastly negotiations and negotiation skills are looked at with the negotiations process that includes preparing for negotiations, dialogue and the termination of negotiations (Public Information Practice II 2006:118–119).

  This unit is not relevant to information technology or in line with the focus of this module that should be on Public Information Practice, and does not provide an undergraduate Public Administration student with any information technology knowledge or skills. This unit could also be replaced with content relevant to information technology that is in line with the focus of the module.

- **Unit 7: Marketing principles and techniques**

  The outcomes of this unit include: an understanding of marketing, knowledge of the principles of marketing, customer satisfaction, an

understanding of marketing strategy and marketing in the public sector (Public Information Practice II 2006:125).

Marketing and the needs, wants and demands of marketing is explained in detail in this unit. Products and services, value and satisfaction and the needs of the market are also looked at in this unit. The four P's of marketing is explained, namely product, promotion, place and price (Public Information Practice II 2006:135).

This unit is also not relevant to information technology and provides no information technology knowledge to Public Administration students. This unit could also be replaced with content relevant to information technology that is in line with the focus of the module that should be on Public Information Practice.

From the above it can be seen that only the first three units of Public Information Practice II, include any information technology content. The first three units explained the use of the internet, e-mail and the various technology networks and software. The internet, e-mail and the use of technology systems were also mentioned in chapter 4 as important by various authors for example Northrop, the Organisation for Economic Cooperation and Development and Van Straaten. Van Straaten (see chapter 4, section 4.4.1) states that using information systems and technology properly assists a public servant in eliminating useless and duplicated information and improves the quality and effectiveness of service delivery and decision making in government.

The last four units of Public Information Practice II, that focus on communication skills, protocol, conflict management, negotiation skills and marketing are not relevant to the use and development of information technology in the public service and do not provide Public Administration students with any information technology knowledge or skills. These units could be replaced with content

relevant to information technology that can provide Public Administration students with the information technology skills and knowledge that they need and that is in line with the focus of the module, namely Public Information Practice.

6.2.3 Management of Information III

Management of Information III, is provided to students enrolled for the National Diploma in Public Management in their third year of study. Management of Information III, is divided into seven units of study that include:

- **Unit 1: Meeting procedures**

  The objectives of this unit include: knowledge of meeting skills, an understanding of the role of a chairperson, facilitator, scribe, setting a meeting agenda, minutes of a meeting, conducting a meeting, evaluating a meeting, local government meetings and knowledge of the different voting methods in a meeting (Management of Information III 2006:4).

  In this unit meetings and meeting procedures are explained in detail. This includes the stages of a meeting by looking at the purpose, objectives, agenda and logistics of a meeting (Management of Information III 2006:4). This also includes local government meetings and methods of voting.

  This unit, although included in Management of Information III, does not provide a Public Administration student with any knowledge relevant to information technology. This unit could be replaced with content relevant to information technology that could benefit Public Administration students and that is in line with the focus of the module, namely Management of Information.

- **Unit 2: Effective reading and writing**

  The objectives of this unit include: learning to read effectively, reading university text, making use of a mind map, reading speed and writing style (Management of Information III 2006:46).

  This unit provides students with information about reading and writing and no information or knowledge about information technology. This unit includes reading university text and books, how to increase reading speed and how to make a mind map. This unit also includes aspects on essay writing, spelling, quotes and grammar (Management of Information III 2006:55–66).

  This unit could also be replaced with content relevant to information technology that could benefit Public Administration students and that is in line with the focus of the module, namely Management of Information.

- **Unit 3: Data collection and interpretation**

  The objectives of this unit include: an understanding of the difference between data and information, processing data, collecting data, knowledge of how data are stored, the transparency of data, understanding how to obtain information on the internet, using search engines, doing advanced searches on the internet, and knowledge about virtual and government documents that are available online (Management of Information III 2006:84).

  In this unit the different types of data and information are explained. The process of data processing is explained in terms of database and transaction processing. How data are collected, classified, sorted, edited, analysed, summarised and stored, forms an important part of this unit (Management of Information III 2006:91–93). These aspects were also

highlighted as important aspects in chapter 4 (see section 4.3) where Rosenthal-Sabroux, Grundstein and Infrate were quoted. They say that the accelerated pace of collecting, saving, communicating, publishing and distributing documents and information have facilitated working in groups and sharing documents and information quickly with others for more effective decision making (Rosenthal-Sabroux, Grundstein & Infrate 2008:585). The retrieval of data and the reproduction of data are also looked at in this unit with information on finding data. In finding data or information the internet can be used by making use of search engines and doing a keyword search or an advanced search. Examples of search engines, for example Google, are provided with online information about the South African government, political parties, non-governmental organisations, local governments and trade unions (Management of Information III 2006:105–115).

This unit's content is thus relevant to information technology that could benefit Public Administration students and is in line with the focus of the module, namely Management of Information.

- **Unit 4: Information dissemination**

The objectives of this unit includes: an understanding of reporting, knowledge of how the government uses reports, an understanding of various other forms of information dissemination as well as the advantages and disadvantages of the different methods of information sharing (Management of Information III 2006:123).

