

University of Zululand
FACULTY OF COMMERCE, ADMINISTRATION AND LAW

Title: An investigation into the implementation of e-learning in the Faculty of Commerce, Administration and Law at the University of Zululand (Unizul)

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This work will be submitted to the University of Zululand in fulfillment of the requirements for the degree of Masters of Commerce (Business Management)

Declaration

I, DOREEN VONGAI CHIMBWANDA, declare that this dissertation is my original work, save for citation and referencing signify otherwise in the text. The dissertation has not and will not be presented for the award of any degree at any other university.

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Dedication

This research project is dedicated to my late uncle Brice Nyamukondiwa, for showing me the value of education and the importance of family.

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Abstract

Electronic learning, is used to refer to computer based learning or learning online either via the internet or intranet. According to Brockbank (2002) e-learning is essentially the e-commerce of knowledge. This research focused on the e-learning programme that was introduced at the University of Zululand (Unizul) and the impact it had on lecturing staff and students of the Faculty of Commerce, Administration and Law. Literature generally states that the benefits of such a programme outweigh the disadvantages involved. To collect data survey questionnaires and a focus group were used. These were analysed using parametric and non-parametric statistics. Results revealed that the programme was poorly implemented and advertised at the institution as a proportion of the sample of lecturing staff and students did not know what e-learning was or that it was being implemented at Unizul.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Electronic learning, which is shortened to e-learning, is used to refer to computer based learning. According to Brockbank (2002) e-learning is essentially the e-commerce of knowledge. Watson, Berthon, Pitt and Zinkhan (2000) explain that e-commerce involves the use of technology to enhance communications and transactions with all of an organisation's stakeholders. The stakeholders of an organisation include customers, suppliers, government regulators, financial institutions, managers, employees as well as the public. E-commerce is the blanket term for all activities carried out online. It is learning online (internet) or via an intranet. Harasim (1990), states that e-learning does not need students and lecturers meeting at the same time or same venue. The computer stores information and this information is available to both lecturers and students.

Robbins, Odendaal and Roodt (2003) mentioned that there are six (6) specific forces that can stimulate change in an organisation or institution. These forces are the nature of the workplace, technology, economic fluctuations, and competition within an industry, social trends and world politics. Technology is listed as one of the major forces that can effect change in an organisation. Specific elements of technology are the availability of faster and cheaper computers and Total Quality Management (TQM) programmes. Tertiary institutions are organisations that operate in manner similar to most business organisations. They need to keep abreast of technological changes in the workplace. E-

learning is a technological tool that is currently used by academic institutions to keep up with competition in the global academic environment. Like all other forces that stimulate change in an organisation, technological programmes in academic institutions or training departments have to be monitored. This is because university administrators need to know whether or not they are operating at global standards.

Many global tertiary institutions offer online classes. Mutula (2002) suggests that online educational centres are designed to provide students, working individuals, and career-oriented individuals accessible learning, training and skills development. This enables individuals to develop their careers and deal with their families at the same time. Research at a number of leading academic institutions students appear to be as satisfied with their online classes as they are with traditional ones.

Hunt (1997) argues that many resources, effort and time are being spent on technology used in lecture halls. Starting or initiating a technology such as e-learning requires properly trained staff to work with students online. Staff members must not only be able to understand the content area of their courses, but also be trained in the use of computer applications. For instance, they may need to offer assistance to students who need help downloading course material or uploading an online assessment. E-learning is suited to distance learning and flexible learning, but can also be used in conjunction with face-to-face learning. Essentially, students can download course content during vacations in order to study ahead. By delivering coursework directly to a student's computer, learning hours become flexible and fit in with personal time and location constraints. Stockley (2006) adds that many organisations find blending e-learning and

face-to-face learning effective. It is expected that as technology expands, face-to-face learning will start to decrease as software products enable audio, visual and text communication by participants.

With technology students can access course work online or via mobile phones. According to Desmond (2002) mobile learning using cellular telephones is becoming a new sector of education and training. Engelbrecht (2003) believes that e-learning is convenient for students. It creates a virtual academic community in which students can learn with and from each other. This gives them an advantage in the highly technologised business world. According to Mutula (2002) an increasing number of universities are offering distance education through the internet. The University of Zululand (Unizul) intention is to use e-learning for full time students. This will help to disseminate information to students and add to their accessibility of knowledge. It is seen as a tool for giving previously disadvantaged students more support. Fundamentally, Unizul needs to keep up with technological changes in order to cater to students needs.

According to a study by Van Der Merwe and Mouton (2005) lecturing staff lacked commitment and were not willing to integrate e-learning into their teaching processes. They wanted monetary incentives and rewards in order to expand their teaching and learning portfolios. On the other hand Matodzi, Herselman and Hay (1997) viewed e-learning as a bridge to the digital divide between rural and urban communities in enhancing educational qualifications. They concur that such an educational tool may contribute toward alleviating poverty and socio-economic problems in South Africa.

According to the University of Zululand's Strategic Plan for 2008-2011, Unizul will have to adjust its teaching and learning policies in order to incorporate e-learning. The plan also states that the recently motivated e-learning programme requires a large capital outlay. This will pay off over time as greater throughput rates will be achieved. Unizul will have to prioritise the challenges and demands of technology in its institutional planning. Computer competence for both lecturing staff and students is a necessity if e-learning is to become effective as per the institutional aim in meeting the technological and teaching demands of the twenty-first century.

The study will help the university understand the implications of e-learning in the Faculty of Commerce Law and Administration. In a rapidly changing and technologised world, it is important to understand the future potential of this tool. In the nineties, the potential of technology as a major part of teaching and learning was noted:

We are rapidly approaching the stage where some might claim that a new law of learning could be postulated, that is successful learning is impossible without media resources+(Hunt 1997:74).

This study will help to determine if Unizul, specifically the Faculty of Commerce, Law and Administration will benefit by the introduction of an internal e-learning programme.

1.2 Résumé

Technology is becoming popular and electronic activities via e-commerce are now an everyday reality for most individuals (Watson, Berthon, Zinkhan & Pitt 2000). Similarly, teaching and learning via electronic gadgets or modern day technology is also on the increase. E-learning affects the facilitator, the learner as well as the institution or organisation offering the programme.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

E-learning uses the intra or internet to carry content to learners. Programmes can be developed to cover almost any educational topic. Different learning methodologies and strategies are used to enhance individual capacity and performance (Clark, 2008). Many challenges pertaining to the delivery of such programmes arise, for instance, out of the capacity of individuals designing the programme and the technological requirements needed to set it up. The following review of literature discusses such pertinent issues.

2.2 Technological issues

The primary factor that determines if e-learning can incorporate audio, video, and/or animation into programme offerings is the amount of bandwidth that is available. Bandwidth is the speed of a computers connection to the internet or intranet. The more bandwidth the faster the connection will be. A fast connection is needed for downloading large media files such as audio and video. According to Kruse (2006) bandwidth is referred to as high bandwidth, which means it is capable of delivering multimedia or low bandwidth, which can handle text and graphics only. Bandwidth is measured in bits per second (bps). This refers to how many pieces of data can be transmitted every second during the connection. In modern e-learning programmes it is necessary to use audio or video extensively, so low bandwidth will cause long delays downloading and is associated with technical glitches. Wocke and Van Der Spuy (2003)

highlight the fact that the use of technology based training continues to increase worldwide with the global adoption of high bandwidth technology. Clark (2007) argues that blended learning or collaborative learning needs high bandwidth. This is not available in most organisations or educational institutions many of which still use dial-up modems that use a low bandwidth.

Bandwidth can be defined as the amount of data that can be transmitted through a given communications channel for example, between a main server and a client server in a given unit of time. Most organisations strive to have a broader bandwidth for a faster connection (Irvine, 2005). Bandwidth can be explained in two ways, a) the range of frequencies in which a device operates and b) the range of frequencies passed from input to output. Essentially, it is the range of signal frequencies which can be carried through a communications channel. Le Grange (2004) states that network technologies enable companies to retrieve large amounts of information which can be retrieved at a very high speed. In tertiary institutions the power of the internet makes an infinite amount of information available to the lecturer and student. According to Herselman and Hay (2005) the use of e-learning programmes can be frustrating for the user used to face-to face tuition if the inter or intranet has a lot of people using it (traffic) and is consequently slow.

2.3 E-learning in academic institutions

According to Bassoppo-Moyo (2006) an educational definition of e-learning is the effective integration of a number of technologies across all areas of learning. Technologies have to be designed to support teaching and learning strategies which use the internet. These technologies include a range of media tools, as well as high interactive computer-based resources. With e-learning, the internet changes everything in that it creates flexible learning opportunities where students are free to participate at different times. If effectively implemented e-learning acts as a vehicle for a valid, meaningful learning experiences. Varis (2001) gives the definition of e-learning programmes as the utilisation of new multimedia technologies and the internet to improve the quality of learning. It does this by facilitating access to resources and services together with remote exchanges and collaboration.

According to Salmon (2003) every student can, at his or her own choice of time and place, access a world of multimedia material as at one point or another students will have at their disposal a CD-Rom or internet access. With e-learning the student is removed from rigid schedules and the physical limitations of learning. A student will have access to a programme which reacts to his or her own pace of learning. They are therefore able to individually assess the value of their own online learning experiences. Learning can be exactly what they require and they access it when they want it. E-learning has become a powerful mode of delivery technology that makes it possible for learners to learn both online and at their own pace without any geographical boundaries (Herselman & Hay 2005). If applied correctly, it has the potential to be more than a new delivery form but rather a way of utilising transformational technology that will allow

learning in ways that were not previously possible. Rossert (2001) defines e-learning as web-based training also known as online learning, that resides on a server or host computer which is connected to the World Wide Web. It is learning that is delivered partially or entirely through electronic hardware, software or both. E-learning is no longer only associated with distance education and training, but is increasingly becoming a partner in the delivery of face-to-face education.

According to Stockley (2006) the internet has revolutionised information accessibility. In the same way it is beginning to revolutionise global training and development. It is an effective tool for institutions and organisations wishing to develop their human resources. Botha, Bothma and Geldenhuys (2008) agree that e-learning is being presented as the next evolution of the training and education industry and the next phase in the digital revolution.

The next big killer application for the internet is going to be education.

Education over the internet is going to be so big it is going to make e-mailing look like a rounding error+(Brockbank, 2002, p.3).

Many colleges, universities and training organisations are moving to utilise online training. There is however, much professional uncertainty about the value of e-learning in tertiary institutions.

E-learning can also refer to educational websites that offer learning situations, worksheets and interactive exercises for students. The term e-learning is also used in the business sector where it generally refers to cost-effective online training. Botha et al., (2008) define e-learning as the utilisation of new multimedia technologies and the internet to improve the quality of learning by facilitating access to resources and services together with remote exchanges and collaboration. In its broadest sense, e-learning can be defined as an instruction delivered via all electronic media including the internet, intranets, extranets, satellite broadcasts, audio and video tapes interactive television and CD-Rom. Adrich (2004) also states that e-learning covers a wide set of applications and processes such as web based learning, computer based learning, virtual classrooms and digital collaboration. Generally, e-learning is basically anything that is electronic and used in the teaching and learning processes. It can also be considered to be internet-enabled learning that encompasses training, education, just-in-time information, and communication. In most contexts it is used as internet based programmes that are used for teaching and learning. Wocke and Van De Spuy (2003) note that the trend towards e-learning is increasingly, driven by the expected advantages of such a programme. For instance, if the programme has contemporary content and can be easily be accessed anytime and anywhere.

As explained by Dean (2007) e-learning is any act or process used to acquire data, information, skills or knowledge. It is learning in a world where technology merges with human creativity to accelerate and influence the rapid development and application of profound knowledge. He equated e-learning with online learning, and as an encompassing term used to refer to computer-enhanced learning, although it is often

extended to include the use of mobile technologies as well. The term is generally used to refer to the use of technology in learning in a much broader sense than computer-based training or computer aided instruction. This type of learning which utilises the internet and both student and lecturer uses various elements of internet technologies.

Le Grange (2004) believes that e-learning has become fashionable in higher education institutions throughout the world. Engelbrecht (2003) stresses that, e-learning should no longer be about the number of online courses offered by a university, faculty or department. It should be about how the university, faculty or departmental programmes will be recognised and valued both by lecturers and learners. Moeng (2004) notes that e-learning involves the use of new technology that has generated the production of new learning models which will change the way individuals and organisations acquire skills and access information. On the other hand Clark (2007) describes e-learning as a method of delivering a learning package. The designers, developers and implementers of a e-learning make or break such a programme. Individuals who can learn in traditional environments should be able to use an e-learning package without any problem. Further, e-learning programmes have no guarantees of success but are merely a means of delivering learning to students.

Other activities which may be used in e-learning are asynchronous activities that use technologies such as blogs, wikis, and discussion boards. The idea behind this is that participants may engage in the exchange of ideas or information without the presence of other participants online. An example is the email, it is asynchronous in that mail can be sent or received without having both the participants involvement at the same time.

Asynchronous learning according to Herselman and Hay (2005) refers to learning in which participants are not connected to each other. This can be when a lecturer sends an e-mail or posts a notice for students to read at a later time, or when a student e-mails the lecturer who responds at a later stage. Such learning could be, for example, intranet based or internet based video-taped classes and web presentations. These add value to the content and activities of the programme in an effective way.

Synchronous activities involve the exchange of ideas and information with one or more participants during the same time period. Synchronous activities occur when all participants are online at the same time. This could take place for example during an online chat session or an online discussion group. Synchronous learning is thus a learning event in which all participants are logged on at the same time and communicate directly with the lecturer and one and other. It usually takes place through internet websites, audio or video conferencing and internet telephony.

Manville (2003) unlike most scholars defines e-learning as not only including internet published courseware, but also the tools for managing, modularising and handling different kinds of content and learning objects or subjects. These can be both electronic and non electronic forms, even traditional classroom instruction. It is also based on just-in-time and asynchronous learning, such as virtual laboratories and virtual classrooms. He further states that e-learning is a tool for prescribing learning, managing development pathways and goals and handling e-commerce and financial transactions related to learning. According to Engelbrecht (2003) e-learning adds a measure of convenience for the learners but lecturers may reason that if e-learning programmes do

not produce knowledgeable workers (who are capable of higher-order thinking and reasoning) such programmes are not worth much.

2.4 Blended Learning

E-learning has evolved since computers were first used in the education sector. Most institutions are therefore moving towards using it together with traditional face-to-face teaching and learning methods. The use of the two teaching and learning approaches together is called blended learning. Nichols (2003) describes e-learning as education that occurs through the web. He notes that it does not consist of any physical learning materials issued to students or actual face-to-face contact. Fundamentally, education that combines face-to-face education and e-learning is defined as blended learning or collaborative learning. Blended learning is defined by Clark (2007) as a combination of delivery methods that have been shaped to accommodate the various learning needs of a student in various subjects. Like many other schools of thought, Wocke and Van Der Spuy (2003) note that at the core of the technological development of learning systems is the union of media or channels such as image, sound, written documentation and computer networks into digital multimedia. Learning theories are now combined with equipment such as computers, televisions, satellite, and other technologies. Clark (2007) emphasises that there is a need to realise that e-learning is an effective form of teaching and learning. Technology can expand the reach and range of traditional colleges, universities, and organisational training programmes. Computing technologies enable students to combine traditional face-to-face learning with technology based learning which has access to an infinite amount of information. According to Stockley (2006) many institutions find blending e-learning and face-to-face learning effective.

These scholars agree that as technology keeps expanding, face-to-face learning will start to decrease as the number of software products, which enables audio, visual and textual communication, increases. The key options with traditional face-to-face learning are aimed at specific objectives and may not be readily available to individuals exactly when they need it. Alternative options allow the learner to get information anytime and virtually anyplace through e-technologies. This may not always be the learner's first choice, which is the reason why blended learning is important. In blended modes however, it is argued that e-learning represents a more developed form of existing instructional methodology. The realisation of blended courses does not necessitate the creation of a new paradigm of education because blended courses draw on the same theoretical principles that belong to face-to-face teaching.

According to Kim and Flickinger (2006) e-learning strategies are an integral part of deploying electronic data capture solutions. By this, they refer broadly to computer-based training that is accessed by users on the internet for use in their own time and at their own pace. This includes computerised assessment methods that measure and document whether students grasp the material or content from the programme. This type of programme is not a delivery tool that needs to completely replace classroom teaching but an effective and efficient delivery instrument that can be used on its own or as an addition to traditional teaching methods.

Van Der Merwe and Mouton (2005) state that money and time are barriers to the integration of information and communication technologies into existing teaching and learning activities. Furthermore Herselman and Hay (2005) note that e-learning is

effective if it can be part of blended learning on a continuous basis their study highlighted that learners attained new knowledge and skills through the blended learning approach. Blended learning in this instance refers to a combination of learning methods, lecturer-led training (face-to face teaching) and e-learning.

2.5 E-learning in non-academic organizations

Many organisations and academic institutions are competing as well as co-operating with each other for the first time (Salmon 2003). As noted, e-learning is not only used in educational institutions but is common in non-academic organisations where it is used to facilitate training. E-learning is defined by Rosernberg (2001) as growth in internet and corporate intranets. Adrich (2004) states that e-learning is a combination of good infrastructure and teaching processes that uses a computer network to balance and improve learning systems. This includes management of the programme and delivery of the learning content. Organisations aim to use e-learning for lowering up-skilling costs while increasing the accessibility of organisational operations to include the measurability of employeesqperformance using e-programme tools. It is increasingly being used to include advanced learning techniques (Adrich, 2004). According to Brockbank (2002) e-learning represents a wide range of organizational activities and technologies, including distance education, computer based training, web based training, internet based training, courseware delivery and online learning and assessment. It represents the total integration of multimedia, instructor-led and real-time training. In most organisations it is used to instruct workers about how to use a new technology or particular software programmes (Clark, 2007). Some organisations use a hundred percent online training for their employees in terms of teaching them new

computer applications. According to Stockley (2006) e-learning can assist in compliance training and training required to ensure that individuals have the knowledge and skills they need. Many organisations do internet linked transactions such as, payment for services, online marketing and advertising of the organisation's goods and other activities which can be linked to an e-learning programme. Duprey (2006) notes that almost every e-learning programme is well suited to support the dynamics of differing industries and can be designed for almost any organisational undertaking. E-programmes are delivered in a format that a large proportion of the targeted learners whether in organisations or academic institutions will be comfortable with.

Karrer (2007) noted two forces that are driving change towards e-learning. The first force is the increase in the pace of business and information creation, which in turn is leading to a shift in work, especially knowledge work and an evolution in information needs. This has led to some expectations for corporate learning. Some of the expectations are faster transfer of knowledge as there is no need to gather at one place to access information. The other primary driving force which has affected learning is the advent of improved technology. This allows anyone who can access information to be able to create and contribute information on the internet. This includes writing a blog or uploading other material. In this manner, a lecturer will upload handouts as well as exams. Learners will then be able to download and make printouts of handouts or similarly download an exam question then upload the answer for marking.

Most organisations are faced with challenges specific to training and retaining their human capital. It is important for the organisation to use programmes such as e-learning

to train new employees as well as to keep upgrading the skills of their employees. Similarly, for tertiary institutions, it is important to meet the needs of administration and academic employees as well as meeting the needs of students. In the case of academic institutions lecturing staff will need to be trained on how to use e-programmes. In organisations e-learning programmes are usually out-sourced and do not require managers to operate or supervise them. However, some organisations have internal e-learning based training (Karrer, 2007).

2.6 M-learning

M-learning, is short for mobile learning and has different meanings for different communities. M-learning falls under e-learning or is an element of e-learning. Prensky (2004) states that there are one and a half billion cell phones in operation around the world and a large percentage of them are in the hands of students. Although related to e-learning, it is distinct in that its focus on learning across contexts. Kruse (2004) uses the phrase m-learning and defines it as e-learning designed for those on the go. It is learning that happens across locations or learning that takes advantage of flexible learning opportunities offered by portable technologies. In other words, mobile learning decreases limitations of learning location because of the mobility of general portable devices. The term covers, learning with portable technologies where the focus is on the technology (which could be in a fixed location, such as a classroom); learning across contexts, where the focus is on the mobility of the learner, interacting with portable or fixed technology; and learning in a mobile society, with the focus on how society and its institutions can accommodate and support the learning of an increasingly mobile population that is not satisfied with existing learning methodologies. Prensky (2004)

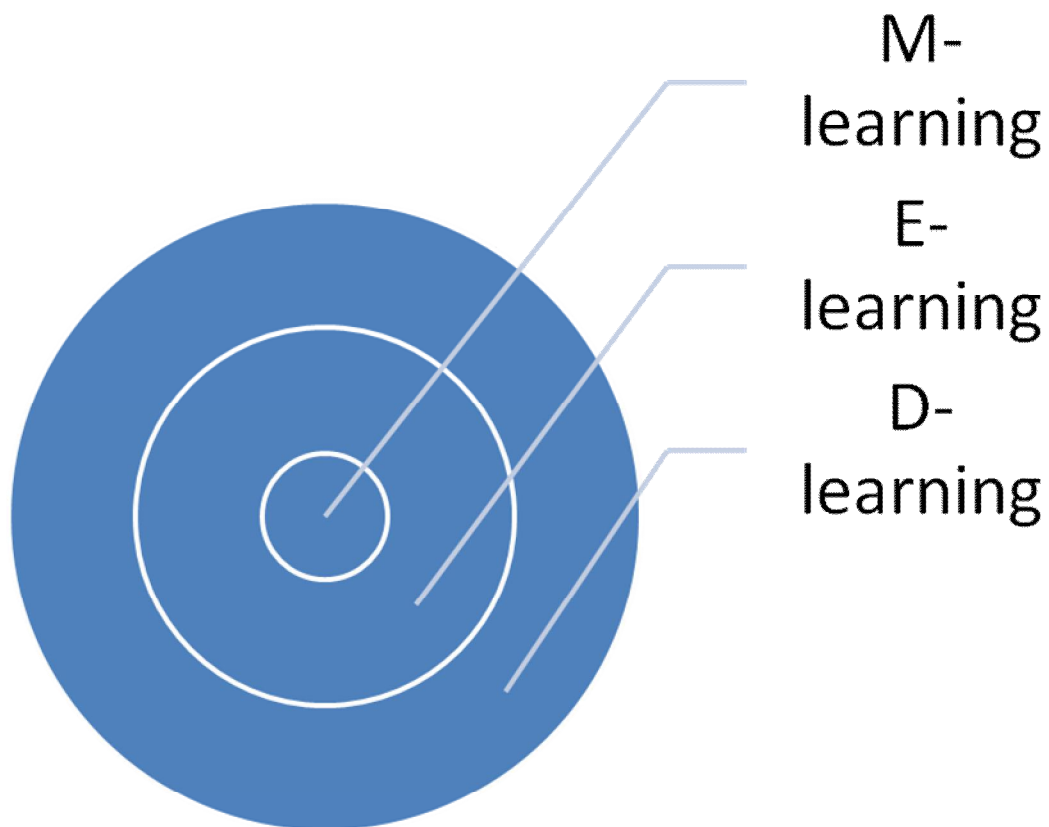
adds that mobile learning has an element of privacy which can help those embarrassed by poor numeracy or literacy skills.

According to Georgiev, Georgieva and Smrikarov (2004) the rapid growth of information and communication technologies and the rising computer literacy of students makes possible the appearance of new educational forms. Figure 1 (page 19) illustrates m-learning which is a form of existing distance learning (d-learning) and e-learning. E-learning is a part of d-learning as well as traditional face-to-face learning. M-learning in contemporary societies has an element of e-learning. M-learning is usually a wireless and internet based technology.

