Chapter Two: e-Education

e-Education defined

2.1 In the South African context, the concept of e-Education revolves around the use of ICTs to accelerate the achievement of national education goals. e-Education is about connecting learners and teachers to each other and to professional support services, and providing platforms for learning. e-Education will connect learners and teachers to better information, ideas and one another via effective combinations of pedagogy and technology in support of educational reform. It supports larger systematic, pedagogical, curricular and assessment reforms that will facilitate improved education and improved use of educational resources such as ICT..

2.2 The challenge is to transcend the mere exchange of information and to transform e-Education into a range of learning activities that meet educational objectives.

2.3 e-Education is more than developing computer literacy and the skills necessary to operate various types of information and communication technologies. It is the ability to:

- apply ICT skills to access, analyse, evaluate, integrate, present and communicate information;
- create knowledge and new information by adapting, applying, designing, inventing and authoring information;
- function in a knowledge society by using appropriate technology and mastering communication and collaboration skills.

2.4 e-Education views ICTs as a resource for reorganising schooling, and a tool to assist whole-school development. It includes ICTs as:

- a tool for management
- an administration tool to increase productivity;
- a resource for curriculum integration;
- a communication tool;
- a collaborative tool for teachers and learners; and
- a learning environment that advances productivity, creativity, communication, collaboration and engagement.

2.5 ICTs, when successfully integrated into teaching and learning, can through meaningful engagement and facilitation bring about meaningful interaction of learners with information. ICTs can advance high order thinking skills such as comprehension, reasoning, problem-solving and creative thinking and enhance employability. It is further a motivational tool and enhance productivity. Success in the infusion of ICTs into teaching and learning will ensure that all learners will be equipped for full participation in the knowledge society before they leave further education and training (FET) institutions.

2.6 Moreover, these learners are likely to utilise e-Government processes, not only to acquire and use information, but also to implement public sector reforms that can enhance transparency in government operations. These learners will use ICTs to

enhance interaction between citizens, governmental organisations and public and elected officials.

2.7 These learners will invent new ways of using ICTs to realise the Department of Education's vision of developing citizens who are critical and active lifelong learners.

2.8 The challenge facing our education and training system is to create a learning culture that keeps pace with these changes, and equips people with the knowledge, skills, ideas and values needed for lifelong learning. Our education system must create graduates who use information effectively and keep abreast of technological advances.

Information and communication technologies defined

2.9 ***Information technology (IT)*** is a term used to describe the items of equipment (hardware) and computer programmes (software) that allow us to access, retrieve, store, organise, manipulate and present information by electronic means. Personal computers, scanners and digital cameras fit into the hardware category; database programmes and multimedia programmes fit into the software category.

2.10 ***Communication technology (CT)*** is a term used to describe telecommunications equipment through which information can be sought, sent and accessed – for example, phones, faxes, modems and computers.

2.11 ***Information and communication technologies (ICTs)*** represent the convergence of information technology and communication technology. ICTs are the combination of networks, hardware and software as well as the means of communication, collaboration and engagement that enable the processing, management and exchange of data, information and knowledge.

2.12 ***Digital literacy*** refers to the ability to appreciate the potential of ICTs to support innovation in industrial, business, learning and creative processes. Learners need to have the confidence, skills and discrimination to adopt ICTs in appropriate ways. Digital literacy is seen as a "life skill" in the same category as literacy and numeracy.

2.13 ***Information literacy*** is the ability to locate, evaluate, manipulate, manage and communicate information from different sources. As learners become increasingly information-literate, they develop skills in discrimination, interpretation and critical analysis. ICTs offer opportunities for higher-order thinking and creativity in processing, constructing and conveying knowledge.

2.14 ***e-learning*** is flexible learning using ICT resources, tools and applications, focusing on;

- accessing information,
- interaction among teachers, learners, and the online environment,
- collaborative learning, and

- production of materials, resources and learning experiences.

e-learning ,may involve the use of Internet, CD-ROM, software, other media and telecommunications.

2.15 ***Online learning*** refers more specifically to the use of the Internet and associated web-based applications as the delivery medium for the learning experience.

The significance of e-Education

2.16 New models of learning are radically changing our concept of education. Education for human development in the learning society requires collaborative learning, and focuses on building knowledge. These changes arise from shifts in educational goals, and from new concepts in learning and knowledge creation.

2.17 The Department of Education believes that developments in ICTs create access to learning opportunities, redress inequalities, improve the quality of learning and teaching, and deliver lifelong learning. ICTs can accommodate differences in learning styles and remove barriers to learning by providing expanded opportunities and individualised learning experiences.