The writing of reports including the processes of report writing, public opinion polls, surveys and public meetings form part of this unit. The electronic dissemination of information by, for example, making use of the South African Government online portal, which was also mentioned in chapter 4 (see section 4.4.2) as an important undertaking by the

Department of Public Service and Administration, is also looked at in this unit. Other forms of information dissemination explained in the chapter include press conferences, interest groups, public service announcements, newspapers, magazines, journals and other media (Management of Information III 2006:132–138).

This unit's content is thus relevant to information technology that could benefit Public Administration students and is in line with the focus of the module, namely Management of Information.

- **Unit 5: Ethical information sharing**

The objectives of this unit include: an understanding of ethics, knowing why communication in a democracy is important, understanding how communication can help to address development, knowledge about the statutory and political framework of government communication, knowledge about the sources of public information, understanding what is meant by unethical communication and having knowledge of possible measures and mechanisms to ensure ethical conduct (Management of Information III 2006:144).

Ethics is explained in this unit as what is good and bad, acceptable and unacceptable, and right and wrong (Management of Information III 2006:146). The ethics of government communication is explained in terms of openness and transparency, political environment, filtering of information, propaganda and the range of the audience.

Barriers to effective communication that form part of this unit include a heterogeneous society, distance of communication, information overload and communication skills (Management of Information III 2006:156–160). Lastly the measures and mechanisms for ethical conduct are looked at, for example legislation, the Public Service Commission, training, the media,

the Public Protector, an ethical code of conduct and the Auditor General (Management of Information III 2006:161–163).

This unit focuses on ethics and provides a Public Administration student with no information technology knowledge. This unit could be replaced with content relevant to information technology that could benefit Public Administration students and that is in line with the focus of the module that should be on the Management of Information.

- **Unit 6: The management of information systems**

The outcomes of this unit include: an understanding of information systems, knowledge about the importance of management information systems (MIS), an understanding of the different types of information systems, knowledge of the limitations of information systems and insight into the role of a chief information officer (Management of Information III 2006:171).

Information according to this unit is used for making effective decisions. Information for decision making is also highlighted by Van Straaten (see chapter 4, section 4.3) as important by stating that the making of decisions in the public service has serious implications and inadequate information can lead to poor decision making and administration (Van Straaten 1984:40).

The development and building blocks of information systems and management information systems (MIS) are also looked at. MIS is explained as integrated systems of procedures, people, and methods for the regulation, planning and collection of information for enhanced decision making (Management of Information III 2006:178). This unit also focuses on the meaning of information technology and communication technology.

The limitations to information systems for example inadequate training, poor data, obstacles of data sharing and poor management are also looked at in this unit (Management of Information III 2006:187). This unit is also relevant to data information management skills that was explained in chapter 4 (see section 4.5) and Table 6.1 in this chapter.

- **Unit 7: Optimal service delivery through information technology**

The outcomes of this unit include: an understanding of information management, common problems associated with information management in government, using information management for service delivery, the advantages and disadvantages of using information management, knowledge of how information management affects government, the impact of the internet and electronic commerce on government and the implications of information technology for the public service (Management of Information III 2006:202).

In this unit information management is explained in detail as the management of information to ensure that information is used optimally. Apart from information management, information systems and information technology are also explained (Management of Information III 2006:203–204). The advantages of making use of information management is explained before looking at using information management for service delivery by making services available to citizens on a one stop basis. The impact of electronic commerce on government is explained; this was also mentioned in chapter 4 (see section 4.4.2).

Lastly the implications of the information society on the government are looked at in this unit. The information society was also discussed in detail in chapter 2 (see section 2.6) of this research. The United Nations Educational, Scientific and Cultural Organization (see chapter 2, section 2.6.2) explains the concept information society as "a society that makes

extensive use of information networks and information technology, produces large quantities of information and communication goods and services and has diversified content industry" (UNESCO 2003:online).

This unit is also relevant to the information society that make use of information technology to deliver services as was mentioned in chapter 4 (see section 4.5) and Table 6.1 in this chapter.

Apart from the units on meeting procedures, effective reading and writing, and ethics, Management of Information III, provides Public Administration students with relevant information and knowledge about information technology.

As was seen in Management of Information III, the obtaining of new and relevant information by searching on the internet is becoming increasingly popular. In chapter 4 (see section 4.3) access to information and the internet was also mentioned by various sources including ICT for government (2006:online) and the e-government toolkit (2009:online) as important. The storing and dissemination of information was covered in detail in Management of Information III.

The obtaining, storing and dissemination of information was also mentioned by various authors in chapter 4 (see section 4.3) as well. Ströh, for example, states that data processing software can also be used to speed up calculations and make information available to public servants without delay. Computers can store large quantities of information that can be retrieved at a later stage or the information can be processed to provide new information (Ströh 2007(b):140–142).

The management of information systems was explained in Management of Information III, and examples were provided of how information technology could influence the public services. Various examples of this were also provided in

chapter 4 (see section 4.4.2) that looked at the South African government's actions that confirm a sensitivity for the importance of using information technology in government.