Georgiev et al. (2004) strongly suggest that the definition of m-learning must include the ability to learn everywhere at any time without permanent physical connection to cable networks. Some of the statistical information gathered in their study about the growth of mobile devices was that the number of Personal Digital Assistants (PDA) and smart phones sold grew more than two hundred percent (200%) in 2003. All over the world there are more than five hundred million cell phones with web abilities that were sold in the same year. There is no doubt that this number has grown exponentially since. The realisation of mobile learning is impossible without mobile devices. Devices vary significantly in their abilities, sizes and cost. The common ability, which unites them, is their mobility and ability to make wireless connections¹.

¹ A list of mobile devices is given in Glossary 2, and samples of mobile devices are illustrated in Annexure 1.

Figure 1:
The place of m-learning as part of e-learning (Georgiev, Georgieva and Smrikarov, 2004).



The mobile learning definition includes using handheld computers or PDA\$ in classrooms or lecture halls. For example, if the class is too big and not all students can get access to computers provided by an institution or organisation because PDA\$ and handheld computers can be held in any location. Students can use mobile devices in lecture halls or classrooms accessing the same lecture content as students in the lecture halls. This is possible provided the e-learning programme is on the internet not only the intranet. De Freitas and Levene (2003) suggest that mobile learning includes on the job training for someone who accesses information on a mobile device and who wishes to solve a current problem or gain updates for instance, of new work methods. Such a situation could arise when an individual needs to refer to something they learned

about when they completed an e-learning module. Not only students and employees use m-learning, any person can use personal technology to access information, for instance, handheld electronic dictionaries or calculators and devices for language learning. This improves levels of literacy, numeracy and improves participation in education amongst the general population. Young adults, teenagers and children are more likely to use up-to-the-minute technologies.

2.6.1 Challenges associated with m-learning.

M-learning is associated with some technical challenges. A major challenge, according to De Freitas and Levene (2003), is connectivity and the battery life of mobile gadgets. Some portable devices that are used for m-learning are cellphones that are internet compatible. Sometimes there will be no network signal in an area. This means that an internet signal cannot be received and the m-learning's purpose of being conveniently available will be defeated. In some instances battery power may be exhausted before an individual fully understands what they want to learn on a specific website. Small screen sizes and key sizes are also technological challenges to e-learning. It is also difficult to read text and other information on the small screens of portable devices. The key sizes of key pads, especially on cell phones, are small and difficult to work with because most of them require only a digit be used to press the key pad. This is unlike a desktop keyboard where both hands type which makes a desktop faster. It is also true that, multiple screen sizes and multiple operating systems which are on different handheld gadgets have different levels of compatibility to software. The problem then arises that some of the contents on an e-learning programme won't download because the device being used is not compatible with the software of that programme.

Sometimes portable devices can even show that a file is too big and will not open. This is a challenge to programmers of e-learning because they have to take into account that most portable handheld devices have such limitations. Designing these programmes is a complex task and, for the foreseeable future, some devices will remain incompatible with specific software. In some instances e-learning programmes will have to be re-designed and upgraded so that they can open with different mobile devices. This is a challenge and in future there will be a need for more skilled human capital to develop software products and technology to overcome these hurdles.

De Freitas and Levene (2003) discovered that some challenges to e-learning are social and educational. The major challenge affecting learners is accessibility and high cost, especially for end users. Essentially, the high cost of PDA's or other mobile device. This brings about what is termed the digital divide especially in rural areas. The digital divide is the gap between those with effective access to digital and information technology and those without access to it. The digital divide includes the imbalances in physical access to technology as well as imbalances in the resources and skills needed to effectively participate in mobile learning. It also includes social deprivation especially for those who are from previously disadvantaged backgrounds. It is necessary to develop not only an appropriate theory of learning for the mobile generation but wide social programmes to ensure access to technology and training related e-learning technologies. This is a challenge because mobile devices are dynamic and ever changing entailing high cost and the acquisition of new skills.

2.7 Illegal use of technology

An illegal activity that is associated with e-learning programmes are for instance, individuals trying to gain access to exam answers by hacking into systems. Some may also try to change their marks by accessing the system where marks are recorded or stored. It is important for tertiary institutions and business organisations to keep track of confidential information by upgrading security on their websites. The Information Technology Management of the institution or organisation must be properly maintained with a system that allows only registered users with passwords to access it. A sophisticated tracking system should also be in place so that records can be accessed at all times for investigation into misuse or illegal use (Personal communication Dr K.A. Nel, 6.11.08).

2.8 Pedagogical Approaches to e-learning

Pedagogy is defined as the activities of educating or instructing the activities that bring about knowledge or skill (Fox, 2001). A term commonly used when referring to lecturer focused instruction or the application of sound education practices is pedagogy. In other words it can be called the principles and methods of instruction. When creating e-learning content pedagogical approaches need to be evaluated. A simple pedagogical approach makes it easy to create content but on the other hand makes a programme inflexible. On the other hand a complex pedagogical approach can be difficult to set up and slow to develop but will have the potential to provide more engaging learning experiences for learners. It is between these two scenarios where an ideal pedagogy

lies that allows the creation of educational materials while at the same time providing a challenging educational experience for students².

Nichols (2003) indicates that the choice of technological tools should reflect and not determine the pedagogy of a programme. How technology is used is more important than which technology is used. Learning how to learn is the key to success and e-learning opens new doors for successful learning. Karrer (2007) thinks that learners can use technological aids as a natural support for collaborative learning, research and assignments.

Nichols (2003) argues that regardless of the positives and negatives current learning techniques may remain but not be accurate tools. Much research undertaken about their efficacy is practice-based which is usually presented in a descriptive format. It is not likely that such practices will change quickly unless new technologies are explored providing a platform and a common viewpoint for their development and use.

According to Engelbrecht (2003) there are three immediate business goals why most organisations and academic institutions should invest in e-learning. These goals are, increasing or maintaining the quality of educational or training programmes as well as the quality of lecturers and graduates, improving access to learning opportunities and reducing the total costs of education. The internet has created an exceptional opportunity for business competitors to enter the higher education market which has been historically dominated by universities. Collins and Moonen (2001) state that unlike learning technologies in business organisations, universities are not openly profit

² See Glossary 3 for various approaches to pedagogical learning.

oriented and thus the pace of adoption of e-learning has been slower than in the business world.

E-learning can be used in two major ways, which are, the presentation of education content and for the facilitation of the education processes. Its applications include digital materials storage and distribution, synchronous and asynchronous communication, multi media applications, each of which is subject to multiple applications of use and innovation. In simple terms, Nichols (2003) explained that a programme can make information available and play a part in a learner's self construction of knowledge. It is important not to forget why e-learning is growing and not just focus on the technological aspects of the programme.

As a general rule it will be breakthroughs in teaching that will make e-learning more useful and not breakthroughs in technology, though the latter can provide opportunities for the former (Nichols 2003, p.4).

Innovative lecturers are those who maximise e-learning and ensure its further development for the purposes of learning and developing the learner. Progress will come from understanding the dynamics of teaching and learning and not from improved or functional technology, though the technology will provide opportunities for new, innovative pedagogies to develop.

Many institutions and organisations have their own information technology (IT) specialists in-house to implement and run such programmes. For instance, the University Stellenbosch implemented their own e-learning programme and are running

and maintaining it in-house (Van Der Merwe & Mouton 2005). Some organisations outsource to a company which provides online courses to the organisations' employees. When outsourcing it is important to carefully manage the programme. Stockley (2006) states that outsourcing can have a number of pitfalls. To minimise these, it is important for the organisation to make sure they have a contract that their legal team has reviewed. Knowing how to get started in outsourcing or creating an e-learning programme requires an understanding of new learning models, methodologies and technologies. The institution or organisation needs to continuously adopt tools and practices that help lecturers or administrative staff and learners teach and learn. E-learning will not work unless it is managed correctly. To be successful e-learning has to have the right fit with the organisation or institution. It should be chosen because it is the most efficient and effective way to meet an identified learning need (Stockley, 2006).

Evidence continues to confirm that the Web, as with other technologies and media, can be successfully exploited provided that the educational need to which it is applied is identified first+ (Eisenstadt & Vincent, 2000, p. 4).

Nichols (2003) explains that, some head teachers are adopting e-technologies as a way of education not as a style of education. This is because programmes involve the use of several technological tools than can be compared with face-to-face delivery or distance education. It is a means by which education models can be implemented. Clark (2007) supports using e-technologies stating that e-learning is a medium, not a methodology. It enables a form of educational union between face - to- face learning and the technology

therefore it enables unique forms of education that fit within existing teaching paradigms. This enables new expressions of education that can potentially add to traditional education methods in various ways using technologies such as blogs. Nichols (2003) and Clark (2007) acknowledge that technology changes the role of the lecturer especially in online environments.

A worthwhile e-learning programme is expensive and requires additional time on the part of academic staff in terms of acquiring new skills or even designing a programme. This assumes that academic and support staff is sophisticated in terms of both technical and pedagogical competences. Le Grange (2004) believes that it is a myth that e-learning programmes will free time up for academics to do more research. He believes that programmes will actually tie lecturers down thus they will struggle to find time to do research and administrative duties.

Technological change according to le Grange (2001) is mistakenly considered by many organisations and academic institutions as an external influence. However, technological changes do not have to be something that is visited on an organisation or an academic institution by outside influences. These changes can be something the organisation or academic institution can do and use as cutting edge competitive advantage over their competitors. The organisation can keep upgrading its technology and start to influence the design of new technology for the market. According to Botha et al. (2008) colleges and universities are facing competition from private industry in the form of companies that have not only developed the technology to deliver e-learning but who have the capacity and resources to produce and market learning content.

Technological solutions are going to continue to be used in the education sector thus appropriate pedagogies and technological models need developing.

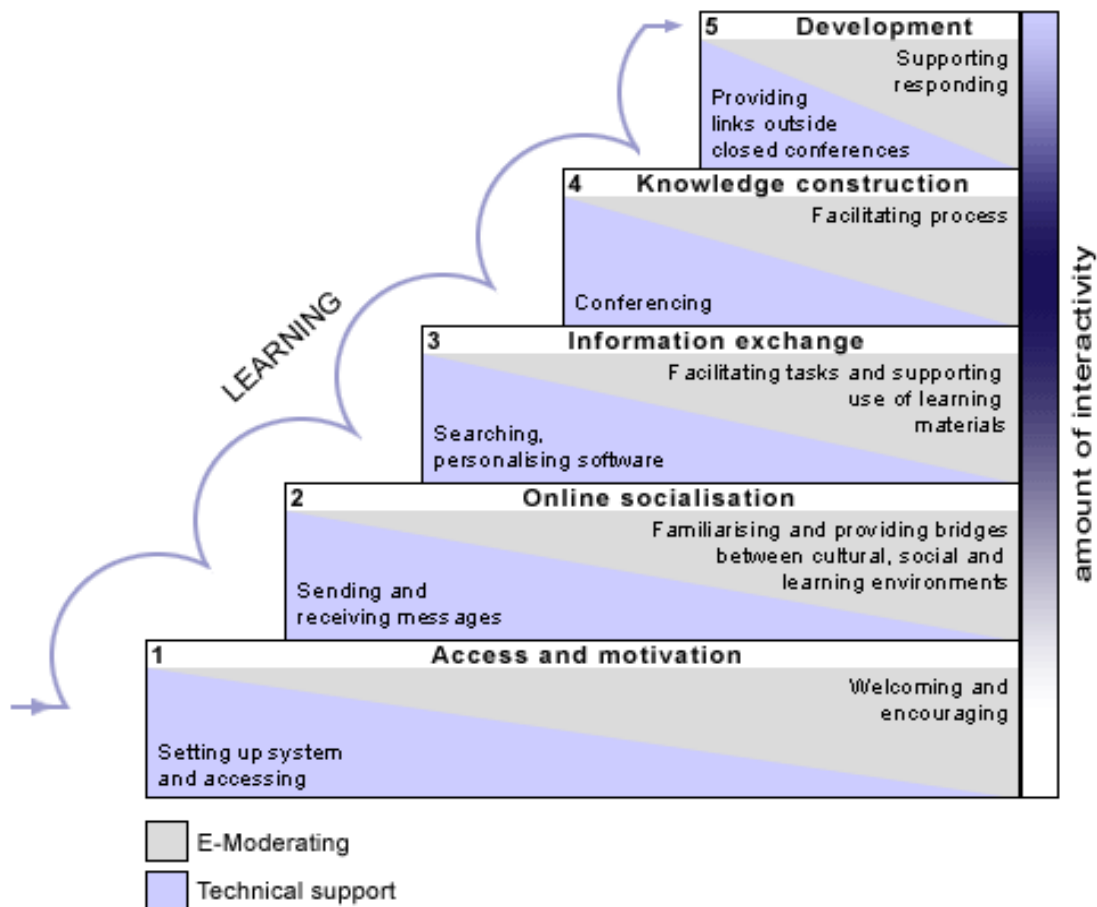
2.8.1 E-moderating model

According to Moore (2002) and Salmon (2003) e-moderators are the latest generation of teachers that work with students online using computer mediation as a learning tool, regardless of the subject they are teaching. The underlying assumption of the model is that learning involves more than completing some activities on a computer. An important factor is that learning only takes place if the will and drive to learn are present.

The model has five stages and is as shown below in figure 2.

Figure 2:

A five stage model of teaching and learning online (Salmon, 2003).



Stage one – Access and Motivation

Lecturers and students both want to be able to gain access quickly and easily to e-learning programmes. Students' attitudes towards computers and their ability to get effective help are the two main variables. The purpose is to expose students to the system without a specific training intervention. According to Salmon (2003) the provider of online education wants to be sure that students get to know about its availability and benefits, and in most cases they would want a programme that will allow them to obtain a password to ensure privacy. For example, students would definitely not want other students to have access to their marks. Students need information and technical support, and strong motivation and encouragement to put in the necessary time and effort to use the e-learning programme successfully. Learning anything new is always a challenge thus learning how to use e-learning programmes will cause the student some difficulties at first. Motivation becomes a prime factor at this stage that is, when students have to deal with possible technical problems. Lecturing staff have to check whether or not there is any activity by the students online. New students will be welcomed online and offered support through e-mails helping them until they find their way around the programme. Moore (2002) emphasised that at this stage the student experiences a considerable amount of frustration in logging on. The e-moderator adopts the role of ensuring access and welcoming and encouraging the learner. Motivation is an essential element to get students through the early stages of use of both the hardware and software systems and towards engagement with and the mobilisation of e-learning. Stage one of this model focuses on the basics of using the technology involved in computer facilitation, and sets the social and pedagogical ground rules for learning with

technology. Stage one is complete when the students have read and posted their first messages on the site.

Stage two – Online Socialisation

Another underlying assumption of the model is that learning involves more than a shift in the experience of using a computer (Salmon, 2000). Online learning offers the student the opportunity of online socialising and networking. In stage two, students get used to being in the new online environment. There are two motives for groups of people to work together. These motives are self-interest and common interest. The first motive can be promoted through extrinsic factors such as incentives and the second motive needs trust and mutual respect. Most of the benefits of online networking in education come from trying to build an online community of people who feel they are working together to achieve common goals. Mann (2001) adds that if e-learners are not able to communicate with each other online, they may distance themselves from the topic being discussed. For this reason, it is important that lecturers should create opportunities for socialisation for the online group. Lecturing facilitators must also help students understand how online learning benefits the student. If there is a chance that a community of practice will develop the lecturer needs to give attention to enabling and promoting all aspects of online socialisation.

Although socialisation components will gradually develop throughout the five stages of this model its success will come with a strong foundation at this stage. Some students may also find it easier to ask for help online than face-to-face. It is important that lecturers tolerate online socialisation from the students. The lecturers will use their skills

to ensure that students develop a sense of community within the group and also develop a sense of trust in the lecturer or facilitator. Group discussions during the programme frequently demonstrate how quickly and easily group thinking and shared understanding can develop. Some lecturers assume that the varying cultural backgrounds and experiences of students result in very different approaches to learning and try to adapt their lecturing as a result. During this stage students create their own online micro-community through active and interactive activities on line. Many students get excited at the potential of sharing the thoughts and work of others though they find that in reality, it is hard to get started as there is no face-to-face motivation. During step two, the lecturer sets the pace for online interactions and may intervene in discussions on an individual or group level to promote productive behaviour. This stage culminates in participants starting to share thoughts and feelings with others online.

Stage 3 – information exchange

If stage two is successful it means that students have gone beyond seeing the system as an information technology tool and into viewing it as an active and live human social network. The main feature of the system is that it provides all students with access to information in the same way. In stage three, students will start to appreciate the broad range of information available online. Salmon (2003) went on to say that students become excited about immediate access to knowledge and fast information exchange. Lecturers can guide them to help them become independent and confident about working online.

Learning requires two types of interaction. The first type is interaction with the course content and the second is online interaction with people, which are the lecturers as well as other students. At this stage, lecturers ensure that group chats concentrate on discovering or sharing known answers as they are related to the field of study. According to Mann (2001) at this stage some students, with good conceptual abilities, are able to take strategic approaches to solving problems. Students develop a variety of strategies to deal with potential information overload. Some will try to read all messages, some will remove themselves from discussion forums of little or no interest to them, and others will save or download information to read at another time. Other students will try to read everything and spend considerable time online responding where appropriate. These students sometimes become irritated and frustrated and may disappear and decide not to go online again. These students are the ones most likely not to finish their studies. Lecturers or facilitators need to watch out for this type of behaviour and offer appropriate support, direction and motivation to the students.

According to Salmon (2003) at this stage students look to lecturers or facilitators to provide direction and need encouragement to start using relevant content material. They will need considerable help because their seeking or searching skills may be low, thus creating many queries about where to find one thing or another online. Lecturers should introduce some discipline online through providing programme guidelines. It is important for students to learn how to exchange information in discussion forums before they move on to full interaction in stage four. Lecturers should value and acknowledge contributions to discussion processes and knowledge sharing by students.

Assessments and feedback can be introduced at stage three, especially if aligned with the aforementioned online processes (Moore, 2002).

An advantage of asynchronicity is that everyone can take their time to access and understand the information and react to it before hearing the views and interpretations of others. Step 3, requires facilitators to encourage the online sharing of information for pedagogical purposes and may require lecturers to teach students the necessary technical steps so that information can be exchanged and success in co-operative tasks can be achieved.

Stage 4 – Knowledge Construction

According to Salmon (2003) stage four begins when students begin to interact with each other in more integrated and participative way. They formulate and write down their ideas or understanding of a topic. When discussion forums become more popular most but not all students get involved in active learning. Students' grasp of concepts and theories is enhanced through online debate and by examples given by other students. The emphasis is that the learning not only becomes active but also interactive as students begin to participate. Discussion forums add an extra way to develop ideas and increase understanding of the course material. At this stage it is important that students appreciate that knowledge can easily be shared and that it is not fixed nor does it belong to one person. Lecturers and facilitators need to ask more questions, seek more discussion and encourage all students in discussion forums which enable and encourage development of ideas. Students should summarise views and provide new topics and bring focus to discussions that go off track. They should also stimulate fresh

thoughts, introduce new themes and suggest alternative approaches to problems. Students will recognise the key potentials of asynchronous interaction and take control of their own knowledge construction in new ways. Online activities at this stage have discussion or knowledge development aspects at their core (Moore, 2002). Stage four is the crucial stage in the model and is where most learning is assumed to take place. Through online discussions students engage in a very active learning process through widening their own viewpoints and appreciating differing perspectives.

Stage 5 - Development

According to Salmon (2003) and Moore (2002) at this stage students should be convinced that technology alone does not lead to learning, but that e-learning promotes knowledge acquisition. In stage five, students become responsible for their own learning through computer mediation technologies and need little support beyond that already available. At this juncture, students start to challenge the basis of the discussion forums on the system. They demand better access, faster responses and the latest software. They also find ways of producing and dealing with problems using humour and developing the more emotional aspects of writing and interaction. Fundamentally, they become comfortable and free to express how they feel about the different subjects up for discussion. Students who are more experienced with e-learning programmes become helpful guides to newcomers to the system. They become confident enough to challenge a lecturer when his or her interventions seem unhelpful or out of place. Challenges and arguments will further deepen the thinking of the student. Students reflect on, and discuss how they are networking. They also evaluate the technology and its impact on their learning processes. At this point facilitators should set up exercises

and online activities that will encourage critical thinking from students, such as commenting on each other's writing or views. In this way students become responsible for their own learning. They build their knowledge or ideas required by the online activities and apply them to their individual work. The role of the facilitator in steps four and five is to encourage critical thinking and self-evaluation, as well as creating a space for discussion and opinions from other students.

At this stage, lecturers and students use what is termed a constructivist approach to learning. According to Biggs (2000) constructivism entitles students to explore their own thinking and knowledge building processes. The aim of the five-step model is to develop students into critical thinkers through this approach to learning. Support from lecturing staff through each step of the model is given to students as then they are more likely to move from stage by stage of the constructivist process without any problems. Stages three to five are crucial for learning and teaching purposes. Salmon (2003) suggests that e-learning based on constructivist thinking makes the difference in online education as it sets up direct and indirect synchronous and asynchronous discussions. An issue to consider in this model is the assumption that constructivist learning is effective, desirable, real and that it can happen effectively through participation, whether there is online or face-to-face participation.

Constructivism is a view and not a single clearly stated set of claims (Fox, 2001). According to Brooks and Brooks (2004) constructivism is a theory based on observation and scientific study about how people learn. It states that people construct their own understanding and knowledge of the world, through experiencing things and reflecting

on those experiences. It involves asking questions to explore and assess what an individual knows. Constructivism encourages students to use different method of creating and understanding knowledge and then to reflect on what they are doing and how their understanding of a specific subject is changing. Constructivism transforms the student from a passive recipient of information to an active participant in the learning process (Fox, 2001). With the guidance of the lecturer, students build their knowledge actively rather than just taking in all the knowledge from the lecturer or the textbook. They learn more and enjoy learning more when they are actively involved, rather than when they are just passive listeners. Education works best when it concentrates on thinking and understanding, rather than on the rote memorisation of concepts which supports the adoption of a constructivist approach to e . learning modalities.

2.8.2 The role of face-to-face teaching in skills acquisition

Face-to-face learning has a major role in educating students. Dreyfus (2001) identifies seven stages involved in skill attainment. The first stage is the novice stage. This is when a lecturer provides students with facts and procedures on how to do certain academic activities. The lecturer assists the student by helping him or her understand a certain topic. At this stage the student is a consumer of information and does not necessarily need the lecturer's presence all the time but can also get help from fellow students. The second stage is advanced beginner. In this instance, the lecturer assumes the role of coach and helps the student to identify relevant aspects of the material that make sense in terms of the field of study. At this stage the presence of the lecturer isn't very important and learning is carried out from an analytical frame of

reference. The lecturer (or facilitator) can be consulted now and then. The third stage is the competence stage, which has to deal with work from lecturers who are no longer providing facts to the students. As a result students have to come up with strategies that can help them to cope. Such strategies will enable them to discriminate between important activities and those that can be ignored in order to make progress and finish work on time. This is carried out in close consultation with the lecturer. The fourth stage is the proficiency stage. This is when unplanned reactions replace reasoned responses. These will have been approved by the lecturer as the student will be working on intuitive reactions. Expertise is the fifth stage and this is achieved when the student gets to a stage of knowing what needs to be done and how it needs to be done when given a problem to solve. The student has reached a stage of knowing the reaction needed for different situations. The sixth stage is mastery. This is achieved through apprenticeship, which is a means of passing on style. Here students realise that they may end up being clones of the person who taught them through the various stages and they begin to develop their own views and perspectives. Lastly, is the practical wisdom stage. This is where students do not only have to acquire knowledge to imitate the lecturer who took them through the seven steps of acquiring knowledge, but where they have to acquire their own culture or way of doing things in order to gain practical wisdom.

Dreyfus (2001) stresses that online learning will be helpful only up to the level of competence according to the above stages. It is important to be careful that a programme might not cause skill deficiencies, especially at tertiary levels of skills development. This is increasingly becoming a concern. It is a major problem in academic institutions that offer e-learning at distance levels. According to the stages

discussed, the last three stages are usually at post-graduate level. At this level direct involvement is needed and e-learning might not be effective. For instance, when teaching masters in Industrial/Organisational psychology to students e-learning is likely to have limited effect in helping explain for instance, psychometrics (psychological tools and testing procedures).