2.18 Experience worldwide suggests that ICTs can play an important role in the transformation of education and training. ICTs can enhance educational reform by enabling teachers and learners to move away from traditional approaches to teaching and learning. In a transformed teaching and learning environment, there is a shift from teacher-centred, task-oriented, memory-based education (with technology at the periphery), to an inclusive and integrated practice where learners work collaboratively, develop shared practices, engage in meaningful contexts and develop creative thinking and problem-solving skills.

2.19 There is sufficient empirical evidence that investments in ICTs yield positive results for learners and teachers whilst recognizing the complexity of factors which need to be in place to ensure such learning. Studies have demonstrated improved learner achievement in:

- application and production of knowledge for the real world;
- the ability of learners to manage learning;
- the ability to promote achievement for learners who experience barriers to learning; and
- accessing information that increases knowledge, inquiry and depth of investigation.

2.20 Furthermore, the use of ICTs within a set of changed strategies in teaching and learning has demonstrated improved inventive thinking skills, such as creativity, problem solving, higher-order thinking skills and reasoning, along with improved effective communication. Improvements in interpersonal skills, such as writing, public speaking, teamwork and collaboration, and improved productivity skills, including creating high-quality products, have also been reported.

2.21 ICTs encourage a teaching and learning milieu which recognises that people operate differently, have different learning styles and have diverse perspectives, based on different backgrounds. ICTs embrace inclusive education by providing

opportunities, alternative methods of instruction and flexible assessments for learners who experience barriers to learning.

Benefits to the broader society include increased opportunities for lifelong learning, communication and exchange essential to democratic living, and the creation of a pool of globally competitive human resources. 2.23 The development and implementation of e-education will create the pool from which our country can draw professional citizens and export African expertise around the world.and The implementation of e-Education should serve demonstrate Africa's capacities in ICT.

The Department of Education will endeavour to utilize the experiences of countries whose developments is of the same status learn from and how closely do those contexts mirror the SA context?

e-Education policy goal

2.22 ***Every South African manager, teacher and learner in the general and further education and training bands will be ICT capable (that is, use ICTs confidently and creatively to help develop the skills and knowledge they need as lifelong learners to achieve personal goals and to be full participants in the global community) by 2013.***

e-school development

2.23 In order to achieve the e-Education goal, GET and FET institutions will have to develop into learning organisations consisting of a community of both teachers and learners. In such institutions, teachers and learners will be able to function across three dimensions:

- **The operational dimension** refers to the skills that are necessary for the use of new information and communication technologies. Demonstrated acquisition of these skills is as important as the process by which they are acquired. Approaches that employ an elaborate human network of support among teachers and learners, and adopt a collective approach to knowledge and problem solving, are rich and powerful for the processes of learning and knowledge of ICTs in education. In order to facilitate collective learning, provincial departments will establish opportunities for GET and FET institutions to learn together and from each other about ICTs in education.

- **The cultural dimension** involves stepping into the culture (mindset) that supports the practice of using ICTs for educational purposes, regardless of one's level of expertise. This requires teachers to move beyond a purely instrumental role that views ICTs as an educational add-on, to regarding technology as something that poses interesting and important questions for administration, curricula and pedagogy.

- **The critical dimension** invites teachers and learners to step outside the culture and challenge assumptions that are embedded in the success stories

about ICTs inside and outside of GET and FET institutions. This requires a critical dialogue, analysis among teachers, and research resources to provoke and expand teachers' perspectives on the benefits of ICTs.

2.25 e-schools will therefore be characterised as institutions that have:

- learners who utilise ICTs to enhance learning;
- qualified and competent leaders who use ICTs for planning, management and administration;
- qualified and competent teachers who use ICTs to enhance teaching and
- learning;
- access to ICT resources that support curriculum delivery; and
- connections to ICT infrastructure.

2.26 e-schools will connect with the community by:

- allowing community access to its computer facilities after hours;
- receiving support from the community and local SMMEs to maintain and sustain ICT interventions; and
- serving as a venue for business advisory services and training for community based small computer and repair businesses.

2.27 Guidelines will be established regarding community collaboration. The legal and finacial implications, as well as training for SMMEs and learnerships, will be addressed.

2.28 The Department of Education will determine and revise regularly the basic ICT tools to be supplied to each institution in being an e-school. This will ensure equity and guide the Department of Education and schools in the implementation of ICT.