The three modules Public Information Service I, Public Information Practice II, and Management of Information III, were reviewed to determine the content of information technology that is provided to undergraduate Public Administration students. It could be seen that these three modules do include some information technology aspects that can benefit students. However it is also evident that some of the units found in these three modules do not include any information technology.

The question can however be asked, how does the content of these three modules compare to the information technology skills that are required by a public servant to function properly in the public service?

6.3 AN EVALUATION OF UNDERGRADUATE PUBLIC ADMINISTRATION MODULES THAT INCLUDE INFORMATION TECHNOLOGY AGAINST INFORMATION TECHNOLOGY SKILLS REQUIRED

As was indicated in detail in chapter 4 (see section 4.5) the Organisation for Economic Cooperation and Development as well as Northrop provide guidelines on the type of technology skills that any public servant should have. Apart from the Organisation for Economic Cooperation and Development and Northrop's guidelines, Techlearning.com (2009:online) and Evalutech (2009:online) also provide a list of the information technology skills that are required in the 21st century by learners in order to be able to enter into any profession including the public service.

All the information technology skills mentioned by Northrop, the Organisation for Economic Cooperation and Development, Techlearn.com and Evalutech that

were explained in detail in chapter 4 (see section 4.5) are included, combined, explained and evaluated in Table 6.1 below. The information technology content found in the three Public Administration modules, namely Public Information Service I, Public Information Practice II, and Management of Information III, is then evaluated against the 11 information technology skills mentioned by Northrop, the Organisation for Economic Cooperation and Development, Techlearn.com and Evalutech to determine which of the information technology skills that a public servant should have are currently included in these three modules for students and which information technology skills are lacking in the three modules that could be included for students.

Table 6.1: Information technology skills compared to undergraduate Public Administration modules that include information technology

Information Technology skills	**Northrop (1999:14–15)**	**Organisation for Economic Cooperation and Development (2002:online)**	**Techlearning.com (2009:online) and Evalutech (2009:online)**	**Public Information Service I, Public Information Practice II, and Management of Information III**
End user skills/word processing skills/ information professionalism skills	Word or WordPerfect is used by governments, business and citizens, a general knowledge of	General basic information technology skills and professionalism skills, for example the sourcing,	Being able to use communication, information processing, research tools and word processing	Yes, Public Information Service I, unit 2, pp 20–39. Public Information Practice II, unit 1, pp 1–18.

	how to use these programs is important for working on documents	storing, retrieval, dissemination and archiving of information		Management of Information III, unit 3, pp 81–120.
Spreadsheets/ problem-solving skills	Spreadsheets are used for accounting and budgeting in government departments. Spreadsheets can also be used for working out formulas.		Using problem-solving tools such as spreadsheets, decision support and design tools to manage complex problems and to think critically	No, not included in any of the three information technology modules.
Graphics / presentation skills	Pictures are remembered better and can make a report or presentation clearer and more powerful.		Using presentation software to communicate effectively	No, not included in any of the three information technology modules.
Data Information management skills	Database management allows a public servant to keep track	Information management skills are important to coordinate and		Yes, Management of Information III, unit 6, pp 169–197.

	of everything that he/she is working on; from spreadsheets to mailing lists.	collaborate within and outside a department to provide public services and information.		
E-mail/ communication tools	E-mail helps public servants to communicate faster while saving time and money.		Being able to use communication, information processing and research tools, for example e-mail and groupware	Yes, Public Information Service I, unit 3, pp 40–56 and unit 5, pp 73–85. Public Information Practice II, unit 2, pp 19–39.
internet skills	Governments are making use of the internet to communicate with citizens and to provide services to the public, for example e-government.		Being able to use communication, information processing and research tools, for example the internet to access, manage, integrate, evaluate and communicate information	Yes, Public Information Practice II, unit 1, pp 1–18. Public Information Service I, unit 4, pp 57–72.
Graphic	Geographic			No, not

Information Systems (GIS)	Information Systems are used for planning public works and assist with mapping areas.			included in any of the three information technology modules.
Information technical skills		These are technical skills, for example what are hardware, software, technology networks, database, and support services.		Yes, Public Information Practice II, unit 3, pp 40–65.
Information society skills		This skill includes an understanding of new technology and how technology can relate to service delivery in government.		Yes, Public Information Service I, unit 5, pp 73–85. Management of Information III, unit 7 pp 199–224.
Acquisition		The ability to		No, not

skills		find, define, use and maintain information technology products and services.		included in any of the three information technology modules.
Interpersonal and self-directional skills			The ability to use personal developmental and productivity tools, for example e-learning, time management and collaboration tools, to enhance productivity and personal development.	No, not included in any of the three information technology modules.

Source: Adapted from Northrop (1999:14–15), the Organisation for Economic Cooperation and Development (2002:online), Techlearning.com (2009:online) and Evalutech (2009:online), and Public Information Service I, Public Information Practice II, and Management of Information III, modules in Public Administration in South Africa.