2.9 Moodle

Moodle is a course management system and the course material is often video, mp3, text documents, scanned images or links to other websites. It is the largest provider of free and open source e-learning course management software services in the world. This programme helps lecturers to create online courses in a way that is reasonably priced and is accessible to all users. It provides technical support services as well as instructions, online training and other services that are needed to get moodle up and running. The software caters for any group size, whether a single class, a school or a large university.

The word Moodle was originally an acronym for Martin's Object-Oriented Dynamic Learning Environment. It is a definition used by programmers and education professionals. Martin Dougiamas was a former WebCT administrator which is also an e-learning platform and a course management system. The use of Moodle has increased since 1999 when it first started (Maikish, 2006). It has been translated into sixty one (61) different languages. Some key improvements in accessibility and display flexibility have been developed in more recent versions. From May 2005, more than three thousand three hundred (3300) sites from one hundred and fourteen (114) countries have

registered its installation worldwide. This programme is downloaded over five hundred (500) times a day and as a result the providers find it difficult to keep track of how many active installations exist. Some organisations download it and modify it to suit the needs of their organisation and a percentage of other organisations and tertiary institutions do not register their installations since there are no fees to be paid. It is free and has no license costs. It can be installed on as many servers as required at no cost. Its largest single site has over six thousand (6000) courses and over thirty thousand (30000) students. This means that users are free to download, use, modify and even distribute the programme. Statistically, Moodle is used by fifty five percent (55%) of schools, thirty percent (30%) of universities and fifteen percent (15%) of non- academic organisations world wide.

Although Moodle software is free there are some costs linked to its implementation. This is because it is server-based, meaning that there must be a local server within the institution or organisation where the software of the programme can be installed. The storage space must be bought. Users of the system need training and ongoing support which may be provided by consultants or expert in this field for a fee. Maintenance is minimal but upgrades are required and lecturers may, from time to time, decide to put up new modules or upgrade the content of the existing modules to increase programme capabilities. All such services have costs attached to them. However, if these costs can be managed research indicates that Moodle's benefits are worth the implementation and maintenance efforts. According to Plaffman (2005) using Moodle lecturers can see the same web page with students at the same time. If the lecturer clicks on another link,

the page can only be seen by the lecturer. This measure is for security reasons, so as not to allow students to tamper with exam questions or module content that has been uploaded.

Maikish (2006) explains that one Moodle course management system package is designed to help lecturers create online content. This creates an environment where students can interact with each other as well as with their lecturers to support their classroom courses. It is necessary to create forums where lecturers can show each other how they use the system as it is believed that this will motivate non - users to want to use Moodle. Ideally, this should encourage any lecturer to set up the basic foundations for their own e-learning modules. In a short period, beginner lecturers can work out how to use the software. It also helps lecturers for instance, check how many tries it takes a particular student to answer course content correctly, or how long they took to complete a quiz. It also shows whether students struggled with a particular question or concept. One of its major benefits is to promote a paperless classroom and how to apply technology in terms of increased academic productivity. Lecturing staff can post most of their assignments and handouts on the system. For example, instead of printing many question papers for a multiple choice test students can take the test online. The programme will automatically mark the test and allow the students to see their marks and indicate which questions were answered incorrectly. Lecturers who are new e-learning programme users may use it as a simple way to post information such as class handouts and PowerPoint presentations.

2.9 The Growth of e-learning

As much as e-learning is still entering the market it is also evolving (Karrer 2007). Its first generation delivered through the web was characterised by modules that were completed at the same time using essential classroom software or asynchronous courses. From such early beginnings educational technologies have drastically improved and moved towards the beginnings of content creation, web delivery, and integrated collaboration. Clark (2007) states that e-learning is now associated with technical training and that new software tools are able to teach management principles that learners can tackle on their own. E-learning is slowly replacing mentors and coaches that were previously available in most organisations.

Ravenscroft (2001) describes the pace at which technology is changing as unlikely to slow down. E-learning programmes are fast becoming organisations and academic institutions' ways of continuing to modernise and expand. The growth of e-learning has been described as explosive, unprecedented, amazing and disruptive (le Grange, 2004:91). This is descriptive of a new revolution in higher education. E-learning is publicised as a major tool for transformation in the education sector as it is bringing transformation to teaching and learning in the twenty-first century. It is impossible for institutions to ignore e-learning in this era because of changes such as the increased speed and power of communications and the expanded capacity to send, receive and use information plus the capacity to cover global time and space for educational purposes. Garrison and Anderson (2003) emphasise that knowledge development in the information age is a technologically aided activity. In other words, it is difficult for an

individual to actually develop knowledge and skills without technology. The development of e-learning is a field that, at present, targets lecturers, facilitators, administrators, and technology staff. It offers them the ability to develop diverse and relevant professional modules that are designed in accordance with appropriate academic content standards and are designed to support the use of other educational technologies.

According to Herselman and Hay (2005) the last decade saw a considerable growth in the application of e-learning courses in most higher education institutions and in-house training for employees. The reality is that universities are no longer viewed as the only providers of higher education and training. There has also been the creation of private higher education institutions as well as businesses and companies that have started to create their own internal training programmes. They also noted that increasing competition in the higher education sector has forced institutions to use and upgrade existing technologies in the delivery of education and training. Clark (2007) reports that educational technologies globally in 2007 accounted for fifteen percent (15%) of all the training delivered. This was a two-fold increase from 2006. This indicates that e-learning is now a major training tool.

Most academic institutions are faced with several challenges to their external and internal environments. These challenges include student diversity in terms of the different countries they originated from and the different cultures and changing gender demographics (a higher female to male intake in many institutions) as well as rapid technological changes. Tertiary institutions are forced to respond to the changes in

order to remain competitive. Students' expectations from tertiary institutions have also shifted. Engelbrecht (2003) states that the internet is being used everyday especially for communication as well as entertainment. The use of the internet therefore, for teaching and learning is becoming a norm. An institution or organisation's performance suffers when the server is down or when the server is offline. Essentially, this means that not much work will be done, such as online exams and uploading and downloading of work and or related information. Nichols (2003) furthermore notes that it is crucial to ensure that electronic file sizes are appropriate and can be stored on storage devices that students have because students should be able to continue their studies if they are away from the institution (or if employees of an organisation are working from home). It is also crucial to ensure that as well as the installation and maintenance of an effective internet system universities have the power (electricity) capacity to run such systems and backup if there are power outages (generators).

2.11 Research conducted on e-learning

Limited research has been carried out on e-learning as this is still a relatively new field. Researchers assume that the introduction of new technologies will always benefit an institution or organisation and research is usually undertaken only when problems occur (Watson et al., 2000). A selection of pertinent research is presented below.

2.11.1 Research conducted in the United States of America (USA)

According to Miller (2006) Palm Beach University in the USA has more than one campus and lecturing staff have to constantly move between campuses to cover staff shortages. This called for the implementation of an e-learning programme which made it

easier for the lecturing staff to communicate with students on different campuses without the lecturer's physical presence. This programme made it easier for lecturers and course content readily accessible to students. Palm Beach University uses educational technologies for staff development as well. In future, they hope to use the technology for more student presentations which will be accessible to both the lecturer and other students. They intend to use the programme to do exam and classroom reviews with students after class. The educational district also wants to use the programme to provide parents of students and adult learners with online training on topics such as internet safety. The programme is thus not only targeted at students and lecturing staff but also to the extended community. Online training for adult learners on current issues can also help them to be educated in terms of social issues such as HIV prevention and credit fraud protection.

2.11.2 Research conducted in South Africa on e-learning

According to Van Der Merwe and Mouton (2005) lack of commitment from lecturing staff is one of the reasons why they do not use e-learning at the University of Stellenbosch. The findings of their research indicated that lecturers are of the opinion that teaching and learning is not valued and rewarded as much as research at the institution. Staff preferred to focus on research rather than e-learning activities given the limited time available for them at work. This investigation however, did not show lecturer ownership of digital material as a barrier. It was noted that this institution has an excellent computer network infrastructure for students and faculty members. Students however raised concerns about limited computer access. The approximate costs of an e-

learning initiative for Stellenbosch and all other South African higher education institutions is likely to remain a potential barrier to the introduction of such programmes.

For instance, at Stellenbosch the costs run into hundreds of millions of Rands.

The benefits and potential pay-off of the integration of information and communication technologies into all teaching activities however, is seen to justify the cost of such initiatives. One of the main barriers to its introduction is the perception that teaching and learning in general are not adequately rewarded in South Africa. Essentially, academics are poorly paid and are not motivated to introduce new teaching modes. Another problem is the extent of student access to computers on campuses and student access to computers off campus remains generally low. Inadequate infrastructure, including academics training and information technology support systems can also be viewed as potential barriers.

Van Der Merwe and Mouton (2005) discovered that a clear emphasis on intrinsic rather than extrinsic factors can be detected when considering the factors that motivate lecturers to start using educational technologies or to increase its usage. The results of the investigation indicated that the initiator of the programme is most motivated to encourage others to be involved with e-learning initiatives. There also appears to be no agreement amongst lecturers as to whether a financial reward should be offered as an institutional incentive to adding e-learning programmes to content offering. Adding value to teaching and learning activities through the use of educational technologies is impossible without proper technological tools, which have to be supported by a stable information technology infrastructure and flexible support and training programmes (for academic staff, support staff and students). Although disagreements may exist on

whether there should be monetary incentives for e-learning initiatives responses indicated monetary incentives are appreciated as a reward for extra effort. This could serve as a motivator for staff who otherwise would never have used information and communications technology in teaching and learning activities. Issues such as training are identified as some of the important incentives to get staff started in e-learning initiatives and increasing the use of e-learning programmes.

Van Der Merwe and Mouton[§] (2005) research further recommended that in order to motivate lecturers to take part in using e-learning, it is important for tertiary institutions to show support and commitment to good teaching and learning practices (with the appropriate use of educational technologies). Institutional values where research and not teaching and learning activities are valued and rewarded, need to be changed for the integration of information and communications technologies to be applied more vigorously. Institutions should put effort into identifying best practice examples of e-learning applications and carry out institutional research on the possible benefits it has for students. Tertiary institutions should also establish development departments that work closely with information technology departments. This will help to build confidence in e-learning systems. This can be carried out through an organisational development plan, good support systems and a reliable, stable computer network infrastructure for lecturers, support staff and students. The addition of a fully functional e-learning department or facility will provide guidelines, training support and facilitate demonstrations of how programmes add value to teaching and learning activities.

According to Herselman and Hay (2005) the key problem that faces most lecturing staff using e-learning systems is the difficulty in assessing the quality and value of a new system. Adopting and implementing it requires significant time and funding. New knowledge and information are currently the primary production forces in the economy whilst information technology has become a vital component to success in today's information-rich world. Technological programmes are needed now more than ever, as they provide efficient and effective communication. Developers of e-learning programmes need to take note of teaching and learning strategies that are used in contemporary teaching practice in order to develop useful programmes that will ensure that learning objectives are met.

Falk and Johnson (2005) state that the University of Pretoria (UP) upgraded its e-learning programme in 2005. This was to allow it to handle the increasing demand of its usage. This, in turn, extends the institution's commitment to quality education through continuous innovation. UP has designed its interventions to face the challenges the institution has to deal with due to the rapid change in educational technologies and how e-learning initiatives fit in to curriculum development. E-learning is used to support teaching and learning mainly (but not limited to) in a face-to-face environment.

An ex-Minister of Education in South Africa (Pandor, 2007) states that the government is working towards achieving practical benefits related to the use of digital technology. She viewed information and communications technology (ICT) as the future and key to 21st Century teaching and learning. The minister believed that for e-learning to be successful in education teaching staff needs to be taught about information technology

and how to use relevant software first. The government is strengthening its effort at providing effective and ongoing professional support for teachers and lecturers in order to ensure sustained use of technology at institutions. The minister however, believed that for e-learning to be an effective educational tool at tertiary level learners should have left high school knowing at least how to operate a computer and be familiar with basic e-learning interventions. In South Africa the majority of learners and schools do not have access to technological infrastructure as the use of such technology in education is a recent phenomenon. There are twenty six thousand (26 000) schools with twelve million (12 000 000) students in South Africa yet only three (3) in ten (10) schools have access to computers and one (1) in ten (10) schools have access to the Internet (Pandor, 2007). According to Odero (2006) although South Africa has the best information technology infrastructure in Southern Africa and the Sub-Saharan region and e-learning is not widespread yet due to economic and historical imbalances in the education system.

According to Mallinson and Sewry (2004) Rhodes University has a one the most modern information and communication technology (ICT) infrastructure in South Africa. The investigation noted that an e-learning programme is most effective when there is a department in place to assist with problems that users may encounter. Their e-learning system is one of the best in the country because it is maintained through a variety of ICT based university committees. In order for an institution to have a properly running e-learning system there is need for the programme to be properly monitored by specialists on a full time basis. Even though the system is good, the authors still insist that the use of e-learning on campus is limited, and few mechanisms exist to promote or support its

implementation. This is largely a result of the residential nature of the campus. Students do not have full internet access at their hostels and wireless connections are limited thus compromising on the convenience of the delivery of e-learning interventions.

Peprah and Femundam (2004) considered e-learning as the least disruptive way to learn especially for participants holding full-time jobs. The findings of their study at the Medical University of South Africa (University of Limpopo . Medunsa Campus) suggest that e-learning posed a challenging experience for learners with limited computer literacy and skills who needed to balance the demands of their studies as well as utilizing new learning interventions. It still remains a problem for students who have limited computer and software expertise. E-learning however, has gone from strength to strength at the institution in spite of these drawbacks and each year programme offerings increase (See Appendix 1)

2.12 Building an e-learning environment

According to Van Der Merwe and Mouton (2005) information and communication technologies will change teaching and learning strategies beyond recognition. Major structural and technological changes will have to take place for these technological advances to be effective. A high level of information and communication technology (ICT) infrastructure is necessary. A suitably qualified team that designs and implements e-learning programmes will also be required although some of this work can be outsourced however, a reliable support team is necessary. It must be also taken into account that the introduction of new teaching and learning methods combined with technologies can create stress for students, academic and support staff thus e-learning

intervention support staff must be properly trained. An ideal starting point for an e-learning project would involve consideration of individual, group and organisational issues. Change is not usually welcomed in most organisations and creates resistance from the individuals to the change. Likely reactions to the programme by students and staff would need to be identified and addressed before they resist. Active resistance may result in an e-learning intervention failing. Stockley (2006) insists that resistance to change will be minimised if an intervention is aimed at the right people and these people are involved in the decision making process. Resistance will also be minimised if management buy - in to new interventions such as e-learning programmes.

Planning for the implementation of quality and sustainable e-learning programmes requires an understanding of the impact of information and communication technology on tertiary institutions and the teaching and learning methods that are used (Engelbrecht, 2003). Educational technologies should be user friendly and they should be simple so that individuals can easily be trained in their operation. Clark (2007) suggests that for a programme to be successful there should be easy ways to manage, correct, edit, change, and re-use lessons, practice exercises, and questions.

There are many reasons why organisations should implement e-learning programmes. However, Clark (2007) has concerns that there are also many outside organisations that want to sell their e-learning programmes to other organisations simply to expand their own business, not necessarily because it is best for the target organisation. It is important that the programme be built around the needs of a particular organisation.

One of the major reasons of the failure of e- programmes given by Pailing (2002) is the reluctant adoption of e-learning by students. Students are not reluctant because of technology challenges, but because of the failure of lecturing staff and institutions to provide quality content, and to create interactive discussion forums. Students are motivated when they get feedback from their lecturers. This feedback helps them to know what is expected of them and how to answer questions. Weisburgh (2002) explains that students want tips and in some cases full explanations with examples in order for them to understand a concept. The student will often need to practice problem solving, in his or her own time, to master these concepts. Some lecturers will just use the instructor's manual from the publisher of the prescribed book as their course guide. If students do not understand a certain topic, downloading the lecture presentation will not make it simple for the student to understand because it will still be the same content or just a summarised version. Lecturers should use different sources of information and make them available to learners online. It is important for an institution to sustain an e-learning initiative and to remain competitive in the changing times by up-dating their programmes all the time. Institutions should constantly monitor the progress of the programme through tools like suggestion boxes or questionnaires and check if students are happy with course content. Fundamentally, it is important to identify issues that may determine the success or failure of e-learning programme timeously.

According to Van Der Merwe and Mouton (2005) existing funding can be used as incentives for the integration of information and communications technologies into teaching and learning activities at most South African Higher Education institutions. He notes that it is of great importance to understand who is involved with the promotion of

teaching and learning within institutional structures when trying to encourage new technologies for learning activities. Salmon (2003) states that there are three types of technologies involved in computer mediated programmes: a) a server or a special computer and software system, which has to be maintained and housed by the institution that sets up the programme. It has software that can store and organise messages or information; b) technology that has a terminal or a personal computer for each end-user. There are two main ways of accessing the server. The first would be to install a client access on each computer. The second alternative of accessing the server is through web browsers or the standard internet and c) the third and last technology is the use of telecommunications systems to connect computers to the server. Connections for computers can go through local area networks (LAN) that link the computers in a department of an institution. Connections are also available through wireless networks as well. Successful implementation of an e-learning programme also depends on the planning of buildings that meet the needs of the students, lecturers, administrators and that are compatible with the institution's overall goals.

The benefits and drawbacks of educational technologies vary depending on programme goals, target audience and institutional infrastructure as well as culture. It is clear that e-learning is rapidly growing as a form of training delivery and many institutions and organisations are finding that its benefits will guarantee it a role in their overall learning strategy.

2.13 Benefits of e-learning

Kruse (2004) states that the movement towards e-learning is increasingly promoted by the many benefits it offers. It is therefore necessary to discuss the benefits of such technologies to an institution or organisation. Some benefits apply to both non-academic institutions as well as academic institutions. Herselman and Hay (2005) note that institutions that have already invested in these programmes are capitalising on the advantages they offer. This technology enables individuals within organisations and institutions to attain new knowledge and skills and to stay competitive in the 21st century digital age.

2.13.1 Benefits of e-learning in tertiary institutions

According to Herselman and Hay (2005) educational technologies provide students with online collaboration as well as ways of doing things. Exposure to a wide range of knowledge and information is beneficial for the student as there are many individuals with different ideas and perceptions about the same topic. As there is much information available in such programmes students can access the required knowledge without running around, or going back and forth to their lecturer's office. An e-learning programme will help students gain quick access to information and give them time to assimilate the information thus helping them improve the retention of knowledge. E-learning interventions will also give students the ability to contribute to the learning environment so that others can benefit from information that they have accessed and successfully used. Any technical or accessing problems a student encounters can also be documented so that other programme users do not spend time and effort on trying to solve the same problem.

Clark (2008) describes the main strength of online learning as its ability to send and receive information. This allows the sharing of information simultaneously because messages are posted almost instantaneously sending text, audio and images to end-users. The programme thus allows users to interact amongst each other, whether it is student to student or student to lecturer and sometimes lecturer to lecturer communication. Students are able to discuss or receive feedback online about educational topics and other courseware.

Educational technologies also empower students to manage and implement their own development plans, as emphasised by the e-moderating model in the fifth stage (see page 33). The students are thus responsible for their own learning. Ownership of learning is crucial for individual growth and progression. Empowerment creates learner ownership, responsibility and direction which will lead to powerful learning and growth potential. A student, in such cases, is able to assess or measure their own abilities.

Business professionals need to develop learning experiences quickly and at low cost to organisations. This has led to the introduction of e-learning in most organisations as a means of learning or training as it is relatively cheap or cost-effective (Karrer, 2003). The difficult and costly process of traditional face-to-face learning for instance, coordinating travel, locating appropriate resources and materials and locating classroom facilitates is negated by the use of e-learning technologies.

(Weisburgh, 2002) states that students want everything as and when they need it. This relates to wanting instant gratification which has become a modern lifestyle need which has been grafted onto teaching and learning. This has everything to do with education

being available anytime and anywhere at the touch of a computer key. With e-learning if for instance, students miss a lecture for whatever reason then they will be able to catch it up by going over the course content for that particular lecture in their own time. With e-learning there are no storage limitations and content can be held on one or more servers. Users can access objects from the server through employing search engines to find information that they require. With information technology capabilities, lecturers will be able to better track, analyse, report and improve student performance and then give them feedback as well. These programmes, according to Falk and Johnson (2005) are able to identify students who are struggling with coursework. The lecturer or facilitator can provide pro-active intervention to these students by referring them to appropriate support units. Technology is a vital way of supporting the different needs of the learners and it is important to address diverse learning needs in a technical environment. With technology, student tracking is made easy. This is made possible because students upload their assignments and assessment projects online. The programme will therefore have a detailed report of the students mark schedule without the lecturer going out of their way to put the things together. Students are automatically tracked on the server by name and registration number. The information available will be as simple as who has accessed the courseware and what are their assessment scores, as well as detailed information including how they answered individual test questions and how much time they spent on each module.

According to Plaffman (2005) students find the use of e-learning programmes easy because most of them are user-friendly. They are able to send e-mails to lecturers regarding any problems they encounter. Unregistered people cannot log-in this creates

a secure environment for communication which a student may feel is sensitive. In usual cases users will be given a username and will be asked to activate their accounts by putting in a password. This makes it a comfortable environment for the students who feel that their online comments and questions are secure and cannot be viewed by outsiders. Online forums are flexible they can provide and keep up with which messages students have seen already as well as ones they have not seen. Because lecturers have control over who has access to course e-learning interventions can provide a safe place for students to post items that prevent others from seeing student's names or exercises while still allowing them to have access to the materials via the internet. It is also thought that e-learning will improve students' written English in South Africa, as it is the language used for most educational interventions. Usually students speak in their home language and do not write English enough to improve their written skills. Discussions on the discussion forums will help the student to improve written English as they will make an effort to avoid spelling and grammatical errors because others read these discussions.

The other benefit of e-learning for a student is that it is self pacing. Kruse (2004) explains that self pacing for slow or quick students reduces stress and increases satisfaction. Essentially, e-learning provides a more individualised, self-paced, self-directed learning experience for learners who want to study at a pace they are comfortable with. It is often difficult to do so when in a traditional face . to . face situation as the lecturer works through a set syllabus at a set pace.

According to Kim and Flickinger (2006) printed material gathered into manuals and ring binders can quickly become out of date. The effectiveness of this type of education depends on how well individuals make use of, and comprehend the information that they have to assimilate. Taking this into account thick volumes of, for instance, a study guide, can be considered to add to a student's underperformance. Seeing the thickness of study material or a study guide may put a student off studying. However, when information is presented in an electronic format it does not look as big and is usually presented in a more user friendly format. It is also true that book driven information cannot be expanded on or up-dated easily whereas e-learning programmes can be updated weekly or even daily if required. E-learning interventions help bring about simplified logistics through the elimination of physical resources such as books. This is also an environmentally friendly practice because the use of less paper means a more eco-friendly environment.

E-learning provides a customised approach to education that focuses learning and administration on students rather than oral presentations. It helps students because they can go over the class material on their own for as many times as they need to. The lecturer on the other hand does not have to repeat explanations over and over again until the student understands a concept. E-learning thus provides both the student and lecturer with flexibility. The learning for the student can be broken down into appropriate units to suit the student in terms of time, and subject matter (Herselman & Hay 2005). Starkman (2007) insists that e-learning also motivates students as they get feedback quickly.