Table 6.1 indicates the 11 information technology skills that Northrop, the Organisation of Economic Cooperation and Development, Techlearning.com and Evalutech propose that a public servant should have. Evaluated against the

information technology content of Public Information Service I, Public Information Practice II, and Management of Information III, it can be seen that only six information technology skills are included in the content of the three modules to undergraduate Public Administration students, namely: end user skills, data information management skills, e-mail/communication tools, internet skills, information technical skills and information society skills.

End user skills that include the use of Word or WordPerfect programmes for working on documents, which can be explained as general basic information technology skills that include the storing, retrieval, dissemination and archiving of information are included in all three of the Public Administration modules, namely Public Information Service I, Public Information Practice II, and Management of Information III.

End user skills are also mentioned by Northrop, the Organisation for Economic Cooperation and Development, Techlearn.com and Evalutech as important skills for public servants to have and include the ability to make use of communication and research tools. These basic information technology skills can benefit a public servant since public servants work with documents, communicate with the public and store, retrieve and disseminate information. The quick and easy saving, retrieving and disseminating of information was mentioned in chapter 4 (see section 4.3) as some of the benefits of using information technology in the public service to improve effectiveness and efficiency.

Data information management skills that allow a public servant to coordinate and collaborate within and outside a department are included in the module Management of Information III. Data management or data information management skills that are also emphasised by Northrop and the Organisation for Economic Cooperation and Development as important skills to have allow a public servant to keep track of everything that he/she is working on; this can

include different data basis, for example a data base of physical resources and a data base of personnel files.

In Management of Information III (2006:172) it is stated that if a public servant wants to be effective and efficient in the public service knowledge of public information systems and data basis is needed. Knowledge of data basis and networks was also mentioned in chapter 4 (see section 4.5) as important skills and knowledge for a public servant to have to complete tasks and to be effective and efficient in the public service.

The use of e-mail and communication tools that assist a public servant to communicate faster within the public service and with citizens are included in Public Information Service I, and Public Information Practice II. The use of e-mails and communication tools as stated in Table 6.1 by Northrop, Techlearning.com and Evalutech and that are also mentioned in chapter 4 (see section 4.5) makes communication faster thus saving time and money. The use of e-mail as indicated in Public Information Practice II (2006:23–24) is an important skill for public servants to have, since it can increase productivity, needs minimal training, is cost effective, facilitates proof of communication and is becoming the preferred way of communicating within and outside government. According to Public Information Practice II (2006:21) e-mail forms the backbone of the public service and business communication throughout the world therefore being able to use e-mail is a skill that every public servant should have.

The module on the internet that can be used to provide services to the public is included in Public Information Service I, and Public Information Practice II. As can be seen from Table 6.1 making use of and understanding the internet is mentioned as an important skill by Northrop, Techlearning.com and Evalutech. The internet allows for easy communication with citizens and the creation of an information society as mentioned in chapter 2 (see section 2.6). The internet is already being used by the South African government to provide citizens with

information and services through a number of e-government initiatives like the South African Government Online Gateway, the Cape Province Gateway, the e-filing of tax and the 2010 FIFA world cup website (see chapter 4, section 4.4.2).

In future, as stated in section 4.6 of chapter 4, the ability to use the internet will become even more important with the use of Web 2.0 technology like blogs, wikis and the virtual world in government. Therefore, apart from making use of and understanding the internet, as indicated in Table 6.1, a public servant will in the future also need knowledge of new Web 2.0 technology to function effectively and efficiently in the public service.

Information society skills that include an understanding of how technology can relate to service delivery and an understanding of new technology are included in Public Information Service I, and Management of Information III. Information society skills, as emphasised by the Organisation for Economic Cooperation and Development in Table 6.1 and referred to in chapter 4 (see section 4.5) as an important skill to have, include an understanding of how to use information technology resources to provide public services to citizens. This includes knowledge of search engines and websites for service delivery. As was stated in chapter 4 (see section 4.4.2) the South African government is already making use of the internet to provide services and information to citizens through various e-government initiatives.

Therefore, understanding how technology can be used for service delivery is an important skill for a public servant to have. The module Management of Information III, (2006:221) also provides an overview of the relationship between the government and the information society by looking at the way technology has changed the relationship between the government and citizens. The influence of the information society on government and citizens' lives was also emphasised in chapter 2 (see section 2.6) of this research.

Information technical skills that include skills about software, hardware, networks, databases and support services are included in Public Information Practice II. Information technical skills that are emphasised by the Organisation for Economic Cooperation and Development in Table 6.1 include the technical skills that a public servant should have to understand the functions of computer hardware, software, networks and databases. Public Information Practice II, (2006:42) provides an overview of the information technical skills that a public servant should have and state that the use and knowledge of software and operating systems allow the public service to accomplish its day to day tasks.

Table 6.1 also indicated the five information technology skills that are not provided to undergraduate Public Administration students in the three modules Public Information Service I, Public Information Practice II, and Management of Information III, namely: spreadsheets/problem-solving skills that are mentioned by Northrop, Techlearning.com and Evalutech in Table 6.1 include the use of spreadsheets as a problem solving tool and to support decision making. Spreadsheets are also used in the public service to do accounting, budgeting and to work out formulas. Ströh (see chapter 4, section 4.3) agrees and states that using technology for calculations and problem solving can benefit the public service by enabling them to be more accurate, make decisions faster and to solve problems quickly.

Graphic/presentation skills that are also mentioned by Northrop, Techlearning.com and Evalutech in Table 6.1 include the use of pictures and presentation software to make communication more effectively. Pictures according to Northrop (see chapter 4, section 4.5) are remembered better and can make a report more powerful and interesting to read. Graphic Information Systems (GIS) that is mentioned by Northrop in Table 6.1 are used for city planning and mapping areas. This can save time by helping to find city areas and maps quickly as Ströh (see chapter 4, section 4.3) states that finding information faster allows the public servant more time to consider proposals and alternatives.

Acquisition skills that are mentioned by the Organisation for Economic Cooperation and Development in Table 6.1 refer to the ability to find, define, use and maintain information technology products and services. The acquisition of information technology products and services will become increasingly important since technology changes at a rapid pace, as was mentioned in chapter 4 (see section 4.6). Interpersonal and self-directional skills, as mentioned by Techlearning.com and Evalutech in Table 6.1, refer to the ability to use personal developmental and productivity tools, for example e-learning, to enhance productivity and personal development.

This is important since the government, as stated in chapter 3 (see section 3.4), is moving towards a system of self-development. The responsibility for developing the capacity to enhance job performance in the public service is an individual's responsibility. According to the former Minister of Public Service and Administration the intention is to move towards a system where people can improve and develop themselves so that their performance can be enhanced on an ongoing basis (Fraser-MoleketI, 2008:online).

From the above it can be concluded that the content of the information technology in Public Information Service I, Public Information Practice II, and Management of Information III, provide an undergraduate Public Administration student with some of the information technology skills needed, but not all of them. Since only 26% of higher education institutions provide information technology as part of their Public Administration curricula and only 55% of the modules that provide information technology are relevant to the information technology skills needed by a Public Administration graduate, revision will have to be done to make the curriculum more relevant.

The remaining 74% of higher education institutions that do not provide any information technology in their undergraduate Public Administration curricula

might benefit by including it in their curricula, since Kramer et al (see chapter 3, section 3.2.5) state that knowledge and skills about the use of computers are important assets for Public Administration graduates to have.

6.4 CONCLUSION

From chapter 6 it can be seen that Public Information Service I, Public Information Practice II, and Management of Information III, provide an undergraduate Public Administration student with a number of information technology skills needed to be successful in the public service, but not all the skills required.

After reviewing the content of Public Information Service I, Public Information Practice II, and Management of Information III, it was found that useful information and knowledge are provided to student for example data collection, e-mails, public sector information technology and software. This information and knowledge are also mentioned by Northrop, the Organisation for Economic Cooperation and Development, Techlearn.com and Evalutech as some of the skills and knowledge that a public servant could benefit from. However not all the content of the three modules are relevant, for example meeting procedures, effective reading and writing, conflict management and ethics is not relevant to information technology or the information technology skills needed by a Public Administration student.

Chapter 6 also found that, after reviewing Public Information Service I, Public Information Practice II, and Management of Information III, against the 11 information technology skills provided by Northrop, the Organisation for Economic Cooperation and Development, Techlearn.com and Evalutech, that only six of the 11 information technology skills, namely end user skills, data information management skills, e-mail/communication tools, internet skills, information technical skills and information society skills are included in the three Public Administration modules for students. Five information technology skills are

not included in the three Public Administration modules for students, namely spreadsheets/problem solving skills, graphic/presentation skills, Graphic Information Systems (GIS), acquisition skills and interpersonal and self-directional skills.

Therefore revision of the three undergraduate Public Administration modules is recommended to ensure that Public Administration students obtain the information technology skills needed to function effectively and efficiently in the public service.

Chapter 7 will provide a conclusion and an evaluation of the literature reviewed and the findings of the research. Recommendations will be made with regard to the undergraduate Public Administration curricula at South African universities and information technology skills.

CHAPTER 7
CONCLUSION AND RECOMMENDATIONS

"Education is the most powerful weapon which you can use to change the world."

Nelson Mandela

7.1 INTRODUCTION

This research project departed from a fundamental premise that undergraduate Public Administration curricula essentially aim at developing ways for students to become professional public servants. As the ability to use information technology is, according to the former South African Minister of Public Service and Administration, a crucial competency of a professional public servant, the question was raised whether universities should facilitate the acquisition of information technology competencies through undergraduate Public Administration curricula. This question leads to various secondary questions (see section 1.3) including the following: what learning should be facilitated by a university, what is meant by practical skills, what is meant by "information technology competence" and what is currently the content of undergraduate Public Administration curricula at universities in South Africa? While the questions regarding the meaning of the concepts "practical skills" and "information technology competence" have been answered in section 1.5 of chapter 1, the other questions led to the formulation of some of the aims discussed in the next paragraph.