2.13.2 Benefits of e-learning in non academic institutions

E-learning can help overcome major training challenges confirms Duprey (2006). According to Brockbank (2002) it offers significant return on investments (ROI) features for organisations. ROI is a method used to calculate the efficiency of an investment or to compare the efficiency of a number of different investments. To calculate ROI the benefit, the return of an investment is divided by the cost of the investment. The result is expressed as a percentage or a ratio.

$$ROI = \frac{Gains_{from Investment} - Cost_{of Investment}}{Cost_{of Investment}}$$

For an institution to implement such a system would be beneficial because the gains outweigh the costs. The only major cost would be the inability of students and lecturers to use it. This cost can be reduced if both are trained and constantly advised to use it. Time spent away from the job by employees will be may be the most positive outcome for the organisation (Kruse, 2004). The cost benefit analysis for any organisation is achieved by identifying and measuring the beneficial results from a training system. Cost-savings provides an efficient and cost effective method for evaluating educational tools (Kruse 2004). According to Clark (2007) this depends on a number of factors such as the number of students, contents of modules to be developed and the quality of the programme content. A positive cost benefit ratio is a plus to institutions and organisations.

Having a technological learning system gives the organisation a competitive advantage. A competitive advantage is one aspect of an organisation which makes it unique from others. In many instances, the latest information or teaching applications are not

available for face-to-face teaching which disadvantages learners. This makes the integration of e-learning with traditional face-to-face teaching a key strategy in meeting all educational challenges due to its cost effectiveness, flexibility and user-friendliness.

According to Brockbank (2002) educational technologies offer real time learning. This happens because knowledge will no longer need to be taken from the shelves, to the training department and then be reviewed to see if it is appropriate. With the new system facilitators lecturing staff review the content and then type it onto Microsoft Word or PowerPoint (or any other application) before uploading it for students to use. Kruse (2006) agrees by stating that consistent delivery of content is possible because of asynchronous, self paced learning. Programme content will thus be easily updated because in today's fast paced business environment, teaching and learning programmes often change. This can be achieved by copying the updated files from the local developer's web page into an appropriate window.

For organisations, e-learning will help them attract, train, and retain staff. Globally there is a shortage of skilled labour so such programmes will help to equip potential employees with certain skills needed for a particular job. According to Brockbank (2002) one reason for the loss of key employees is that they feel their organisation has not invested sufficient resources for professional development. E-learning programmes not only address employee needs in terms of developing new knowledge and skills but also provide them as the demand arises. Management of organisations can set up their own systems and collaborate with facilitators in different venues and even different countries in efforts to ensure appropriate and up-to-date material. This may be carried out for a

fee that will be paid to the organisation or institution at which they are employed (or paid directly to the consultant). According to Herselman and Hay (2005) the reason why organisations and institutions utilise e-learning is because of the effectiveness of e-learning tools and the related retention of employees.

According to Duprey (2006) online learning systems provides real time training to new employees or refresher training to existing employees. This training can take place as and when it is required by employees. The e-programme is available at all times if it is internet based and only requires an employee register for the programme. Employees can then access the programme at a time that is convenient to them. Furthermore the system reduces training costs as the employees do not have to leave work and go somewhere else for the training course. The costs of training becomes lower because many people can access the programme at the same time and the programme can be accessed during or after office hours (that is if it is on the internet - programmes that are intranet based are often only available in office hours). Clark (2007) however, argues that such programmes are not available anytime and anywhere because they are only available where there is proper technology and support systems. Fundamentally, large organisations and institutions will have programmes available twenty four hours a day as they have the technology. Small to medium business enterprises are unlikely to have this luxury but will use e-programmes at specific times often utilising an external source to offer the programme.

Many companies opt for online education over more traditional learning due to the increased mobility of the workforce and the need to save on training costs (Britt, 2004).

In corporate and government environments e-learning is expected to grow at approximately eleven percent (11%) per year between 2004 and 2007. It offers attractive content, flexibility, low cost as well as convenience and this can add to the learning process within organisations of all shapes and sizes. It is also true that with the right tools and strategy, companies can influence e-learning to the benefit of employees and the organisation alike (Kim & Flickinger 2006).

According to Wocke and Van De Spuy (2003) educational technologies will increase the number of people being taught or trained because it allows individuals to run programmes in their own time. Kruse (2004) supports this idea by stating that it allows access to learners in all spheres of life. This learning can take place at any time of the day or night in a work or home context. Access to course material is available anytime, anywhere, globally (assuming the technology is in place). Because cellular modems are becoming more popular, learners will even be able to access the system without a traditional telephone line or network connection.

Clark (2007) states that e-interventions offer economies of scale. After a large initial investment, of putting up the technological infrastructure the cost of usage per incremental learner is relatively low. Access to large amounts of information can be obtained at very low incremental costs. It must also be added that additional students can be accommodated at lower costs with technology than with traditional face-to-face training methods. For organisations and academic institutions that are using it on a distance learning basis an advantage is the decreased cost of learning delivery and reduced travel costs or time away from work.

Convenience plus collaboration is another benefit which Fitzpatrick (2007) discusses. The programme's courses are asynchronous, meaning the learners have a chance to complete the required work at a time convenient to them. However, this is balanced against an approach that requires collaboration, which creates the very real sense that a course is progressing in as close to real time as possible. Without such a strong emphasis on collaboration, these online courses would be no different from traditional correspondence courses. A well-crafted online course is not easier to work with but it is more convenient and provides the learner with opportunities to learn beyond what the traditional face-to-face classroom offers. Herselman and Hay (2005) also support this by stating that in this sense e-learning learners get to learn when they want to and when they need to. Learners operate in real time and they can access programmes when they want to, provided they have all the resources with them. The learner will have access to e-learning programmes as an e- learning resource whenever they need to.

Starkman (2007) concurs with the notion that with the internet at home learning possibilities or interventions will always be available. According to Bassoppo-Moyo (2006) with technology, education is now more than just being physically present in a classroom as systems will be accessible twenty four hours a day. It is the availability of these programmes that frees learners, facilitators and lecturers from the restrictions of usual instruction. E-learning programmes enable the delivery of multicultural experiences and in due course are expected to enable higher student achievement Duprey (2006).

2.14 Costs of e-learning

Just like the benefits discussed above, some of the costs of e-learning apply both to academic institutions and non academic organisations. These costs are sometimes deemed to be negative factors in higher education institutions and may hinder the adoption of e-learning technologies. In organisations however, the cost benefit of e-learning (page 61) is well recognised and companies are adopting e-learning programmes at an exponential rate.

Another drawback of e-learning is the large up-front investment required to begin a programme due to development costs. Whether the programme will be outsourced or be implemented in-house, the budgets and cash flow that is needed must first be negotiated from the various stakeholders. This can be problematic in tertiary institutions. It often means that budgets must be changed to accommodate the inclusion of e-learning as often more money specifically for such a programme cannot be found. Kruse (2004) mentions that technology problems might also play a role in slowing down the smooth implementation and operation of the programme. One of the technological issues can be poor existing technology infrastructure which needs much upgrading. The additional technology expenditures have to be justified and there needs to be proof that there will be compatibility of all software and hardware components to the system.

Clark (2007) reports that twenty nine percent (29%) of e-learning is carried out during working hours. The rest is carried out after working hours or during work break (holidays) or weekends. This is an intrusion into the learners relaxation time especially if it's a programme for training at work. Thus organisations, in a way, could be

considered to be exploiting their employees or learners. However, as learners gain from the training it could be considered to be to their best advantage.

In educational institutions that are offering e-learning as a distance educational programme, it seems that while e-learning answers a lot of the learners' needs, drop-out rates are higher than those for campus based learning. Clark (2007) supports this notion by stating that students thrive on social interaction and they quickly lose interest if they do not have access to appropriate social contexts. The online student drop out rate is estimated to be around thirty five percent (35%). The drop out rate can be due to the failure of the system to retain students which can be addressed for instance, by encouraging online activities such as discussions or blogs to increase learner interaction. It could also occur that the course content was not explained clearly and does not suit the learners' needs. In under-developed countries students may also not have the required basic computer knowledge (computer literacy) to be successful using e-learning interventions.

2.15 Human interaction and e-learning

Despite the fact that e-learning is becoming popular in organisations at a fast rate, Kruse (2004) states that collaborative learning theory contends that human interaction is a vital component of learning. Consideration of this aspect is crucial when designing programmes, keeping in mind the potential for the medium to isolate learners. Isolation can be considered a major drawback. However, isolation can be reduced if the system is used together with well delivered face-to-face education, and technology. The

classroom bond between lecturer and student, and among students themselves, cannot be replicated through communications technology.

According to Van Der Spuy and Wocke (2003), education technologies have a number of limitations which include very low bandwidth, and limited customisation of learning management systems for the South African context. This, simply stated, will create boredom when waiting for web pages to open as they will be regarded to be slow if the bandwidth is low. Human beings are not patient and thus will get frustrated and give up trying to access such web pages (Weisburgh, 2002). This impatience factor can be a major disadvantage of an e-learning educational programmes success at any institution.

According to Kruse (2006) some learners are technophobic or they do not have the required technological know-how at their disposal to use e-technologies. Another problem is that some lecturers have the tendency to focus on putting content online (Botha *et al.*, 2008). They do not check to see if the content is appropriate to the social context. Lecturers have a duty to ensure that material is culturally appropriate. A learner may see something online which he or she finds offensive. The learner may not want to continue with the programme and as he or she does not have the immediacy of questioning a facilitator or lecturer face-to-face, and may not bother to e-mail queries thus a negative impression of the programme is gained. The suppression of communication mechanisms such as body language and the elimination of peer to peer learning are part of this potential disadvantage. However, these are lessening with advances in communications technologies (such as web cameras which facilitate virtual classrooms).

Students and lecturers may be frustrated by the disconnected and unreliable infrastructure of some e-programmes (Botha *et al.*, 2008). Users, both lecturers and students may have problems especially with the power cuts in South Africa. Some of the effects will be failure to download a handout in time for a test or failure to submit an upload on time because of a power cut, or even failure to write an exam because of a power cut. However, administrators of programmes should be aware of this and interventions to help and support the student should be made.

Many lecturers and students make the mistake of assuming that when using network technologies for educational purposes learning is going to take place (Le Grange, 2004). It is assumed that the ability to retrieve information and the exchange of information means that learning has occurred. Sometimes students will assume that just because they were able to download a lecture presentation or upload an assignment they have learnt something with regard to that module. Learners forget that they have to be able to analyse the information they have downloaded, and have the ability to conceptualise the information, as well as use problem solving techniques in assignments. It is important that a programme is designed in a way that ensures learners understand e-learning programmes are not about cut and pasting information. Another point is that with the large amount of information available through network technologies, effective online learning assumes that both students and lecturers are highly skilled in uploading or retrieving the information. This sometimes exposes students to large amounts of information which can confuse them as many have limited ability to sift through it. It is essential that the programme design takes this type of problem into account.

Le Grange (2004) differs with scholars who think highly of e-learning programmes. This author states that the power of network technologies, and their increasing use in educational settings, might further reinforce the mind, body separation and impact negatively on learning. He goes on to explain that the physical presence of students is essential in developing skills by imitating positive behaviour(s) by lecturers or facilitators. He justifies this by stating that learning is a social activity and requires time and face-to-face contact.

2.16 Coping with Organisational Change

Bates *et al.*, (2005) state that since everything else is changing in our day - to - day lives it is to be expected that this change will also come into effect in organizations. The way organizations are run and the way operations has changed exponentially over the last three decades. It is argued that change in the South African community is bound to continue happening in societies as well as in organisations. This is due to changes in the physical, social and economic environment in which organisations or institutions operate in. It is therefore important for the organisation to stay up . to - date with global trends, challenges and increased competition. One of the major changes to organisations is the implementation of the latest information technology systems (ITS) and the use of e-learning technologies.

Hellriegel, *et al.*, (2004) describe innovation as the process of creating and implementing a new idea. It is further explained that technical innovation is the creation of new services. Process innovation best describes the introduction of e-learning at

many institutions and organisations. If a programme already exists innovation can still take place by creating a new way of producing, selling, and distributing an existing service for instance, Moodle can be introduced into an existing e-technology.

2.16.1 The Process of Organisational Change

For an organisation to manage change effectively, there are stages which have to be followed. Changing from a traditional face-to-face learning environment to incorporating e-learning will require the organisation or institution to take the following steps.

a) Assess the environment

This entails for instance, assessing the environment of an academic institution that wants to incorporate e-learning into its curricula. There are four environmental factors that stimulate organisational change. These factors are customers, technology, competitors, and the workforce.

b) Determine the Performance Gap

This is the difference between what the organisation wants to do and what it is actually doing. An institution, to keep up to date with global trends, must offer relevant programmes and learning activities.

c) Diagnose Organisational Problems

This is to identify the nature and extent of any problems that exist within an organisation without taking action to solve the problem.

d) Identify sources of resistance

Identifying potential sources of resistance take place before a new modality of learning or teaching is implemented. There are reasons why individuals may resist organisational change. Resistance to change may occur because of fear of the unknown. An example of resistance in introducing e-learning to an institution would be that lecturing staff may resist its implementation because they might think that the programme will add to their workload.

e) Reduce Resistance

It is important to reduce resistance by educating and communicating with the people that are going to be affected by the change. The individuals that are to be affected by the change in an organisation should be allowed to participate and be involved in decision making surrounding that change.

f) Set Goals

For change to be effective there is need to set goals. These goals should be consistent with the institutions overall goals and policies.

g) Implement the Changes

At this stage a team is put together to monitor the changes that are to take place.

h) Follow up on the Change.

It is important to evaluate how the programme is working, whether it is benefiting the stakeholders or not (adapted from Hellriegel *et al.*, 2004).

2.17 Gender and e-learning

As this is a new field little research has been carried out on the impact of gender on e-learning. Traditionally males and females have been considered to think differently. According to Fallows (2005) the verbal, sorting, detail-oriented side of the brain is the left, whereas the spatial intuitive nonverbal side is the right. In women, the left hemisphere is almost equal in size to the right hemisphere but in men, the left hemisphere is slightly larger than the right (Ariniello, 1998). Males are thus more nonverbal and women more verbal. This, it is inferred, impacts on how males and females use learning facilities such as inter or intra nets.

According to Fallows (2005) in the developed world males and females have equal internet access but use the facility differently. Males look for information more readily whilst females use the communication aspect of the internet more frequently. This type of research and information is useful when planning e-learning programmes as strategies that incorporate broad learning patterns and the type of inter and intra net use of both genders must be accommodated

2.18 Resumé

E . Learning programmes have the benefit of being easily and always accessible if the right technology is available. There is important long term cost saving implications for institutions and organisations if an e-learning programme is designed to meet its target market needs. Social networks are built up in e-learning environments but these may not be as effective as face-to-face learning interactions. Programmes that are well designed should make information seeking easy but those with too much information

may confuse learners. Institutions and organisations that offer e-learning must embrace change and have appropriate technologies and support systems for learning to be effective.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology for every investigation is important. In the case of this study, both qualitative and quantitative research methods are used. This is consistent with triangulation which uses different methods in order to obtain a clearer picture of the phenomena under investigation.

3.2 Hypotheses

The study has two assumptions which, are underpinned by the literature review namely:

- lecturing staff are unlikely to use e-learning programmes
- students will have a poor understanding of e-learning programmes

In analysing the qualitative data from the Focus Group an endeavour will be made to observe if males and females perceive e-learning programmes differently.

3.3 Research Design – quantitative survey

Research design is used to structure an investigation in order to show how all parts of the research work together in trying to address the research question (Trochim, 2006).

In the case of this research, a quasi-experimental research design utilising a repeated survey measure is used. This type of research design is one which uses either multiple groups or multiple waves of measurement (Terre Blanche, Durrheim & Painter, 2006).

The repeat cross sectional survey tool used in this investigation measures the behaviour and attitudes of a population over time by repeating the same questionnaire

on two or more occasions (Williams, 2007). During each time period, a different but comparable sample is drawn from the population and asked to participate in the survey.

3.4 Target Population

According to Neuman (2006) a target population is a specific group of cases a researcher wants to investigate. The target population of this investigation has been chosen in terms of the problem question and topic namely an investigation into the implementation of e-learning in the Faculty of Commerce, Administration and Law at the University of Zululand (Unizul). The target population is thus all lecturing staff and students in the Faculty of Commerce Administration and Law at Unizul.

3.5 Sampling

A sample is a group of respondents drawn from a population, which represents the total population (Green & Browne, 2005). The student sample will be drawn using disproportionate stratified sampling. This sampling technique is used as it produces samples which are representative of the population if used appropriately (Jankowics, 2005). According to Terre Blanche and Durrheim (2006) disproportionate stratified sampling is a type of sampling procedure which is used to obtain a sample where populations consist of subgroups. This ensures that all proportions of the population are represented in the sample. Students will therefore be divided according to departments. The sampling frame consists of all first years that are registered for degrees in each department. There are six departments in the Faculty, namely, Accounting and Auditing, Business Management, Economics, Industrial Psychology, Law, and Public

Administration and Political Science. Three hundred questionnaires will be given out, fifty to each department and the final sample will be drawn from the responses.

The entire population of first year students is one thousand nine hundred and twenty four (1924) of a total student population of seven thousand six hundred and fifty two (7652) registered students. A sample of not more than ten percent of the first year student population would be adequate however, three hundred questionnaires, sixteen percent (16%) of the first year population, is seen as an appropriate number to give out due to expected attrition rates (that is, non-completion of the questionnaire). First year students are also broadly homogenous in terms of age and education which adds an element of reliability and validity to the study.

In each stratum (that is department in the Faculty) all student numbers will be placed on a piece of paper in a box and fifty numbers will be drawn. The researcher will attend a lecture in each department (with permission from the Head of Department) read out the student numbers and ask the relevant student to collect a copy of the questionnaire. A covering letter will be attached to the questionnaire informing the respondent that he or she will not identify him or herself on the questionnaire making it confidential. The respondent will be advised to return the questionnaire to a sealed box placed in a prominent position near the notice boards in the faculty.

The size of lecturing staff population in the Faculty of Commerce, Administration and Law is manageable. The staff is also likely to be representative of the entire population of lecturing staff at Unizul as specific educational requirements are required for each post level. The number of staff in the Faculty is forty (40) thus within this stratum

random sampling is used using the simple random sampling method. The lottery technique is used, where a symbol for each element of the population is placed in a container and then drawn (Bless, Higson-Smith & Kagee, 2006). As thirty is an appropriate number to use when running parametric statistics, thirty five symbols representing staff members will be used in case of attrition (that is, non-completion of the questionnaires).

To obtain the sample of a focus group, non - probability sampling was used. According to Terre Blanche and Durrheim (2006) non - probability sampling refers to any kind of sampling where the selection of participants is not conducted by using the statistical principles of randomness. For the focus group a convenience sample was drawn. A convenience sample is a sample consisting of volunteers who are willing to participate in the research. For this study a request for a volunteer from each department was put forward in class for them to enlist their names soon after class. At first year level most of the courses are the same foundation modules hence students from different departments are already under one roof.

3.6 Data Collection Tools

Data collection tools are the instruments that are used to gather the required information in order to help address the research question. This research utilised two data collection tools that are quantitative in design. To add a more holistic element to the research qualitative questions were added to the questionnaire. This enabled respondents to state their feelings and experience about the implementation of the e-learning programme in the faculty. A focus group, which is a qualitative tool, was also used to

facilitate part of the research. The different research tools are discussed in 3.6.1 to 3.6.2.

3.6.1 Quantitative Data – Survey Questionnaires

The quantitative data was obtained using two survey questionnaires that used mostly closed ended questions. According to Gillham (2000) in quantitative research the main aim is to determine the relationship between an independent variable and a dependent variable in a population. The independent variable is what you (or nature) manipulates, a treatment or programme or cause. The dependent variable is what is affected by the independent variable, the effects or outcomes. For example, if a researcher is studying the effects of a new educational programme on student achievement, the programme is the independent variable and the measures of achievement are the dependent ones (Bless, Higson-Smith & Kagee, 2006). In this investigation the independent variables are the lecturing staff and students while the dependent variable is the e-learning programme.

Questionnaire 1 was adapted from an e-learning survey questionnaire developed by EDUCASE Centre for Applied Research (2002). Questions that were not appropriate to the research aims of the study were not utilised. The questionnaire is made available free to researchers. This questionnaire was given out to students and staff twice (repeating the same sampling technique), once before the programme was implemented (pre-test) and the second time a year after implementation (post-test). This is consistent with a repeat cross sectional survey design. Students were required

to fill in this survey which asked questions that elicit opinions on the viability of the e-learning programme (See Appendix 2).

As lecturing staff are busy and all have different teaching schedules it was considered appropriate to use a survey questionnaire, as opposed to a focus group, to find out lecturing staff's views on the e-learning programme after it had been implemented. Survey questionnaire 2 (See Appendix 4) is one that was developed at Thames Valley University, (2008). It is available at the following website: <http://www.health.tvu.ac.uk/elearning/staff/staff.htm>. This questionnaire is not copyrighted and a letter was written to the university requesting permission to use it. The survey questionnaire elicits information as to how lecturing staff use the e-learning programme and if it had any impact on the faculty. This survey was filled out by respondents from lecturing staff six months after the implementation of the e-learning programme.

3.6.2 Qualitative Data – Focus Group (students)

As students tend to have more flexible schedules than lecturing staff it was considered appropriate to use a focus group to elicit their thoughts, opinions and feelings about the introduction of e-learning interventions at Unizul. A semi structured interview technique, which is the most commonly used qualitative research method, was used within the focus group in order to obtain information from the participants (Neuman, 2006). The questions for use in the interview schedule were developed using the literature review and survey questionnaires as guidelines (See Appendix 3).

A focus group is a term given to a research interview conducted with a group that shares a similar type of experience (Terre Blanche, Durrheim & Painter, 2006). The group provides a natural setting and allows participants to express their opinions freely participants are able to question each other and explain their answers to one another which helps the researcher gain insight into the topic. According to Nardin (2006) focus groups are best when there are only six to twelve members.

In this study, the collection and analyses of data from the focus groups\$ perceptions and experiences are likely to provide insight into the respondentsqbeliefs. This adds more depth to the quantitative data collected. Denzin and Lincoln (2005) believe that qualitative research is aimed at gathering an in-depth understanding of human behaviour and perceptions and the reasons that govern such behaviour. The programme had already been implemented for six months when the focus group was conducted. The questions asked ascertained if students were using the programme and what they perceived were its advantages and disadvantages at that point. Any differences between male and female responses to focus group questions will be noted to determine if male and female respondents perceive and utilise e-learning differently

3.7 Ethical Considerations

The permission to conduct this research was sought from the Dean of the Faculty of Commerce, Administration and Law, and from Heads of Department in the Faculty of Commerce, Administration and Law. All respondents will be informed about the confidentiality of the information gathered from them as the questionnaires will not

require participants to identify themselves. The focus group participants will be assured that the information they will provide will only be used for the purposes of this study. Ethical procedures will be in line with those used in Business Management.

3.8 Data Analysis Techniques

Data analysis techniques, in contrast to methods, are particular, step-by-step procedures which are followed in order to gather data, and analyse them for the information they contain (Jankowics, 2005).

3.8.1 Analysis of Quantitative Data

Quantitative data from the close-ended questions from the questionnaires will be analysed using descriptive statistics (percentage, frequency tables and histograms) and an independent t-test on appropriate data. These statistical procedures are compatible with the data collection methods and will give an overall picture of the data.

a) Descriptive Statistics

Descriptive statistics describes quantitative data for example by using averages, pie charts and bar graphs (Edwards & Talbot 1994). This is used to describe the basic features of the data collected in a study. In general, descriptive statistics provides summaries about the sample (Harris & Arksey, 2007). The data will be presented in the form of figures, frequencies and different forms of graphs. The frequency distributions will be presented in the form of histograms. Terre Blanche *et al.*, (2006) described a frequency table as graphical or tabular representation where the values of the particular variable being analysed are plotted against the number of times they occurred. A picture

paints a thousand words and hence it is useful to show graphical illustrations of the quantitative data as it is easier to understand instead than having to deal with numbers and explanations only (Barnard, 1921).

b) Independent T-Test

An independent t-test is a method used to compare two sample means (Terre Blanche *et al.*, 2006). The sample for lecturing staff and student responses will be compared according to gender on appropriate data (that is non-categorical or interval data).