The main objective of this study was consequently to understand the appropriateness of the facilitation of the acquisition of practical skills such as information technology competence through undergraduate Public Administration curricula at a university. In order to operationalise the research, this objective

was divided into four interrelated aims (chapter 1), namely to understand the university (see the first mentioned secondary question in the previous paragraph) as a higher education institution by exploring the changing environment or paradigm shift in higher education (chapter 2) and by reviewing the development of Public Administration education within higher education institutions (chapter 3), to review the information technology competency needs of the South African public service (chapter 4), to analyse and describe Public Administration curricula at all the South African universities (see the fourth aim in the previous paragraph and also chapter 5), and to evaluate the facilitation of information technology competencies through Public Administration curricula at those South African universities where it exists (chapter 6).

This chapter will consequently summarise and evaluate the findings of the various chapters of this thesis in terms of the abovementioned objective and aims, and draw the final conclusion for answering the question whether universities should facilitate the acquisition of information technology competencies through undergraduate Public Administration curricula. Based on that answer, this chapter will also provide recommendations for undergraduate Public Administration curricula at South African universities.

7.2 RESEARCH SUMMARY

Chapter 2 was devoted to answering the first question listed in section 1.3 of chapter 1, namely “What learning should be facilitated by a university?” Consequently, chapter 2 aimed “to explore the changing environment or paradigm shift that took place in higher education” (section 1.4). Chapter 2 thus provided an overview of the role and function of universities and higher education. This included an overview of the development of universities and the philosophy of higher education, which integrated the views of various philosophers, such as Confucius, Plato, Aristotle and Socrates. Aristotle was of the view that education prepared the individual for the enjoyment of leisure. This was followed in the sixteenth, seventeenth and eighteenth century by the views

of Montaigne, Bacon, Galileo, Comenius, Rousseau and Locke that placed emphases on the training of a student to cope with any eventuality with insight and good judgment. These early philosophers have clearly identified the role and function of universities as being a preparation for life by instilling insight and good judgment.

The nineteenth century had a direct bearing on current education practices being used by universities. During this time Newman's book, *The idea of a university* that was first published in 1852, contributed greatly to determine the role and function of higher education and universities with Newman believing in a liberal education rather than a vocational or professional instruction. Following Newman's book the twentieth century was rich with contributions of educational philosophers writing about the idea, role and function of the university. It has been shown that various authors viewed the university as a school of universal learning. Newman viewed the university as a human institution with the function of producing persons with broad knowledge, critical intelligence, moral decency and social sensitivity.

The role and function of the university was debated rigorously and viewed differently by various authors that wrote on this topic. Therefore, this research concluded that the role and function of a university should include:

- The creation, pursuit, acquisition and spread of knowledge.
- Building a research and education capacity for the scholarly community.
- The training of lecturers and researchers to contribute to the improvement of society.

Chapter 2 also considered the changing role of universities and higher education by assessing the paradigm shift that is taking place in higher education (see section 2.4). This paradigm shift was due to changes that took place in society

and universities had to change to accommodate the new needs, values and expectations of society. The paradigm shift resulted in the use of new concepts for example lifelong learning, student outcomes, distance education, online learning, new technology and globalisation. In this paradigm shift the student is at the centre of the learning experience with education being tailored to the needs of the student.

Related to the paradigm shift in higher education, chapter 2 also reflects on the university of the future – a virtual university capable of providing education at any time and any place at a lower cost. This can be seen as a global university that has a global reach and is driven by the need for advanced education in a knowledge driven civilisation.

The last part of chapter 2 reviewed the development and characteristics of the information society. In the information society the access, production and use of information technology is the most important aspect of citizens' lives and will determine their livelihood. In the information society distance poses no obstacle to development, social interaction, learning, adequate health care and business success. Full participation in society activities is possible from anywhere in the world through the use of technology.

Chapter 2 also indicated that universities and higher education is changing and that the needs of society, the expectations of future employers and the use of information technology play a big role in these changes. Chapter 2 has shown that the university was always seen as being a preparation for life by instilling insight and good judgement. The very generic view of the role of a university has gradually changed to accommodate new needs, values, societal expectations and the needs of professions and employers. It has been shown that the needs of the so-called information society driven by new technology and the use of computers, the internet and telecommunications, will increasingly influence the role of the university of the future. In the information society universities will have

to change and adapt to the global marketplace, global village and global culture. As part of the information society, lifelong learning and adult education is becoming more important and are aspects the university of the future should focus on. After exploring the changing environment or paradigm shifts of higher education, chapter 2 has shown that a university should facilitate the learning necessary for developing students to enable them to adapt to the needs of an ever changing society.

In chapter 3 the focus has been narrowed from higher education in general to Public Administration education and more specifically its development and relevance with regard to technology. The purpose of this chapter was to find evidence of attention to information technology in the development of Public Administration education. It gives an overview of the development of Public Administration since Woodrow Wilson wrote *The study of administration* in 1886 until the relatively recent development of Public Administration education in South Africa. This overview includes a reflection on the need for educated, trained and professional public servants, the relevance of Public Administration education in South Africa and the advantages that training and education provide in building human capacity. In an assessment of the requirements for Public Administration education in South Africa as reflected by inter alia the deliberations of the Higher Education Quality Committee and the National Qualification Framework (NQF), it came to the fore that information, knowledge, and communication and technology management are included in some of the unit standards which form part of the subject field Public Administration. Furthermore, the National Association of Schools of Public Affairs and Administration and the International Association of Schools and Institutes of Administration also provide standards to enhance a student's competencies, values, knowledge and skills in Public Administration. Both these organisations recommended the inclusion of information technology competencies in Public Administration curricula. The fact that various Public Administration scholars wrote about the use of computers and information technology in the public

service, has been presented as a further indication of the necessity of the inclusion of information technology in Public Administration curricula. Although information technology is a relatively recent phenomenon, chapter 3 has indicated that it already has become an integral part of the Public Administration scholarly discourse and standards for curricula.