3.8.2 Analysis of Qualitative Data

The qualitative data from the focus groups and open ended questions from the survey will be analysed using Thematic Content Analysis. This is described by Edwards and Talbot (1994) as a research method for interpretation of the content of data through the classification process of identifying themes or patterns and coding them into different categories. According to Zhang (2006) Thematic Content Analysis involves a qualitative process of grouping raw data into categories based on the researcher's interpretation. The steps involved in content analysis starts with categorising the data collected into codes or similar themes then drawing conclusions from the coded data then reporting on it. Terre Blanche *et al.*, (2006) state that there are five steps involved in thematic content analysis. These steps are as follows:

- α) familiarisation and immersion - familiarisation is when the data is still being collected, for example when setting up for a focus group or interview. This creates a preliminary understanding of the phenomenon for the researcher before the data analysis stage. Immersion is when the researcher goes over the data that has been

collected over and over again making notes or drawing diagrams. This leads to the next step which gleans themes from the data;

- β) inducing themes . this is when the common responses from respondents are grouped into categories. The responses which are similar are placed in the same categories;
- χ) coding - this entails breaking up data in ways that will be relevant to it being analysed. The data can be separated based on the same idea or response. The codes of the themes may change as the analysis of the data continues:
- δ) elaboration - this is exploring themes more closely. Sometimes the researcher will find that certain responses may have been initially placed under the same theme but, on re-reading the researcher understand that the meaning is different. In this case a response will then be moved to another thematic category. It is important then to keep coding, elaborating and recoding until all responses are under categories where they are supposed to be (saturation is reached);
- ε) The last stage is interpretation and checking. At this stage a report has to be put together accounting for the phenomenon that was under investigation.

3.9 Résumé

The use of both qualitative and quantitative research instruments is consistent with triangulation of data which is used to give a broad overview of the research investigation. Triangulation entails using more than one source of data collection method (Jankowics, 2005). Essentially, it is the use of several different methods to gather data from different participants in order to obtain a clear picture of the phenomenon being studied.

CHAPTER 4: DATA ANALYSIS AND RESULTS

4.1 Introduction

In this chapter an analysis of the collected data is presented. To facilitate understanding relevant quantitative data will be presented in the form of descriptive statistics represented by tables and histograms. The independent t-test results will be presented, where appropriate, using a line graph followed by a brief explanation. Qualitative responses are in participants' own words and they will be presented as themes and discussed after the quantitative results in each survey. The questionnaires will be presented as pre-test/intervention (before the implementation of the e-learning programme) and post test interventions (after the implementation of the e-learning programme).

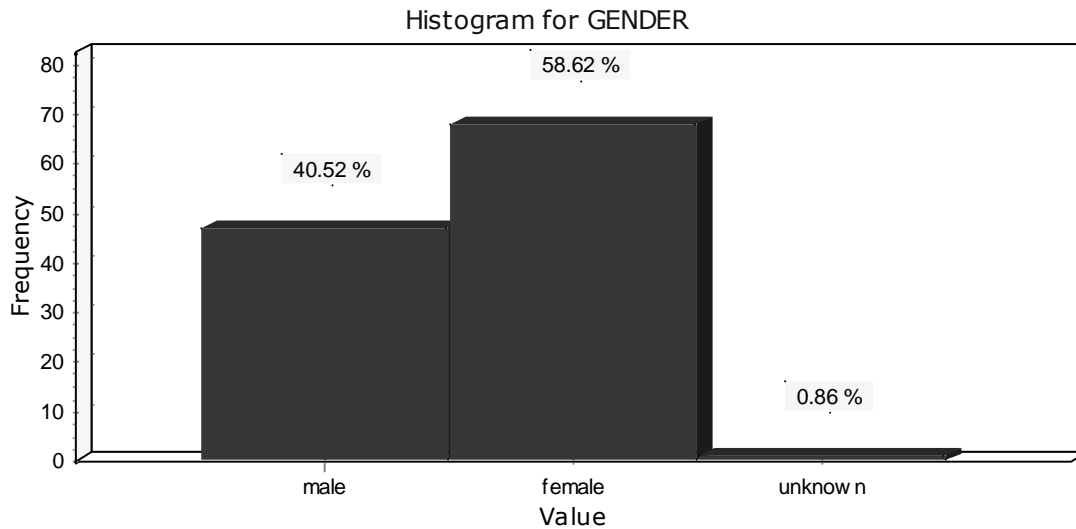
4.2 Quantitative data analysis – Student responses to questionnaire 1 (pre-test/intervention)

Three hundred copies of questionnaire 1 were distributed and one hundred and sixteen were received back. These questionnaires were handed out before the e-learning programme was introduced (pre-test/intervention). This is a thirty eight percent (38%) response rate which is higher than expected and indicates a reasonable level of interest in the topic. It is also an indication that the questionnaires are easy to understand and not too long which facilitated respondent participation. Demographic data is presented first followed by questions pertinent to the research problem.

4.2.1 Demographic data

Section A: relevant demographic data will be presented in this section.

Histogram 1:
Gender (Sex)



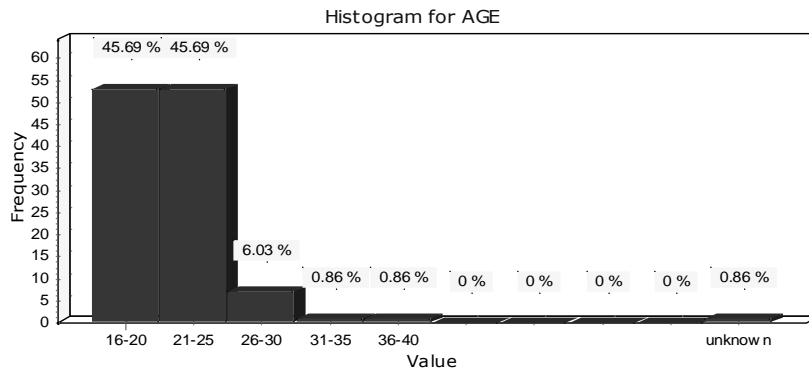
Frequency table 1:
Gender

Value	N	%	Cum. %
Male	47	40.52	40.52
Female	68	58.62	99.14
Unknown	1	0.86	100.00
TOTAL	116	100.00	

Out of a total of one hundred and sixteen (116) respondents one hundred and fifteen (115) filled in their gender. Sixty eight (68) of the respondents were female and forty seven (47) were male. The sample was not randomised in terms of male and female sub-groups. However, this breakdown is representative of the university's student population. There are more registered female than male students which reflects the

population demographic of the overall area of the Umhlatuze region (Statistics SA, 2008). This is the catchment area for the majority of students registered at Unizul.

Histogram 2:
Age of respondents



Frequency table 2:
Age of respondents

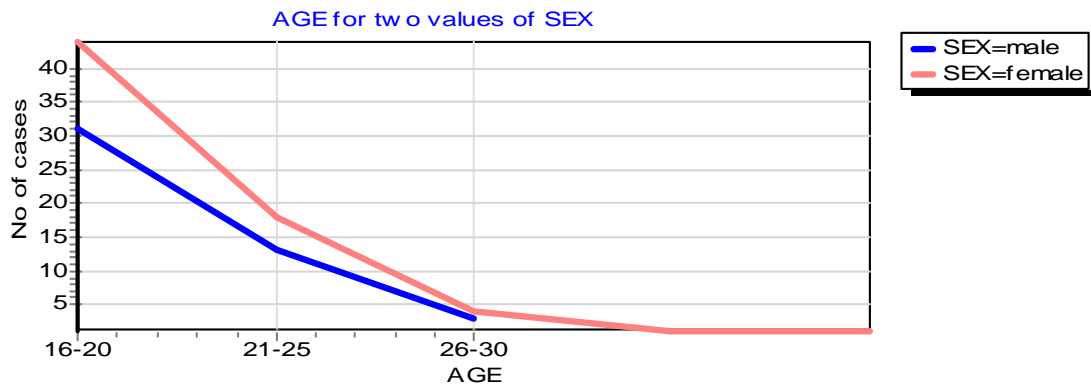
Value	N	%	Cum. %
16-20	53	45.69	45.69
21-25	53	45.69	91.38
26-30	7	6.03	97.41
31-35	1	0.86	98.28
36-40	1	0.86	99.14
Unknown	1	0.86	100.00
TOTAL	116	100.00	

The ages of the respondents are as shown in histogram 2. One hundred and fifteen (115) out of a total of one hundred and sixteen (116) respondents indicated their age. The majority of respondents fell into the age range eighteen to twenty years. This would be expected as the sample was drawn from first year students. However, forty six (41%) of the respondents are in the age ranges 16 . 20 and 21 . 25 years. This may seem quite high but is likely to reflect the previously disadvantaged demographic

from which Unizul students are drawn. Many start university later than advantaged students due to problems with financing tertiary education.

Line graph 1:

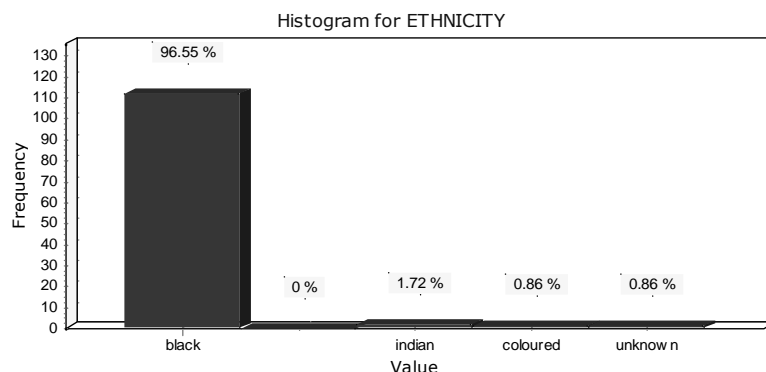
Age of respondents (Marked effects significant if $p = < 0.05$)



In this case the independent variable is gender (sex) and the dependent variable is age. The t-test indicates that there is a significant difference between the means of the two groups, namely males and females. The difference between the means for the two groups is $p = 0.035$. There are more females in each age range which is however, representative of the university population as a whole.

Histogram 3:

Ethnicity

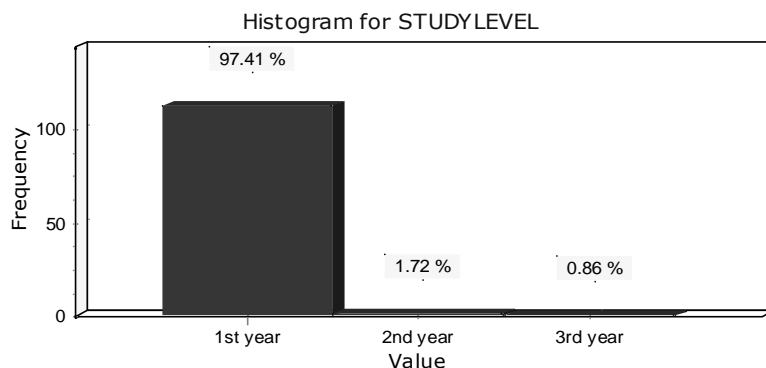


Frequency table 3:
Ethnicity of respondents

Value	N	%	Cum. %
Black	112	96.55	96.55
Indian	2	1.72	98.28
Coloured	1	0.86	99.14
Unknown	1	0.86	100.00
TOTAL	116	100.00	

The majority of students are Black Africans which reflects the student population at Unizul which draws from a catchment area that is previously disadvantaged. Unizul has a ninety seven percent (97%) Black African student population, thus only three percent (3%) of the total student population of seven thousand four hundred and twenty one (7421) registered students are Indian/Asian, Coloured or White. On the first three tables an unknown response was noted once in each case. It appears likely that in the demographic section one respondent did not want to note gender, age and ethnicity as he or she perceived that they could have been identified by this information.

Histogram 4:
Number of years at level 1



Frequency table 4:
Level of study

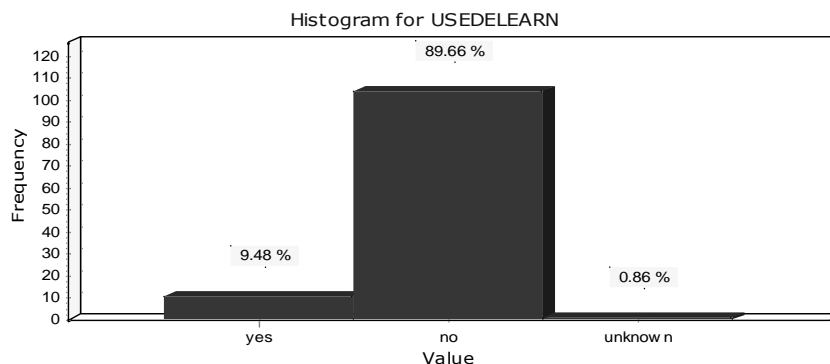
Value	N	%	Cum. %
1st year	113	97.41	97.41
2nd year	2	1.72	99.14
3rd year	1	0.86	100.00
TOTAL	116	100.00	

This question was asked to determine if all respondents were enrolled in their first year of level one study or were repeating students. The majority of respondents are true first years and not repeating students which may be important in terms of their ability to access new information about programmes such as a new e-learning initiative. Essentially, newer students may not be as familiar with modes of inquiry as students who have spent several years at an institution.

4.2.2 Non Demographic Data

Section B . relevant non-demographic data will be presented in this section

Histogram 5:
Have you ever used any e-learning facility?



Frequency table 5:
The use of e-learning.

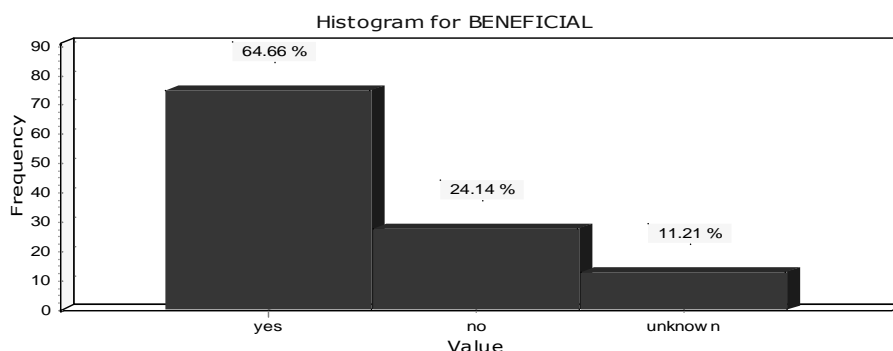
Value	N	%	Cum. %
Yes	11	9.48	9.48
No	104	89.66	99.14
Unknown	1	0.86	100.00
TOTAL	116	100.00	

Of the one hundred and sixteen (116) respondents one hundred and fifteen (115) answered this question. The histogram indicates that ninety percent (90%) of the respondents have never used an e-learning facility, while nine percent (9%) responded yes to the question.

Question - If yes, where? (Have you used e-learning before)

This question needed the respondents to state where they had used e-learning before. Only five percent (5%) of respondents indicated where they had used e-learning interventions before. They indicated that e-learning had been used in other learning institutions such as Unisa.

Histogram 6:
In your opinion do you think e-learning is beneficial?

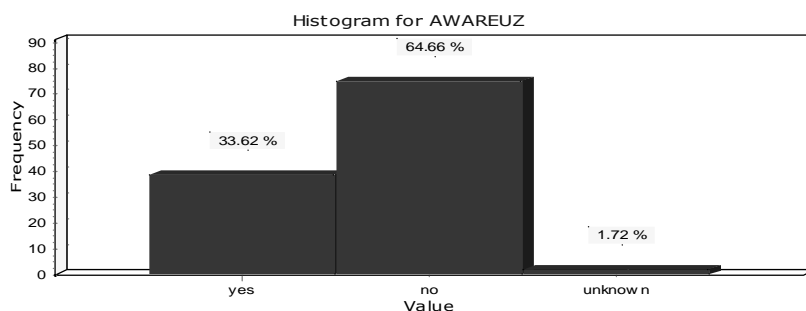


Frequency table 6:
In your opinion do you think e-learning is beneficial?

Value	N	%	Cum. %
Yes	75	64.66	64.66
No	28	24.14	88.79
Unknown	13	11.21	100.00
TOTAL	116	100.00	

One hundred and three (103) respondents responded to this question out of the one hundred and sixteen (116). The histogram indicates that sixty five percent (65%) of the respondents stated that an e-learning would be beneficial while twenty-four (24%) did not think it would be beneficial. Despite the fact that most students have never used e-learning, they still thought that it would be a beneficial programme when implemented.

Histogram 7:
Are you aware of the e-learning programme that is to be implemented in the Faculty of Commerce, Law and Administration?

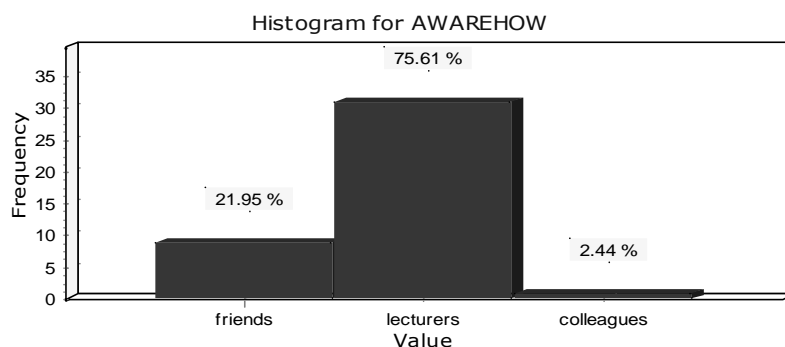


Frequency table 7:
The awareness of e-learning in the Faculty

Value	N	%	Cum. %
Yes	39	33.62	33.62
No	75	64.66	98.28
Unknown	2	1.72	100.00
TOTAL	116	100.00	

One hundred and fourteen (114) respondents responded to this question out of one hundred and sixteen (116). The histogram above illustrates that most of the responses to this question was no. Histogram 7 illustrates that sixty-five percent (65%) of respondents are not aware of the e-learning programme that is about to be implemented and thirty-four percent (34) are aware that an e-learning facility is about to be implemented in the Faculty.

Histogram 8:
If yes, how did you become aware of this programme?



Frequency table 8:
How participants became aware

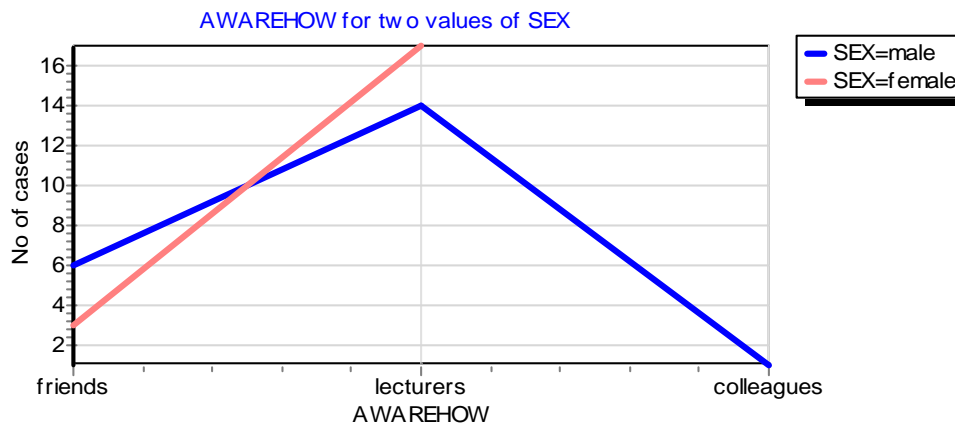
Value	N	%	Cum. %
Friends	9	21.95	21.95
Lecturers	31	75.61	97.56
Colleagues	1	2.44	100.00
TOTAL	41	100.00	

Two (2) respondents did not understand that this question was a follow up question from the previous one. In the previous question thirty nine (39) respondents stated that

they knew about the e-learning programme that was about to be implemented and in this follow up question there are forty one (41). According to histogram 8 above seventy-six percent (76%) of the respondents found out about the programme implementation from their lecturers. Twenty two percent (22%) and two percent (2%) respectively found out their friends and colleagues, respectively.

Line Graph 2:

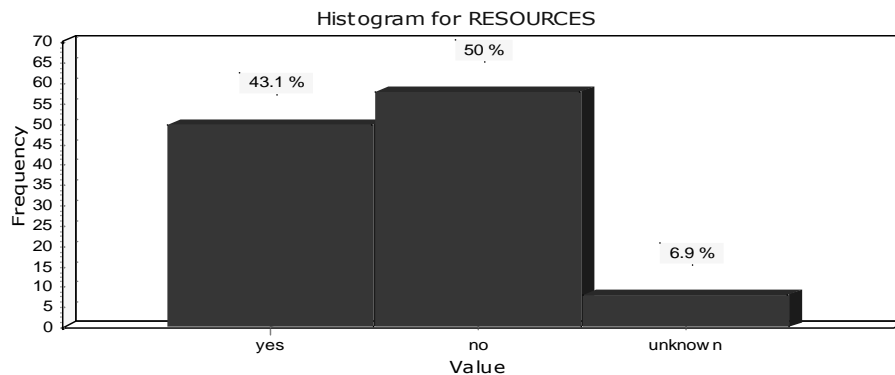
How respondents became aware of the e-learning programme that was about to be implemented (Marked effects significant if $p = < 0.05$)



The independent variable is sex (gender) and the dependent variable or the variable to be analysed is how the respondents got to find out about the programme to be implemented. The mean for males is 1.722 and that of females is 1.864 making the difference between the two means $p = 0.141$. This difference is considered statistically insignificant. More males learnt of the proposed programme from their friends than females. The majority of the females were made aware by their lecturers. The one respondent who was made aware of the programme that was to be implemented by his colleagues was a male.

Histogram 9:

Do you think students have sufficient resources to access this programme?



Frequency table 9:

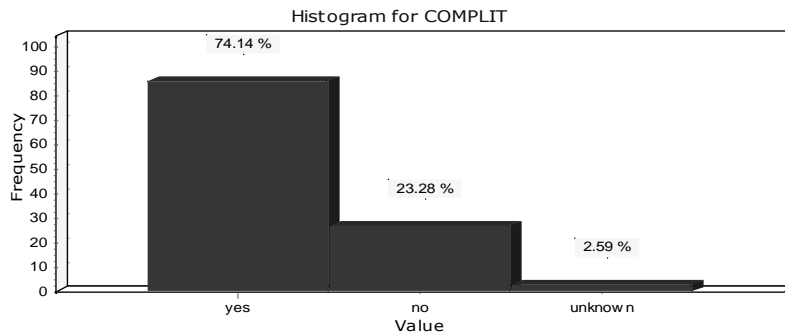
Sufficient resources (students)

Value	N	%	Cum. %
Yes	50	43.10	43.10
No	58	50.00	93.10
Unknown	8	6.90	100.00
TOTAL	116	100.00	

Out of the one hundred and sixteen (116) respondents, one hundred and eight (108) responded to this question. According to the histogram fifty percent (50%) of respondents think that there are not sufficient resources for students to access e-learning at the University of Zululand. Forty three percent (43%) however, think that Unizul students have sufficient resources to access the programme.

Histogram 10:

Will students be computer literate enough to access the programme?