Chapter 4 was devoted to an assessment of the use of information technology in the South African public service and the subsequent need for information technology competent public officials (the fourth aim listed in section 1.4). This chapter provided an overview of the current use of information technology in South Africa, which indicated that internet use in South Africa has grown with 121% since 2007, showing that technology has became an important part of citizens' lives. Furthermore, it has been indicated that information technology is one of the key strategies for the reform and improvement of public service delivery.

An overview of some of the initiatives undertook by the South African government to include the use of information technology in the public service has shown that the South African government has developed various policies and plans and created several institutions to promote information technology in the public service. Irrespective of the success of the implementation of these interventions, they serve at least as an indication of the importance of information technology for the South African government.

An important part of chapter 4 was determining the information technology skills required by a public servant. These skills include:

- End user-/word processing skills: for example Word or WordPerfect is being used by governments, businesses and citizens and a general knowledge of how to use these programmes is important to work on documents and information.

- Spreadsheets/problem solving skills: spreadsheets are used in the accounting function of any department of government. Spreadsheets can also be used for working out formulas and for public works administration.
- Graphics/presentation skills: pictures are remembered better and can make a report or presentation clearer and more powerful.
- Data Information Management skills: database management allows a public servant to keep track of everything that he/she is working on; from spreadsheets to mailing lists.
- E-mail/communication tools: e-mail helps public servants to communicate faster and saves time and money.
- Internet: governments are making use of the internet to communicate with citizens and to provide services to the public, for example e-government.
- Geographic Information Systems (GIS): Geographic Information Systems are used for planning public works and assist with mapping areas.
- Information technical skills: these are technical skills, for example what are hardware, software, technology networks, database, and support services.
- Information society skills: this skill includes an understanding of new technology and how technology can relate to service delivery in government.
- Acquisition skills: the ability to find, define, use and maintain information technology products and services.
- Interpersonal and self-directional skills: the ability to use personal developmental and productivity tools, for example e-learning, time management and collaboration tools, to enhance productivity and personal development.

Chapter 4 also found that the information technology skills currently being used in the private sector are similar to the skills needed in the public sector. Furthermore, it has been shown that there is a growing need for public officials to be equipped with more advanced information technology competencies to keep up with a changing world.

In order to answer the fourth secondary research question posed in section 1.3 of this thesis, “What is the content of undergraduate Public Administration curricula at universities in South Africa?” chapter 5 was devoted to a detailed overview of the undergraduate Public Administration curricula currently being used by comprehensive universities, universities and universities of technology in South Africa (third research aim – section 1.4).

This overview, firstly, focused on the higher education landscape of South Africa. This overview included information about the merger of higher education institutions that started in 2004 and resulted in South Africa currently having six comprehensive universities, 11 (traditional) universities and five universities of technology. Of these 22 higher education institutions 20 institutions currently offer the subject Public Administration to students.

Of the 20 higher education institutions offering Public Administration as a subject, only seven offer information technology as part of their Public Administration curricula. Amongst these seven institutions, three are comprehensive universities. None of the 10 (traditional) universities in South Africa offering Public Administration include any modules on information technology in their Public Administration curricula, while four of the five universities of technology offering Public Administration, include modules on information technology in their Public Administration curriculum.

The seven higher education institutions that include information technology in their Public Administration curricula include it as part of the National Diploma in Public Management. The curriculum that is currently still being used to teach the National Diploma in Public Management is standardised with all seven higher education institutions making use of Public Information Service I, Public Information Practice II and Management of Information III to teach information technology to students. Chapter 5 has shown that the undergraduate Public Administration curricula within the degree programmes of the comprehensive and

the so-called “traditional” universities do not contain separate Public Administration modules for the facilitation of information technology competencies. Whether these information technology competencies are facilitated by modules form other subject fields constituting the particular degree programmes, does not fall within the scope of this study. The Public Administration modules specifically aimed at the instilling of information technology competencies are confined to the curricula of the National Diploma’s offered by universities of technology and comprehensive universities.