Frequency table 10:

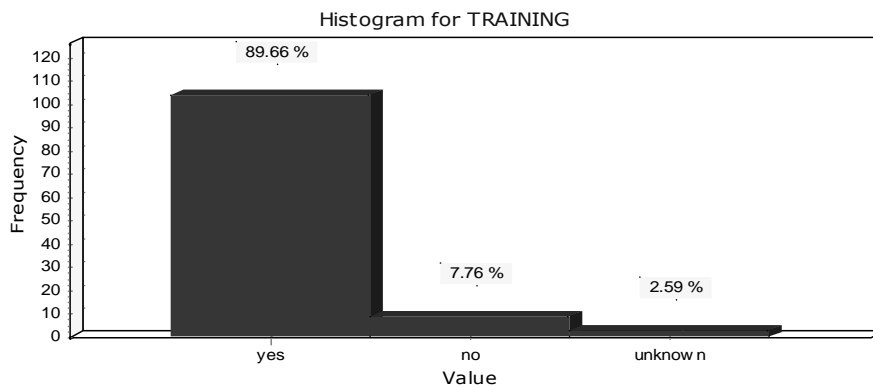
Computer literacy of students

Value	N	%	Cum. %
Yes	86	74.14	74.14
No	27	23.28	97.41
Unknown	3	2.59	100.00
TOTAL	116	100.00	

Of the one hundred and sixteen (116) respondents, one hundred and eight (108) responded to this question. Seventy four percent (74%) of respondents think that students will be computer literate enough to access the programme while the other twenty three percent (23%) thought that they would not be computer literate enough to access such a facility.

Histogram 11:

Do you think training on how to use the programme should be made available for both students and staff members?



Frequency table 11:

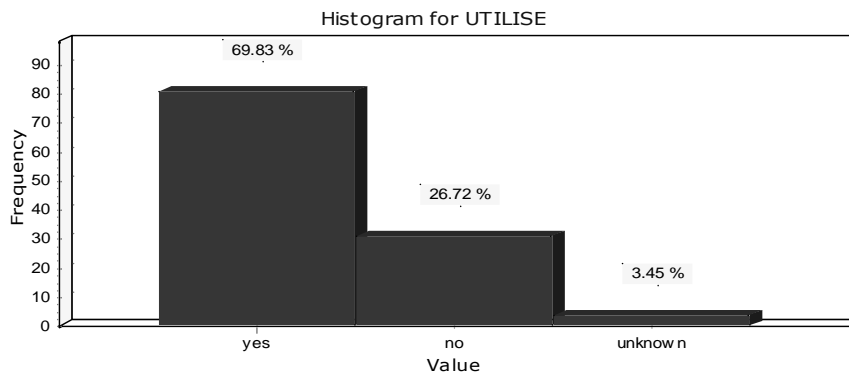
Necessity of training.

Value	N	%	Cum. %
Yes	104	89.66	89.66
No	9	7.76	97.41
Unknown	3	2.59	100.00
TOTAL	116	100.00	

One hundred and thirteen (113) participants responded to this question. As shown by the histogram, ninety percent (90%) of respondents think that both lecturing staff and students need training on how to access an e-learning programme. Eight percent (8%) however, thinks that training is not necessary.

Histogram 12:

In your opinion, do you think lecturing staff will fully utilise this programme?



Frequency table 12:

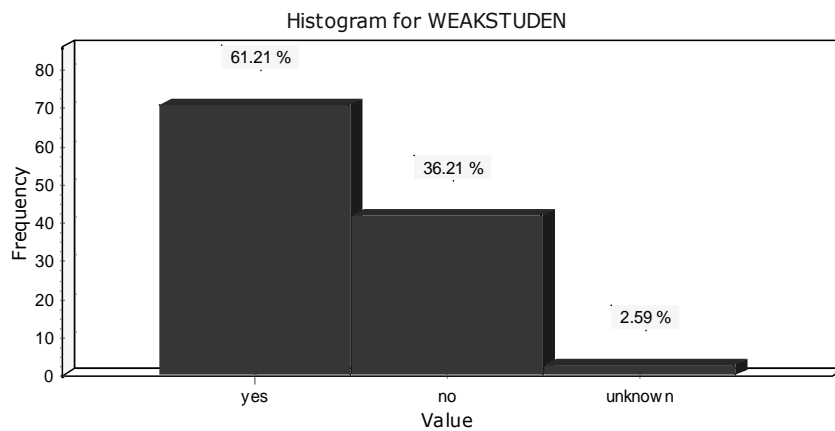
Full utilisation of programme.

Value	N	%	Cum. %
Yes	81	69.83	69.83
No	31	26.72	96.55
Unknown	4	3.45	100.00
TOTAL	116	100.00	

One hundred and twelve (112) participants responded to this question. Eighty one (81) which is seventy percent (70%) of them think that lecturing staff will fully utilise the programme. The other twenty seven percent (27%) did not think that lecturing staff would fully utilise the programme.

Histogram 13:

Do you think lecturing staff will be able to focus more on giving individual attention to weaker students?



Frequency table 13:

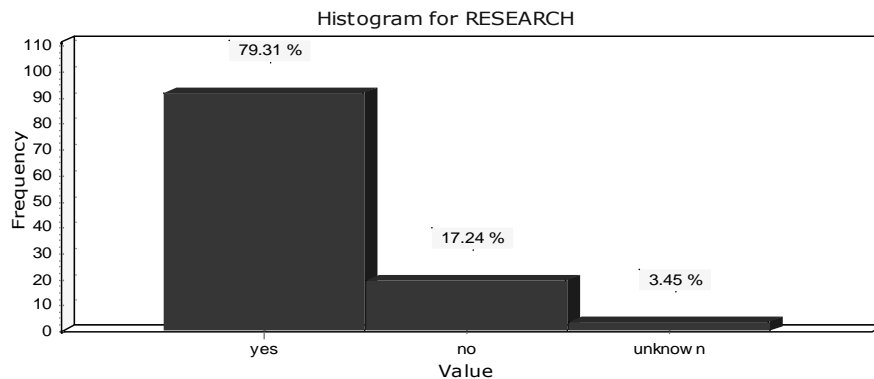
Attention to weaker students.

Value	N	%	Cum. %
Yes	71	61.21	61.21
No	42	36.21	97.41
Unknown	3	2.59	100.00
TOTAL	116	100.00	

Out of one hundred and sixteen (116) respondents one hundred and thirteen (113) responded to this question. The histogram indicates that sixty one percent (61%) respondents thought that the introduction of the programme would allow lecturers to give more attention to the weaker students, while thirty six percent (36%) thought that no extra attention would be paid to weaker students if the e-learning programme were to be introduced.

Histogram 14:

Do you think this programme will give lecturing staff ample time to do research?



Frequency table 14:

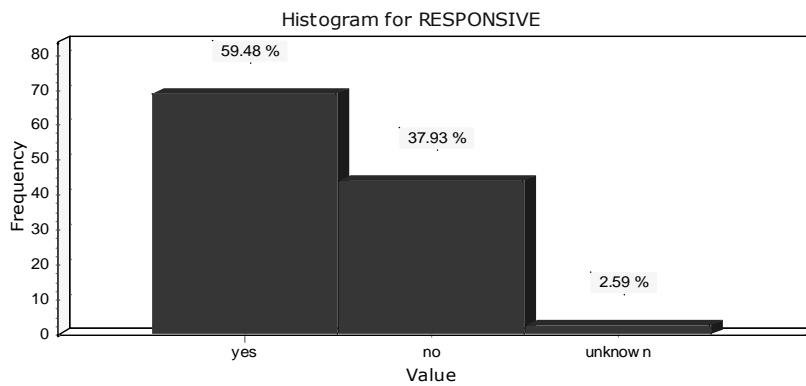
Ample time to do research

Value	N	%	Cum. %
Yes	92	79.31	79.31
No	20	17.24	96.55
Unknown	4	3.45	100.00
TOTAL	116	100.00	

One hundred and sixteen (116) respondents participated in the survey and one hundred and twelve (112) responded to this question. Seventy nine percent (79%) of participants, as revealed by the histogram, thought that the programme would give lecturing staff ample time to conduct research. The other seventeen percent (17%) did not seem to think that an e-learning facility would give staff ample time to do research.

Histogram 15:

Do you think students will be more responsive to e-learning than traditional face-to-face learning?



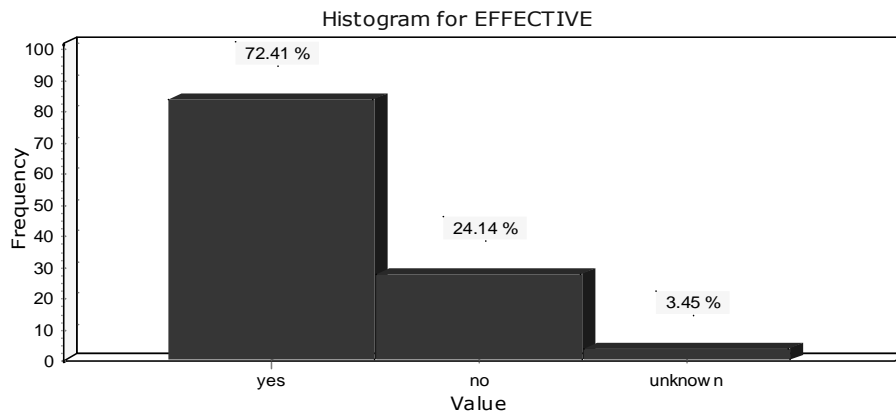
Frequency table 15:

Students responsiveness to e-learning.

Value	N	%	Cum. %
Yes	69	59.48	59.48
No	44	37.93	97.41
Unknown	3	2.59	100.00
TOTAL	116	100.00	

One hundred and thirteen (113) participants responded to this question. Fifty nine percent (59%) of participants agreed that students would be more responsive to e-learning as opposed to face to face learning, while thirty eight percent (38%) disagreed.

Histogram 16:
Do you think e-learning programme will be effective?



Frequency table 16:
Programme effectiveness.

Value	N	%	Cum. %
Yes	84	72.41	72.41
No	28	24.14	96.55
Unknown	4	3.45	100.00
TOTAL	116	100.00	

One hundred and twelve (112) participants responded to this question. According to histogram 18 seventy two percent (72%) of respondents thought that the e-learning programme will be effective if it is implemented. Twenty four percent (24%) thought that the programme will not be effective if it is implemented.

4.3 Qualitative data questionnaire 1 student respondents (pre-test/intervention)

The following question was analysed using thematic content analysis. The themes gleaned from the data are indicated in table 17. Question 20: In your own words what do you think will be the impact of the e-learning programme on the faculty of Commerce, Administration and Law?

Table 1:
Impact of e-learning in the Faculty

Theme	Number of respondents
No response	35
Benefits students	50
Lack of resources	15
Face-to-face	11
No idea	5
Total	116

Thirty five respondents failed to answer this question. It is unclear why. It may be that they were unable to think of any impact such a programme could have or that they were too busy to answer long questions. It is often noted that on questionnaires which have mostly close ended questions (those which require a tick or yes or no) that open ended questions are not answered. This is often referred to as 'stuck in response set' and may be the reason that these respondents did not answer the question. Overall three main themes emerged with five students stating that they have no idea what e-learning is.

The majority of participants felt that an e-learning programme will be of benefit to most students. Many respondents noted that the programme will be of good use to those students who are afraid to talk to lecturers and because of this cannot consult. Such students will then be able to use the programme as a medium of communication

between them and the lecturing staff. Some participants are bored by face-to-face learning and therefore feel that introduction of educational technologies will make it more fun to learn. Some believe that they would benefit because the computer literacy levels would improve thus making it easier for them to cope in the working environment. Some respondents sometimes do not understand the lecturer and feel that they might understand better when learning via e-technology interventions. Some respondents stated that some students are weak or slow at grasping concepts so the programme will allow them to learn at their own pace and this will increase the pass rate in the faculty. A number of respondents felt that an e-learning programme would give them access to information. Some mentioned that their prescribed texts were not always available at the bookshop. They stated that with an e-learning programme lecturing staff would make a link to the prescribed book online as well as links to other texts that are of relevance to the module. Some respondents are also of the view that the programme will make it easy for the student to access their assignment topics, homework and notes. Other students feel that the one hour lectures are not sufficient thus the e-learning programme would help in terms of helping them to gain knowledge. Several participants stated that e-learning would benefit the University of Zululand as a whole. The participants believed that this would place Unizul in a favourable position in terms of academic institutions (put Unizul on the map) because of the utilisation of modern technologies.

Many respondents felt that the programme would not be a success if it were to be implemented as there is still a lack of technological resources at Unizul. Respondents

felt that they struggle to access computers in the computer laboratories. They stated that the introduction of an e-learning programme will mean more pressure on already limited computer access. Some respondents also felt that the programme would not be appropriate as the internet is very slow and not much work will be done during a lecture period. They felt this may result in students missing designated e-learning periods.

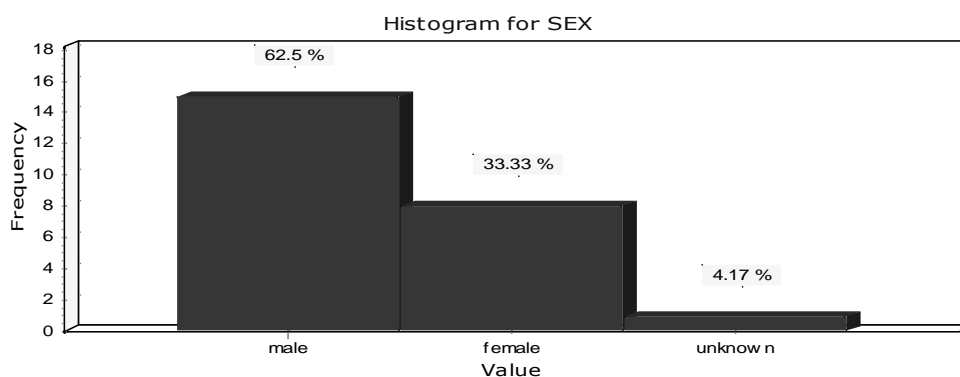
In this theme (face . to . face learning) respondents felt that e-learning would take the place of face-to-face learning. Their responses included that they could not cope without a lecturer in front of them. A general theme gleaned from the data is that the students feared that they would only cope if a lecturer explains a point. If they are unable to understand the explanation then the lecturer could explain it in a different way enabling the student to understand. It was felt that an e-learning programme would not offer this flexibility. Others felt that they paid so much in fees that lecturing staff should teach them and not computers. Respondents stated that they needed more than technology to teach them they wanted a lecturer to guide them. Another respondent felt that the use of e-learning would be a waste of time as the students are used to face-to-face learning and e-learning would not be used. Five (5) participants responded that they do not know what e-learning is.

4.4 Quantitative data analysis – Staff responses to questionnaire 1 (pre-test/intervention)

Staff members were asked to fill in questionnaire 1. The questionnaire was the same as for the students. Their responses to the questionnaire are indicated below. As the staff sample was not a random sample and there were only twenty four responses (24) the analysis is given using histograms and tables. It was not deemed appropriate to run parametric statistics on a non-random sample under thirty (30) thus an independent T test to look at difference in means between genders was not used on appropriate data. Certain questions were not answered by all respondents. These are marked as unknown in the frequency tables. It may be that staff members felt they could be identified by answering these questions or that they filled in the questionnaire in a hurry and omitted to fill in these questions.

4.4.1 Demographic data

Histogram 17:
Gender (Sex)

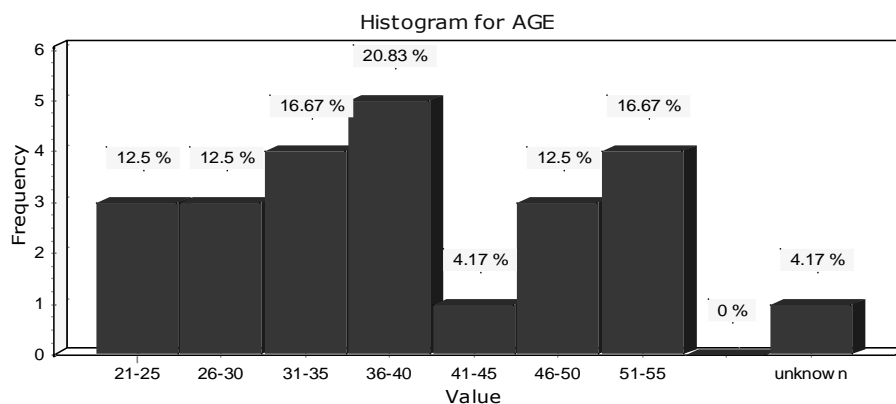


Frequency table 17:
Gender

Value	N	%	Cum. %
Male	15	62.50	62.50
Female	8	33.33	95.83
Unknown	1	4.17	100.00
TOTAL	24	100.00	

Of the staff sample sixty three percent (63%) of the respondents are males while thirty three percent (34%) are females. This is representative of the staffing structure of Unizul which consists of three hundred and nine (309) males and one hundred and ninety eight (198) females.

Histogram 18:
Age



The ages of the respondents and how many fall in a particular range are shown in percentages in the graph above and actual number of respondents in each category is shown below.

Frequency table 18:

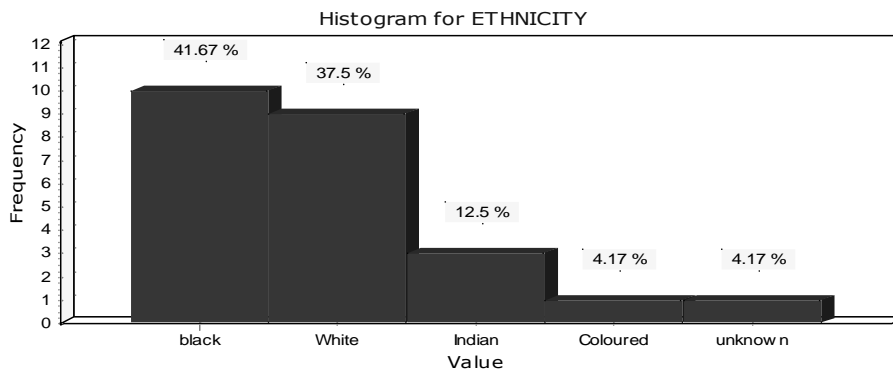
Age

Value	N	%	Cum. %
21-25	3	12.50	12.50
26-30	3	12.50	25.00
31-35	4	16.67	41.67
36-40	5	20.83	62.50
41-45	1	4.17	66.67
46-50	3	12.50	79.17
51-55	4	16.67	95.83
Unknown	1	4.17	100.00
TOTAL	24	100.00	

Twenty three (23) of the twenty four (24) respondents placed themselves in an age group category. Most participants, twenty one percent (21%) are in the age range thirty six to forty (36-40). The age ranges thirty one to thirty five (31-35) and fifty one to fifty five (51-55) both have the same number of respondents which is seventeen percent (17%) of the total sample. The age groups twenty one to twenty five (21-25), twenty six to thirty (26-30) and forty six to fifty (46-50) each have thirteen percent (13%) of the total number of respondents. The age group forty one to forty five has four percent (4%) of responses.

Histogram 19

Ethnicity

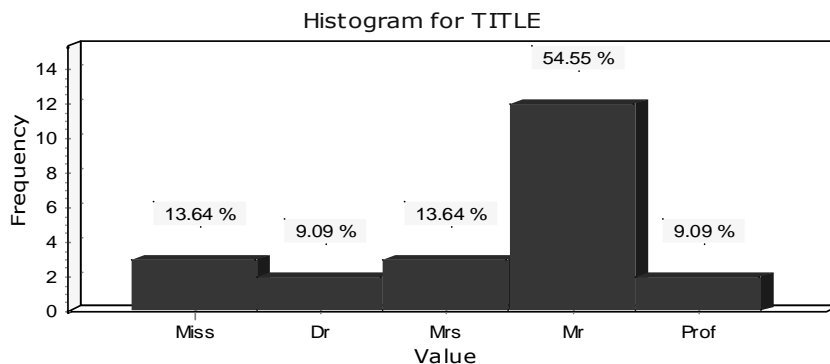


Frequency table 19:
Ethnicity

Value	N	%	Cum. %
Black	10	41.67	41.67
White	9	37.50	79.17
Indian	3	12.50	91.67
Coloured	1	4.17	95.83
Unknown	1	4.17	100.00
TOTAL	24	100.00	

As shown in histogram 18 the respondents were mostly Black. Twenty three (23) of the twenty four (24) respondents specified which ethnic group they belong to. Blacks amounted to forty two percent (42%) of the total responses, while Whites amounted to thirty eight percent (38%) of the sample, Indians amounted to thirteen percent (13%) and Coloureds four percent (4%) of the total sample. It may be that the one respondent who did not reply to the demographic questions felt that he or she could be identified by giving answering these questions.

Histogram 20:
a) Title of respondents

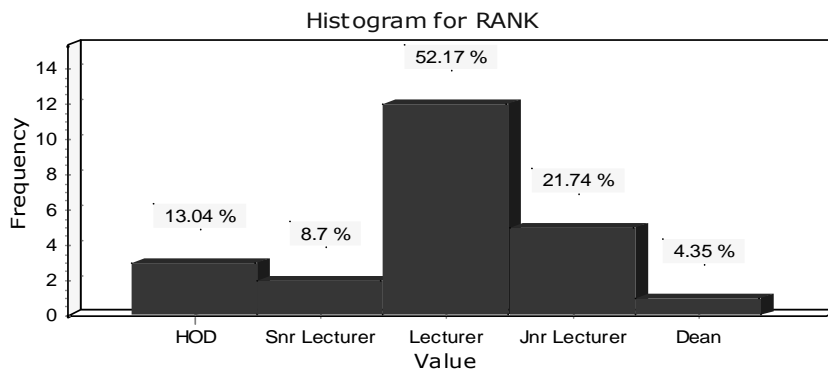


Frequency table 20:
Title of respondents

Value	N	%	Cum. %
Mr	12	54.55	54.55
Mrs	3	13.64	68.19
Miss	3	13.64	81.83
Prof	2	9.09	90.92
Doc	2	9.09	100.00
TOTAL	22	100.00	

Twenty two respondents stated their title. Fifty five percent (55%) of these were male addressed as Mr while the married females (Mrs) and not married female (Miss) had the same number of responses (fourteen percent (14%) each). The lecturing staff addressed as Doctors or Professors also had the same number of respondents a total of nine percent (9%) each. These responses may indicate a lack of highly qualified staff (or senior staff) in the Faculty.

Histogram 21:
b) Rank of respondents



Frequency table 21:
Rank of respondents

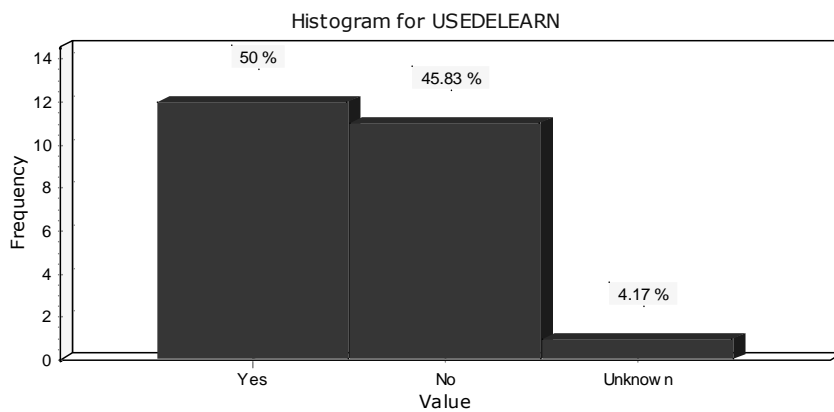
Value	N	%	Cum. %
HOD	3	13.04	13.04
Seniour Lecture	2	8.7	21.74
Lecturer	12	52.17	73.91
Junious Lecturer	5	21.74	95.65
Dean	1	4.35	100.00
TOTAL	23	100.00	

A total of twenty three (23) participants responded to this question. Most staff members, fifty two percent (52%), according to the responses are lecturers. Twenty two percent (22%) of the respondents are junior lecturers, while thirteen percent (13%) are Head of Departments, nine percent (9%) are senior lecturers and four percent (4%) are Deans (and Vice Deans) of the faculty. This table supports the assertion that the faculty does not have many senior staff (see p.13).

4.4.2 Non Demographic Data

Histogram 22:

Have you ever used any e-learning facility?



Frequency table 22:

Have you used an e-learning facility

Value	N	%	Cum. %
Yes	12	50.00	50.00
No	11	45.83	95.83
Unknown	1	4.17	100.00
TOTAL	24	100.00	

The histogram illustrates that most lecturing staff have used an e-learning facility before. Twenty three (23) respondents responded to this question. Fifty percent (50%) of the respondents have used an e-learning facility and forty six percent (46%) have never used one ever.

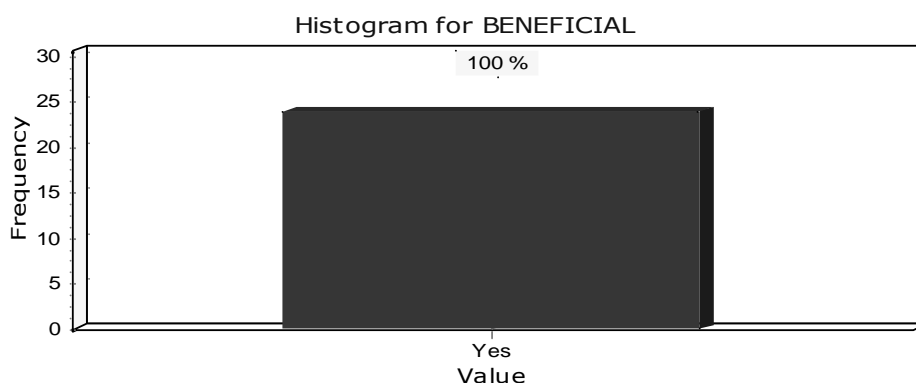
Question 8:

If yes, where?

The responses that the lecturing staff gave are similar to that of the student respondents. Of the twelve participants that have used an e-learning facility before, six

of them have used it at the University of South Africa (UNISA) and two are currently using such a facility to deliver their lectures. One respondent reported to have used e-learning interventions when a student.

Histogram 23:
In your opinion do you think e-learning is beneficial?



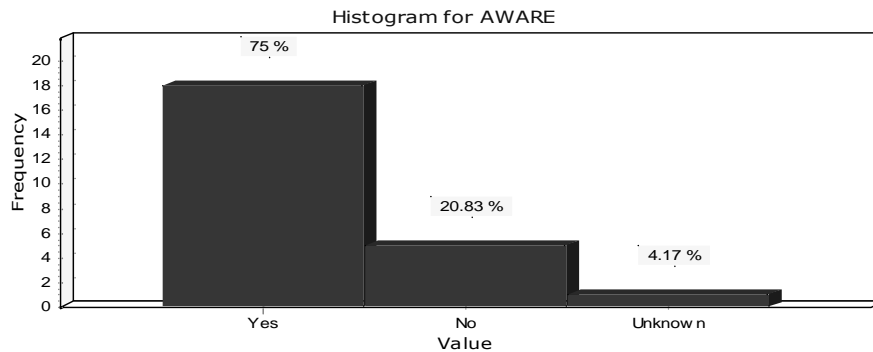
Frequency table 23:
In your opinion do you think e-learning is beneficial?

Value	N	%	Cum. %
Yes	24	100.00	100.00
No	0	0	
Unknown	0	0	
TOTAL	24	100.00	

For this question all the twenty four (24) respondents thought that the programme would be beneficial. One hundred percent (100%) of the respondents answered ~~y~~es to the questions. This response is different to the student responses. Although the majority of student respondents thought an e-learning programme would be beneficial twenty seven percent (27%) did not. This is likely because they have not been exposed to the value of e-learning interventions (see Histogram 6).

Histogram 24:

Are you aware of the e-learning programme that is to be implemented in the Faculty of Commerce, Law and Administration?



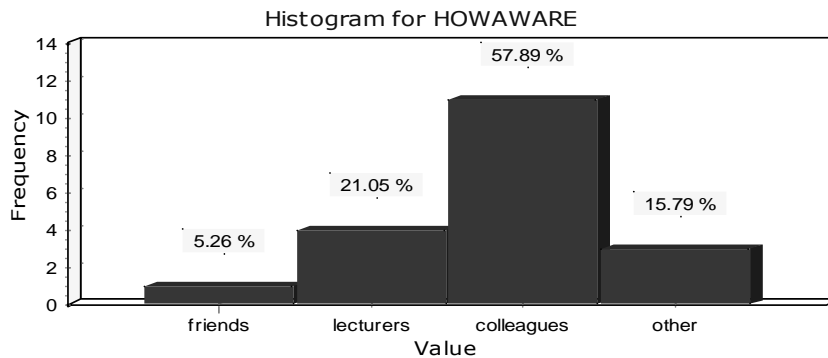
Frequency table 24:

Awareness of e-learning.

Value	N	%	Cum. %
Yes	18	75.00	75.00
No	5	20.83	95.83
Unknown	1	4.17	100.00
TOTAL	24	100.00	

Twenty three (23) participants responded to this question. Seventy five percent (75%) of the respondents were aware that there was an e-learning programme that was to be implemented in the Faculty of Commerce, Administration and Law, while twenty one percent (21%) were not aware that there was a programme that was to be implemented.

Histogram 25:
If yes, how did you become aware of this programme?



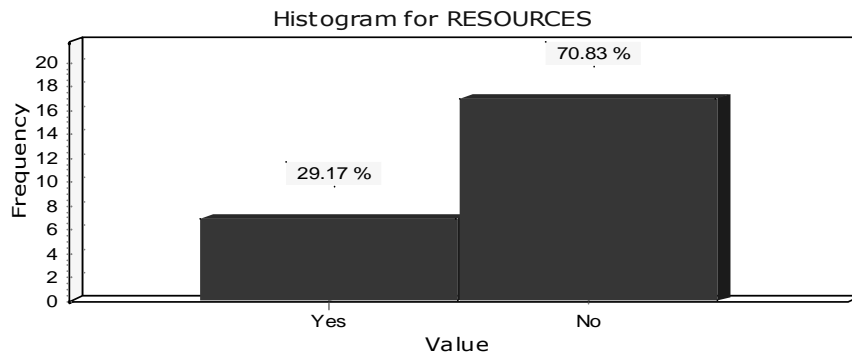
Frequency table 25:
How they became aware

Value	N	%	Cum. %
Friends	1	5.26	5.26
Lecturers	4	21.05	26.31
Colleagues	11	57.89	84.20
Other sources	3	15.79	100.00
TOTAL	19	100.00	

Nineteen (19) participants responded to this question. Most of the staff members that were aware of the proposed programme had found out about it from their colleagues. The participants that selected ~~other~~ highlighted that they were made aware at the Faculty of Commerce, Administration and Law Board Meeting that there was an e-learning programme that was to be implemented.

Histogram 26:

Do you think students have sufficient resources to access this programme?



Frequency table 26:

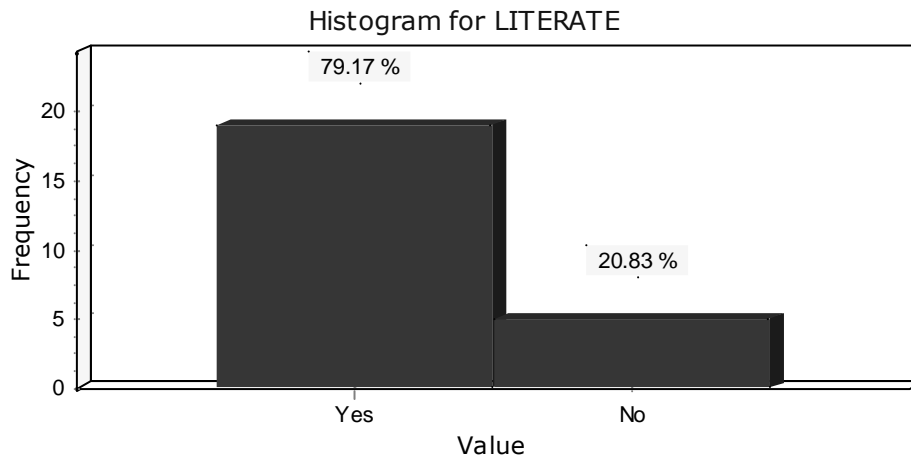
Sufficient resources (students)

Value	N	%	Cum. %
Yes	7	29.17	29.17
No	17	70.83	100.00
TOTAL	24	100.00	

Twenty four (24) participants responded to this question. Seventy one percent (71%) of the lecturing staff do not think that students will have sufficient resources to access an e-learning programme. The other twenty nine percent (29%) however think that students do have sufficient resources to access an e-learning programme. This response differed to that of student participants only fifty six (56%) of that sample think that there are enough resources for students to access e-learning at the institution (See Histogram 9).

Histogram 27:

Will students be computer literate enough to access the programme?



Frequency table 27:

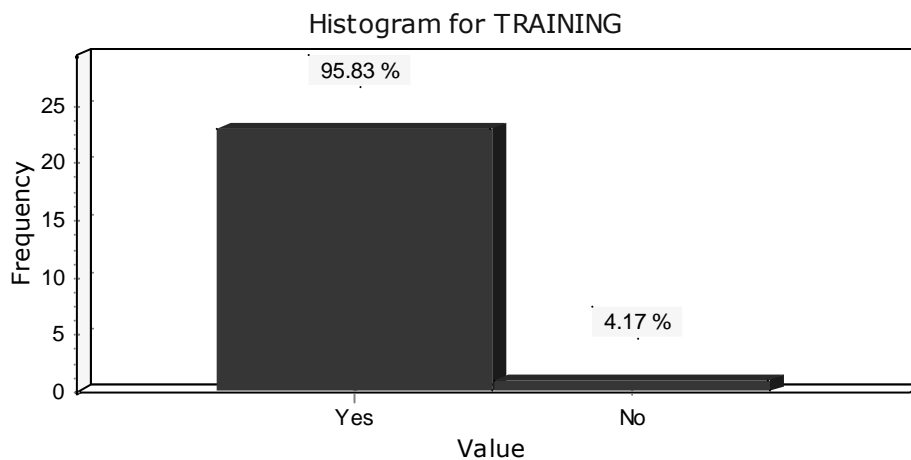
Computer literacy

Value	N	%	Cum. %
Yes	19	79.17	79.17
No	5	20.83	100.00
TOTAL	24	100.00	

Twenty four (24) participants responded to this question. Seventy nine percent (79%) respondents think that students would be computer literate enough to access the programme. The histogram shows that the other twenty one percent (21%) thought that students would not be computer literate enough to access the e-learning programme. This is similar to the studentsqresponses where seventy four percent (74%) of the sample think that students will be computer literate enough to access such a facility (See Histogram 10).

Histogram 28:

Do you think training on how to use the programme should be made available for both students and staff members?



Frequency table 28:

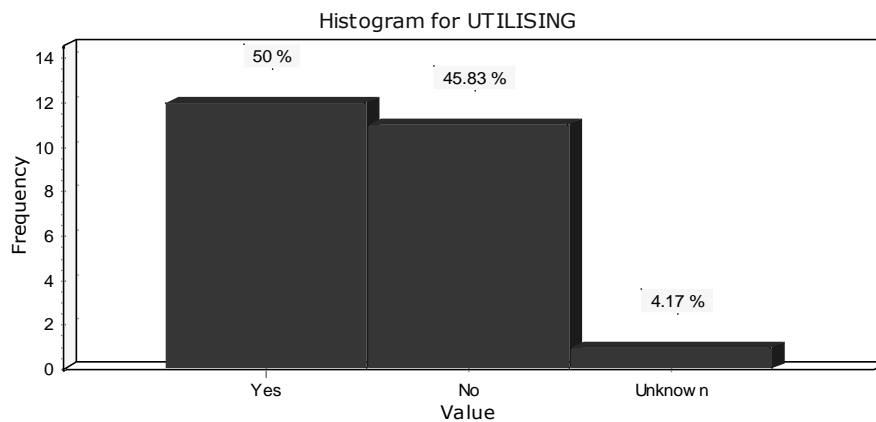
Training

Value	N	%	Cum. %
Yes	23	95.83	95.83
No	1	4.17	100.00
TOTAL	24	100.00	

Twenty four (24) lecturing staff participants responded to this question. Ninety six percent (96%) of the participants thought that there was need for training both the students and the lecturing staff on how to use the programme. Four percent (4%) did not think that there was any need for training to use the e-learning programme. This result is similar to the one for student participants where ninety two percent (92%) of the sample agreed that training was necessary (See Histogram 11).

Histogram 29:

In your opinion, do you think lecturing staff will fully utilise this programme?



Frequency table 29:

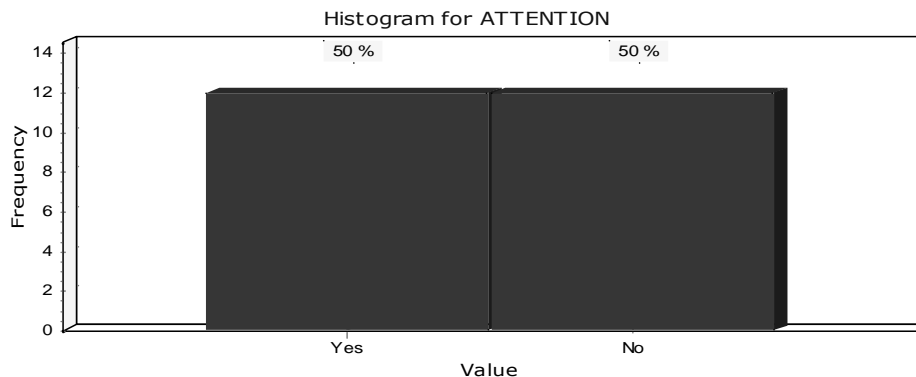
Full utilisation of programme

Value	N	%	Cum. %
Yes	12	50.00	50.00
No	11	45.83	95.83
Unknown	1	4.17	100.00
TOTAL	24	100.00	

Twenty three (23) participants responded to this question. The histogram above shows that respondents thought that fifty percent (50%) of lecturing staff will fully utilise the programme while the other forty six percent (46%) think that the programme will not be fully utilised. This differs markedly from the student sample responses where seventy two percent (72%) felt that lecturing staff will fully utilise e-learning programmes.

Histogram 30:

Do you think lecturing staff will be able to focus more on giving individual attention to weaker students?



Frequency table 30:

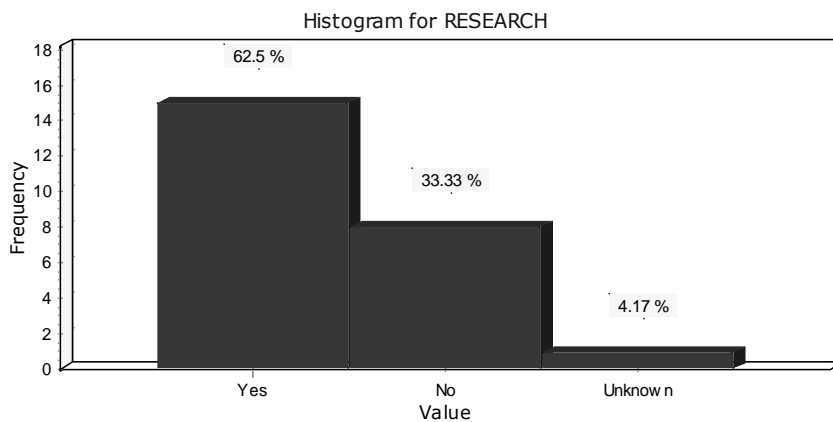
Attention to weaker students

Value	N	%	Cum. %
Yes	12	50.00	50.00
No	12	50.00	100.00
TOTAL	24	100.00	

All twenty four (24) participants answered this question. The majority of respondents answered ~~yesq~~ to the question. Fifty percent (50%) of the participants thought that implementation of an e-learning programme will make time for lecturing staff in terms of paying extra attention to weaker students. Fifty percent (50%) of respondents did not think that e-learning would make lecturing staff focus more on weaker students. However, sixty one percent (61%) of the student participants felt that the introduction of such a programme will help lecturing staff pay attention to weaker student (See Histogram 13).

Histogram 31:

Do you think this programme will give lecturing staff ample time to do research?



Frequency table 31:

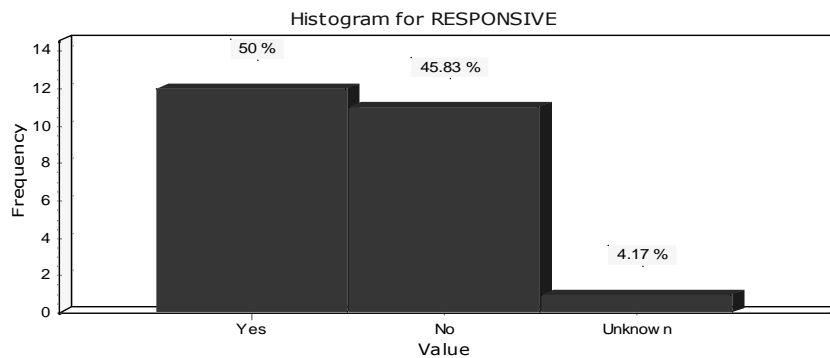
Ample time to do research.

Value	N	%	Cum. %
Yes	15	62.50	62.50
No	8	33.33	95.83
Unknown	1	4.17	100.00
TOTAL	24	100.00	

Twenty three (23) participants responded to this question. Sixty three percent (63%) of respondents indicated that e-learning would give lecturing staff ample time to conduct research. Thirty three percent (33%) thought that an e-learning facility would not give lecturing staff ample time to conduct more research. The results indicate that this is similar to that of student participants as seventy nine percent (79%) of student respondents indicated that such a programme would give lecturing staff ample time to do research (See Histogram 14).

Histogram 32:

Do you think students will be more responsive to e-learning than traditional face-to-face learning?



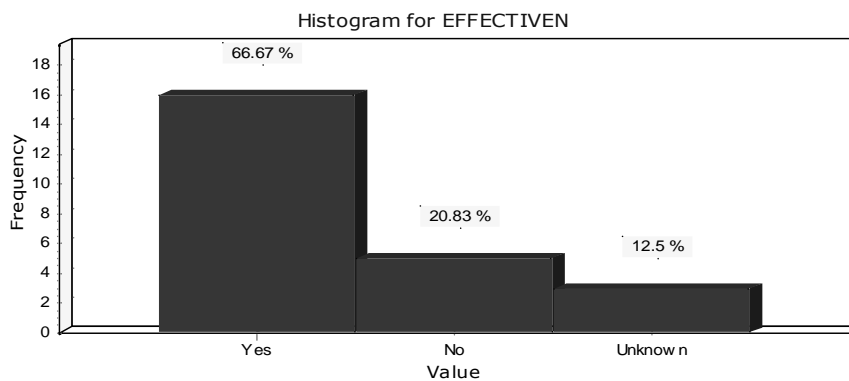
Frequency table 32:

Studentsqresponsiveness to e-learning

Value	N	%	Cum. %
Yes	12	50.00	50.00
No	11	45.83	95.83
Unknown	1	4.17	100.00
TOTAL	24	100.00	

Twenty three (23) respondents answered this question. Fifty percent (50%) of lecturing staff participants do not think that students will be more responsive to e-learning than face . to - face learning while forty six percent (46%) actually think that students would be more responsive to e-learning than face - to - face learning. Results from the student participants indicated that sixty percent (59%) of that sample felt they would be more responsive to e-learning as opposed to face . to . face learning (See Histogram 15).

Histogram 33:
Do you think e-learning programmes will be effective?



Frequency table 33:
Programme effectiveness

Value	N	%	Cum. %
Yes	16	66.67	66.67
No	5	20.83	87.50
Unknown	3	12.50	100.00
TOTAL	24	100.00	

Twenty one (21) of the participants out of the twenty four (24) answered this question. Sixty seven percent (67%) of respondents, according to histogram 33, thought that an e-learning facility would be effective on the other hand twenty one percent (21%) thought otherwise. The student participants shared a similar view with seventy two percent (72%) of the sample indicating the e-learning programme will be effective if implemented (See Histogram 16).

4.5 Qualitative data questionnaire 1 - Lecturing staff (pre-test intervention)

The following question was analysed using Thematic Content Analysis. The themes that arose out of the data are indicated in table 33. Question: In your own words what do you think will be the impact of the e-learning programme on the faculty of Commerce, Administration and Law?

Table 2:
Impact of e-learning in the Faculty

Theme	Number of respondents
Benefits to students and staff	14
Lack of Resources (Poor infrastructure)	10
Total	24

Overall two main themes emerged out of the responses. The major theme was benefit to students and staff. Respondents to the question indicated that the e-learning programme will provide general benefits to students. For instance the programme will encourage keen learners to do more work. Other respondents also think that it will benefit the students as its aim is to improve the students' learning experiences, as they will utilise the facility at their own time. Some respondents felt that the e-learning programme would increase communication between lecturers and students improve dissemination of information and increase the students' interaction with course content. The learning methods will be expanded and it will cut down on the copies that have to be made. Others believe that e-learning will aid in producing future competent employees. It was also felt by several respondents that when (if) resources and training are available then the programme will be a success. Some participants indicated that resources mean appropriate staff as well as training which can be seen as a benefit as it can be considered up-skilling. Another benefit was that the introduction of e-learning

interventions would help provide free time to lecturing staff so that they could conduct research. Further benefits may be that the programme will improve students' access to information helping create independent thinkers. It was also stated that the introduction of the programme will ease the problem of staff shortages.

The second theme was lack of resources at Unizul. Several participants stated that the institution still has a long way to go because nothing works at Unizul because of the poor infrastructure. They made reference to the inability of the institution to manage timetables and venues. It was also stated that respondents fear that the students might skip lectures, because of crowded or inadequate venues, and hope to catch up by using the programme. Another statement suggested that the poor salary structure of lecturers may impact negatively on the successful implementation of the project as more time and input would be required for no extra monetary reward.

The two themes underpin those of the main themes found in analysing the student responses. However, all the staff participants responded to the question.

4.6 Questionnaire 2 – Staff Survey

This questionnaire was directed to the lecturing staff of the Faculty of Commerce, Administration and Law. It was used to find out if the implementation of e-learning initiatives in the faculty had been successful. It was handed out six months after the e-learning facility had been introduced to see if lecturing staff were using the programme and what impact it had. Twenty seven staff members responded to questionnaire 2. Demographic data such as age, gender and ethnicity is not repeated as it does not differ substantially from the data gathered in questionnaire 1. The data is presented using histograms and/or tables where appropriate.

Table 3:
Type of employment contract

Type of Contract	Number of Respondents
Part Time Staff	11
Full Time Staff	15
Unknown	1
Total	27

Lecturing staff were asked to indicate if they are full or part time staff members. This may be important as part time staff members do not usually have access to computer facilities at Unizul. Fifty eight percent (58%) of respondents indicated that they are full time lecturing staff in the Faculty of Commerce Administration and Law and forty two percent (42%) are part time staff. Of the twenty-six (26) respondents fifteen (15) are full time lecturers and eleven (11) are part time lecturing staff.

Table 4:

There are currently many definitions of e-learning. Please could you tell me your understanding of the term?

Definition	Number of Respondents
No response	4
Technological gadgets only	5
Internet based	7
Technological and internet	5
Method of programme delivery	3
Distance learning	3
Total	27

Lecturing staff were asked to give their understanding of the term e-learning. The main ideas from the respondents about the definition of e-learning are as listed in the table above. Four (4) participants did not respond to this question.

Seven (7) participants were of the opinion that e-learning is learning via the internet or intranet. Five (5) respondents thought that e-learning was learning and teaching using technological gadgets that were not necessarily internet linked. Five (5) respondents, on the other hand, thought that e-learning was learning and teaching using technological gadgets that are not linked to the internet as well as those that are linked to the internet. Three (3) participants associated e-learning with distance education and stated that there is no lecturer student contact involved (face . to . face). Two (2) respondents defined e-learning as a method of delivering an educational programme.

Histogram 34:

Do you currently use e-learning as a part of your programme delivery?