In order to provide a more nuanced answer to the fourth secondary research question (section 1.3), chapter 6 consequently presented an in-depth review of the undergraduate Public Administration curricula that include information technology. The three modules offering information technology, namely, Public Information Service I, Public Information Practice II and Management of Information III, were reviewed in detail to assess their content as proposed by Northrop, the Organisation of Economic Cooperation and Development, techlearning.com and Evalutech. The purpose of this assessment was to determine which of the technology skills that a public servant should have are currently included in these undergraduate Public Administration modules. It was consequently found that of the 11 information technology skills that Northrop, the Organisation of Economic Cooperation and Development, Techlearning.com and Evalutech propose a public servant should have, only six of the information technology skills are included in the three undergraduate Public Administration modules that are offered to students. These six skills that the three modules do facilitate include end user-/word processing skills, data information management skills, e-mail/communication tools, internet, information technical skills and information society skills. The five information technology skills proposed that are not provided to undergraduate Public Administration students in the three modules are: spreadsheets/problem solving skills, graphic/presentation skills, Graphic Information Systems (GIS), acquisition skills and interpersonal and self-directional skills.

It is thus concluded in chapter 6 that the content of the information technology in these three modules provide an undergraduate Public Administration student with some of the information technology skills needed, but not all of them. Therefore, revision was recommended in certain cases to ensure that the focus remains on information technology.

7.3 FINAL CONCLUSION

The main objective of this research (see section 1.4) was to understand the appropriateness of the facilitation of the acquisition of practical skills such as information technology competence through undergraduate Public Administration curricula at South African universities. An exploration of the changing environment of higher education (first aim) as reported in chapter 2, has shown that the role of universities and higher education has changed from instilling insight and good judgement to the facilitation of learning, enabling students to adapt to the needs of an ever changing society and global marketplace (chapter 2). A subsequent overview of the development of the subject Public Administration has revealed that although information technology is a relatively recent phenomenon of study, it has already become an integral part of the scholarly discourse and curricula standards of the subject field (chapter 3). Although a wide variety of basic competencies are already used in the workplace, it has been found that there is a growing need for public officials to be equipped with more advanced information technology competencies to keep up with a changing world (chapter 4). However, the research has also shown (chapter 5) that information technology competencies are facilitated only by the traditional vocational qualifications (National Diplomas) and not by the traditional academic programmes (degrees), which are also regarded as more advanced. Furthermore, the research has shown that even in the modules where information technology competencies are indeed facilitated, the scope is limited in terms of internationally accepted criteria.

Bearing in mind that the research has shown that

- the role of a university is, inter alia, to instil learning, enabling students to adapt to the needs of a changing society (research aim one)
- the role of Public Administration education is to provide the public service (an institution of society) with university educated and trained professional public servants (research aim two)
- Information Technology competence is part of being a professional public servant (research aims three and four)

It can therefore be deduced that universities should indeed facilitate the acquisition of practical skills such as information technology competence as part of the professional preparation of public servants. However, the research has shown that the facilitation of this competence, should not necessarily be restricted to the curriculum of the subject Public Administration. Bearing in mind that this study has shown that learning programmes can be either single subject programmes (eg the National Diploma in Public Management) or multi subject programmes (eg the BAdmin degree), this facilitation can take place through either the curriculum of the subject Public Administration or the curriculum of the degree programmes where Public Administration is only one of the subjects. The research question posed in section 1.3 of this thesis can thus be answered as follows: Yes, universities should facilitate the acquisition of practical skills such as information technology competence, although this facilitation should not be restricted to Public Administration curricula, but may also occur through modules from other subject fields in a degree programme. The unique contribution of this thesis to South African Public Administration scholarship is the deduction that it is indeed appropriate for a university to instil practical skills such as information technology competence in undergraduate degree programmes.

7.4 RECOMMENDATIONS

Recommendations which could expand the knowledge on the acquisition of information technology competence through undergraduate curricula at South African universities include the following:

- Although various authors including Newman wrote extensively about the role and function of the university, a paradigm shift is taking place in higher education as was illustrated in chapter 2 (see section 2.4). This paradigm shift indicates that education should include the mastery of functions rather than the short term learning of facts, and the learning of a new range of technologies that include computers and information technology. Therefore, this research recommends that, apart from the creation, pursuit, acquisition and spread of knowledge, building a research and education scholarly community and the training of lecturers and researchers to contribute to the improvement of society, ongoing research should include the assessment of a growing range of information technology competencies with the view of including them in the curricula of offerings of learning aiming at the preparation of professional public servants.

- Bearing in mind that the South African Qualification Authority, the International Association of Schools and Institutes of Administration and the National Association of Schools of Public Affairs and Administration include information technology as part of the skills and knowledge that a Public Administration student should acquire, it can be expected that information technology competence be instilled by all Public Administration curricula. However, this research has shown that 74% of higher education institutions do not provide for dedicated modules on acquiring information technology competence in their undergraduate Public Administration curricula can benefit by including it in their curricula

(see chapter 3, section 3.2.5). Bearing in mind that these competencies may be instilled through either the way learning is facilitated by these curricula (although not reflected by the learning contents of curricula) or through modules from other subject fields included in the curricula of degree programmes, further research will be necessary to assess the range and quality of information technology competencies instilled to Public Administration students.

- With only six of the 11 proposed information technology skills present in the three Public Administration modules (Public Information Service I, Public Information Practice II and Management of Information III) the national diploma programmes, it is recommended that further research be done to assess the relevance of these modules in terms of the recommended information technology skills. In this regard it is important that the content of the information technology modules should be relevant to what a Public Administration student needs to know about information technology and the skills required by their future work environment.

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