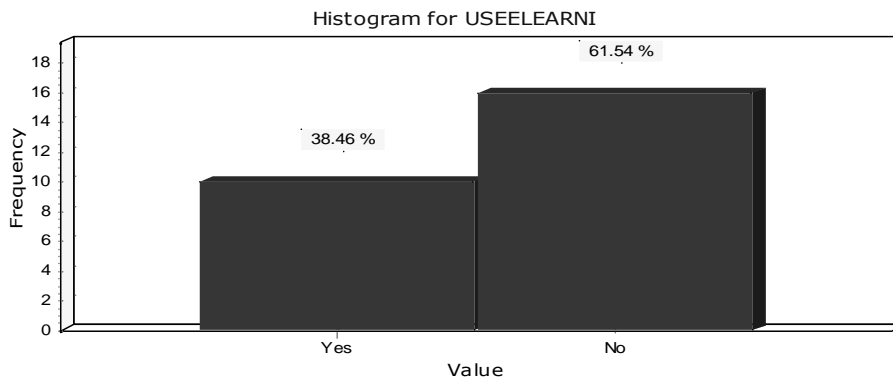


Table 5:

The use of e-learning for programme delivery.

Response	Number of respondents
Yes	10
No	16
Unknown	1
Total	27

The most common response to the question was ~~No~~with sixteen (16) responses which was sixty two percent (62%)of the total responses and the response ~~Yes~~qhad ten (10) respondents which is thirty seven percent (37%). This shows that most of the lecturing staff do not use e-learning for their programme delivery. It may be that some of the respondents who completed the questionnaire are part time staff who do not have office space or computer access on campus.

Histogram 35:
To what extent do you use e-learning?

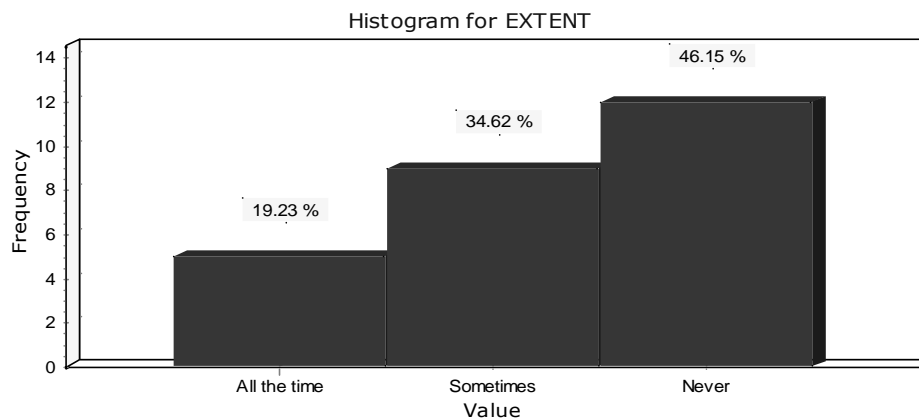


Table 6:
Extent to which lecturers use e-learning

Extent of e-learning use	Number of Respondents
All the Time	5
Sometimes	9
Never	12
Unknown	1
Total	27

As shown in the table above most lecturers in the sample do not use e-learning facilities at all. Forty six percent (46%) of the respondents never use e-learning facilities for their programme delivery. Nineteen percent (19%) of respondents use e-learning facilities all the time.

Histogram 36:
How have your students responded to the use of e-learning?

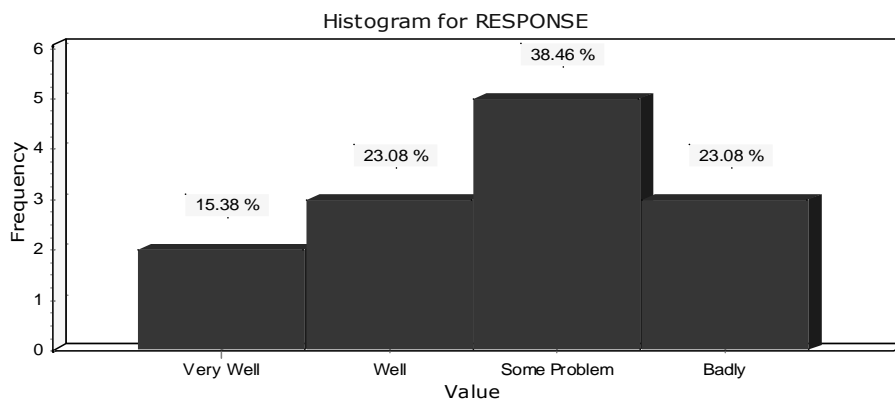


Table 7:
Students response to the use of e-learning.

Response	Number of Respondents
Very Well	2
Well	3
Some Problems	5
Badly	3
Unknown	14
Total	27

Of the twenty-seven (27) participants that responded to the questionnaire thirteen (13) answered this question and fourteen (14) did not. Of the thirteen (13) that responded five (5) participants were of the opinion that there were some problems with the way students are responding to the use of e-learning. Three (3) participants thought that students were responding well to the programme while, on the other hand, three (3) lecturers suggested that students were responding badly to e-learning. Only two (2) respondents thought that students were responding very well to e-learning. It may be that the fourteen respondents who answered 'Unknown' do not use the e-learning intervention.

Table 8:
For what purpose do you use e-learning programmes?

Purpose of e-learning	Responses (lecturing staff were able to give more than one response)
Providing general programme information	7
Providing programme study materials	10
Providing links to web resources	7
Taking part in programme online discussions or group work	4
Contacting other programme participants by e-mail on study matters	7
Assignment handling	4
Assignment feedback	2
On-line tutor support	3
Providing online tests or quizzes	2
Tracking Participation	0
Other	1

This question was directed to the lecturers that use the e-learning programme. Most lecturing (ten) staff responded that they use the e-learning programme to provide study material such as lecture notes, PowerPoint slides or other learning material. Seven (7) lecturers use the programme to provide links to web resources. Seven (7) participants also use the programme to allow their students to contact other programme participants by e-mail about study material. Again, seven lecturers use the programme to provide general programme information such as study guides or course outlines. Four (4) lecturers use the programme for assignment handling and to allow their students to take part in online discussions and group work. Three (3) lecturers preferred using e-learning because it allowed them to give their students on-line tutor support. Two participants used e-learning to provide online tests and quizzes as well as to give assignment feedback. One (1) lecturer uses e-learning for other purposes such as consultation. It is however noted that no lecturer uses e-learning to track student participation.

Table 9:
What do you feel are the greatest benefits from introducing e-learning?

Benefit	Responses (lecturing staff were able to give more than one response)
Ability for students to learn at their own pace	18
Communication	10
Encouraging a deeper knowledge of the subject	11
Helps build on specific skills	2
Helps target on specific weaknesses	2
Ability to access from anywhere or/at anytime	15
Helps to organise and manage programmes	10
Other	4

Eighteen (18) respondents thought that the greatest benefit of e-learning was the ability for students to learn at their own pace. Fifteen (15) participants were of the idea that the greatest benefit of e-learning was the ability to access the programme from anywhere or/at anytime. Eleven (11) participants thought that e-learning encourages a deeper knowledge of the subject, while ten (10) participants thought that it creates effective communication between the lecturer and the student which helps in organising and managing the programme. Two (2) lecturers indicated that the greatest benefits of e-learning were that it helps build on specific skills and it targets on specific weaknesses. Four (4) participants indicated % other.+ These participants suggested that the greatest benefits of e-learning were that it is inline with recent technological developments, it facilitates outcome based education (OBE), it ensures all students have access to information and promotes efficient use of resources.

Table 10:
What do you think are the greatest barriers to your successful delivery of e-learning?

Barrier	Responses (lecturing staff were able to give more than one response)
Lack of technical training	12
Lack of awareness of e-learning benefits	11
Reliability of the technology	9
Lack of tutor support or contact	3
Ease of use of on-line learning system	3
Time to prepare materials	8
Additional resources required for development	8
Management encouragement	5
Lack of understanding what is available	3
Student attitudes	6
Other	4

Twelve (12) participants thought that the greatest barrier to e-learning delivery was lack of technical training. Eleven (11) respondents thought that it was lack of awareness of e-learning benefits. Nine (9) respondents indicated that a major barrier to the use of e-learning was unreliable technology, while eight (8) participants suggested that it was the lack of time to prepare materials. They also indicated that additional resources are required for the development of e-programmes. Six (6) staff members indicated that student attitudes are a barrier to successful delivery and five (5) thought that lack of management encouragement is the greatest barrier. Three (3) participants thought that the greatest barriers were lack of tutor support or contact. They also indicated that there is difficulty in the use of on-line learning systems and lack of understanding in terms of what e-learning programmes offer. Four (4) participants added other barriers such as the lack of available technology, the incompetence of technical support staff and lack of stakeholder(s) support for the programme (stakeholders defined as management, academic staff, support staff and students).

Table 11:

If you do not use e-learning, what are the main reasons for you not using the programme?

Reasons	Responses (lecturing staff were able to give more than one response)
Lack of tutor training	9
Reliability of the technology	4
Lack of tutor support or contact	5
Difficulties of use of on-line learning system	3
Time to prepare materials	9
Additional resources required for development	6
Management encouragement	4
Understanding what is available	4
Student attitudes	1
Other	4

This question was directed to lecturing staff who do not use e-learning for the delivery of their modules. The most common reasons, with nine (9) responses each, are lack of tutor training and time to prepare materials. Six (6) participants do not use e-learning because they noted that additional resources are required for the development of the intervention. Five (5) respondents do not use the programme because they cannot offer tutor support or other contact. Four (4) lecturers do not use the programme because of the lack of reliability of the technology system at Unizul. They also note lack of management support as a reason for not using the programme. These respondents indicated that they do not understand what is available to them or what the system offers in terms of e-learning interventions. Three (3) participants indicated that they do not use the programme because the on-line learning system is difficult to use. One (1) respondent does not use the programme because of negative student attitudes. Four (4) lecturers stated that they do not use the e-learning programme because large classes might not be able to access information timeously (basically, there are not

enough computers for students thus if they all want to use the computer laboratories at the same time difficulties will occur). Another concern is that students will use the e-learning programme at their own pace which may impact on their ability to keep up with work in a predominately face-to-face teaching environment. Other reasons given for not using e-learning are that there is outdated technology at Unizul and that e-learning interventions have not been properly implemented at Unizul. Several lecturing staff noted that they fear the use of e-learning will inhibit the development of oral (verbal) skills.

Histogram 37:

If you are not currently using e-learning would you like to be able to introduce e-learning to your programme delivery?

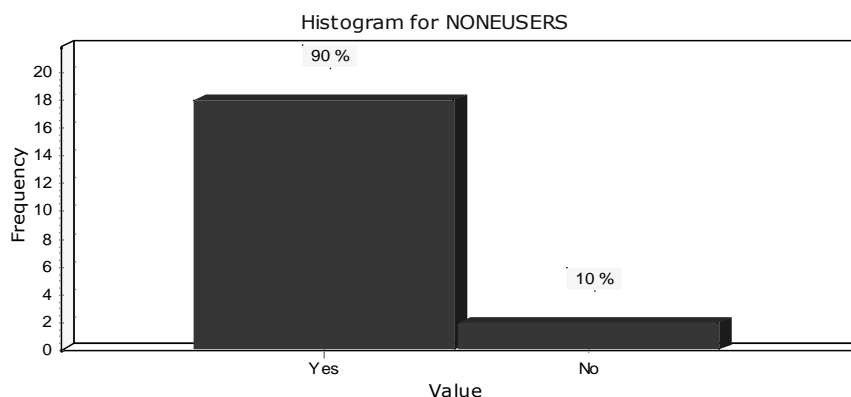


Table 12:

Non-users of e-learning . would you like to introduce it into your programme

Response	Number of Respondents
Yes	18
No	2
Unknown	7
Total	27

Twenty (20) participants answered this question. The most common response was ~~%yes+~~ Yes. This means that most respondents want to introduce e-learning to the delivery of

their modules. Eighteen (18) lecturing staff do not use e-learning and would like to introduce the use of e-learning into their programme delivery while two (2) respondents do not want to introduce it. If respondents answered yes to the above question they were asked to state which areas would interest them most in implementing e-learning. These areas of interest are depicted table 43.

Table 13:
If yes, which are the areas of use that interest you the most?

Areas of interest	Responses (lecturing staff were able to give more than one response)
Providing general programme information	16
Providing programme study materials	15
Providing links to web resources	10
Taking part in programme online discussions or group work	8
Contacting other programme participants by e-mail on study matters	8
Assignment handling	9
Assignment feedback	10
On-line tutor support	11
Providing online tests or quizzes	11
Tracking Participation	7
Other	0

The most popular areas of interest reported by the sample are providing general programme information which has sixteen (16) responses and providing programme study materials with fifteen responses. Eleven (11) participants would be interested in the on-line tutor support and providing online tests or quizzes while ten (10) would be interested in providing links to web resources and assignment feedback. Nine respondents would be interested in using e-learning to handle assignments. A further eight (8) participants would be interested in taking part in online discussions or group

work and contacting other programme participants by e-mail about study matters while seven (7) would want to track student participation in the programme.

Table 14:
Any other comments regarding e-learning at the University of Zululand

Themes	Number of Respondents
No responses	6
Lack of resources and skills	10
Good for stakeholders	10
Not feasible at Unizul yet	2
Not widely used at Unizul yet	1

Six (6) participants did not comment. The most frequent comments were about the lack of resources and skills at the institution. Some respondents were of the opinion that the programme would not be viable if there are not enough computers for students. They also noted that the internet connections were often down in computer labs. Others think that the programme would benefit students by allowing them to learn at their own pace. The introduction of e-learning will also benefit lecturers by allowing them to monitor students. The use of up-to-date technology would also benefit Unizul in terms of positive publicity. Other comments were that the environment at Unizul will not allow the programme to be totally effective because the general support and teaching infrastructure is poor.

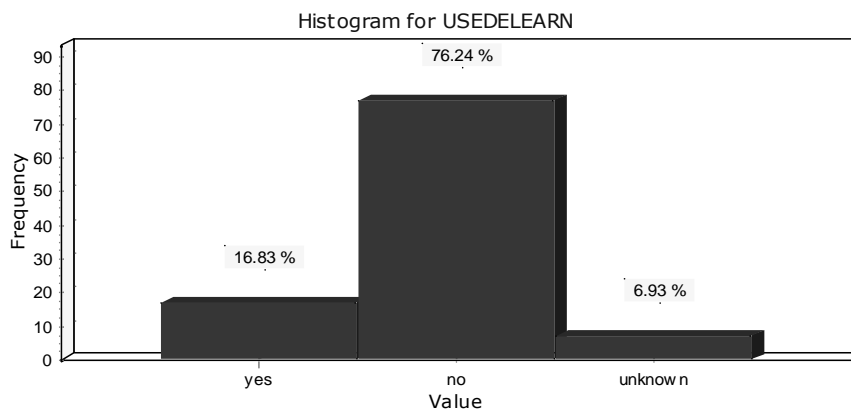
4.7 Quantitative data analysis – students' responses to questionnaire 1 after the implementation of e-learning (post test/intervention)

Questionnaire 1 was handed out a year after the initial survey using the same process and sampling technique. As the demographic data collected was not substantially different from that in the pre-test/intervention survey, in terms of gender, ethnicity, age and level of study, they are not reported (see histograms 1 . 4). However, the number of respondents who returned the questionnaire was less. A total of one hundred and one (101) students returned the questionnaire (fifteen less respondents). This is a thirteen percent attrition rate when compared to the initial pre . test/intervention survey. Histograms, tables and line graphs depicting independent T test results are used to present the data.

4.7.1 Non demographic data

The non-demographic data from the survey is presented first followed by the qualitative data.

Histogram 38:
Have you ever used any e-learning facility?



Frequency table 34:
The use of e-learning.

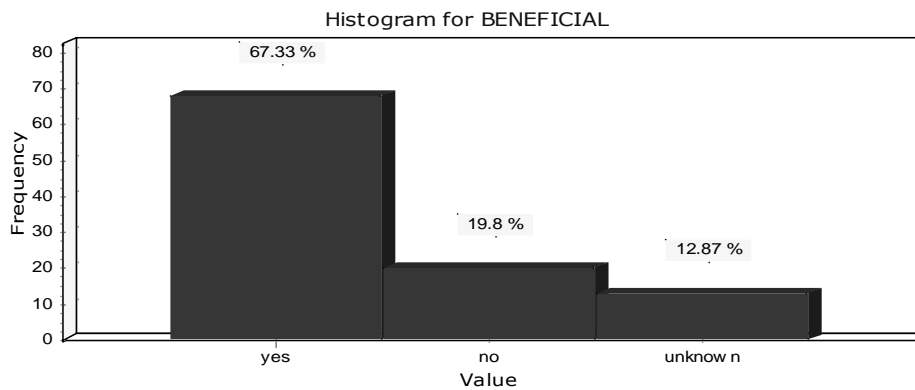
Value	N	%	Cum. %
Yes	17	16.83	16.83
No	77	76.24	93.07
Unknown	7	6.93	100.00
TOTAL	101	100.00	

Seventy six percent (76%) of respondents answered ~~No~~ indicating that they have not used any e-learning facility. Seventeen percent (17%) have used an e-learning facility. In the pre . test/intervention results ninety percent (90%) of respondents had never used an e-learning facility. This amounts to a difference of fourteen percent (14%). This statistic suggests that the e-learning programme is not widely used a year after implementation (See Histogram 5).

Question - If yes, where? (have you used e . learning before)

This question required the respondents to state where they have used e-learning before if they answered yes to the previous question. Of the seventeen (17) respondents that answered ~~Yes~~ to the preceding question only ten answered this question. Six (6) respondents stated that they had used e-learning at Unizul. Four respondents stated that they had used e-learning at other institutions such as the University of South Africa (UNISA). This amounts to ten percent of the sample (10%). In the previous survey only five percent (5%) of respondents answered this question.

Histogram 39:
In your opinion do you think e-learning is beneficial?



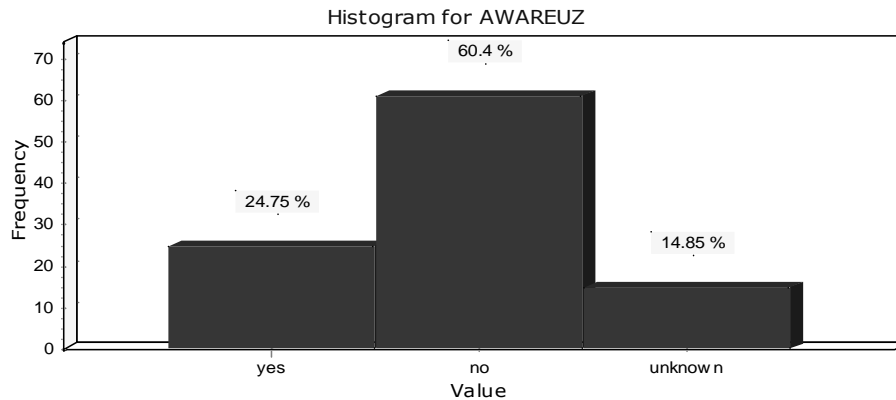
Frequency table 35:
In your opinion do you think e . learning is beneficial?

Value	N	%	Cum. %
Yes	68	67.33	67.33
No	20	19.80	87.13
Unknown	13	12.87	100.00
TOTAL	101	100.00	

Sixty-eight (68) respondents, which is a total of sixty seven percent (67%) of the sample, agreed that an e-learning programme would be of benefit. Histogram 39 shows that twenty percent (20%) of the sample, or twenty (20) respondents, do not think that an e-learning facility is beneficial. In the initial survey sixty five percent (65%) of the sample agreed that e . learning will be beneficial. This is a similar result to the initial survey (See Histogram 6).

Histogram 40:

Are you aware of the e-learning programme that was implemented in the Faculty of Commerce, Administration and Law?



Frequency table 36:

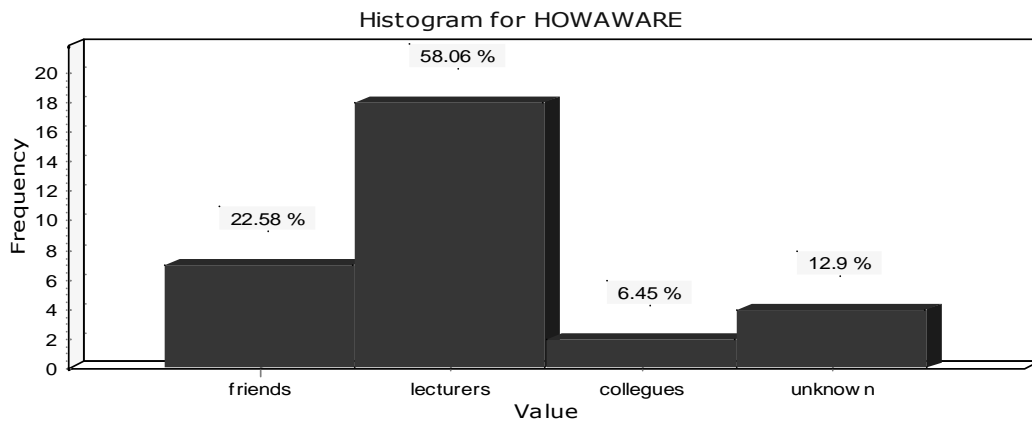
The awareness of e-learning in the Faculty.

Value	N	%	Cum. %
Yes	25	24.75	24.75
No	61	60.40	85.15
Unknown	15	14.85	100.00
TOTAL	101	100.00	

Of the one hundred and one (101) participants in this survey eighty-six responded to this question. Of that total sixty-one (61) were not aware of the e-learning programme that was implemented. Of the total respondents to this question twenty five percent (25%) of them were aware of the facility that was implemented while the other sixty percent (60%) were not aware. In the pre . test/intervention survey sixty five percent (65%) of respondents were not aware of the implementation of e-learning in the faculty and thirty four percent (34%) had heard about it. This indicates that the programme

implementation has not been well publicised or supported since its implementation (See Histogram 7).

Histogram 41:
If yes, how did you become aware of this programme?



Frequency table 37:
How participants became aware

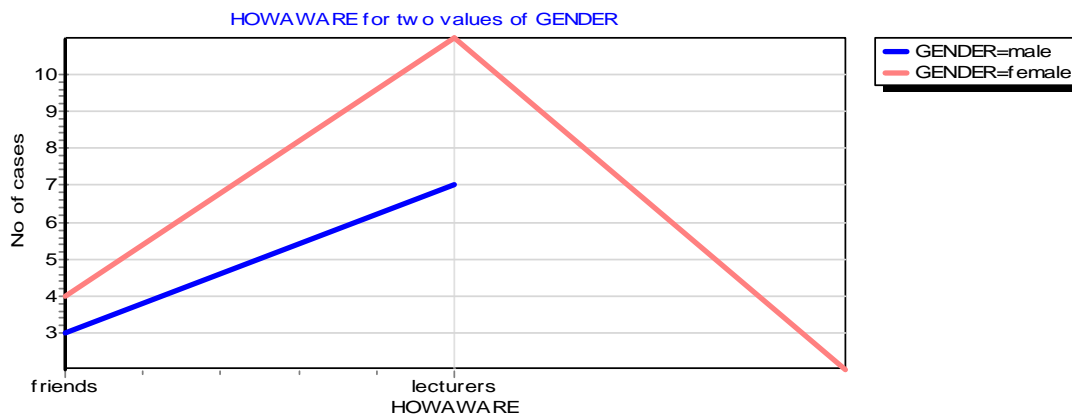
Value	N	%	Cum. %
Friends	7	22.58	22.58
Lecturers	18	58.06	80.65
Colleagues	2	6.45	87.10
Unknown	4	12.90	100.00
TOTAL	31	100.00	

In this case the number of respondents that mentioned how they became aware of the e-learning is forty one (41). Some respondents probably did not understand that this question was a follow up question to the previous one. In this regard it is possible that some of the respondents considered the survey questionnaire as being made aware of the programme. Most of the respondents became aware of the programme through their

lecturers, particularly the computer modulesqllecturer. Nine (9) became aware of the programme through their friends while one (1) found out about it from colleagues.

Line graph 3:

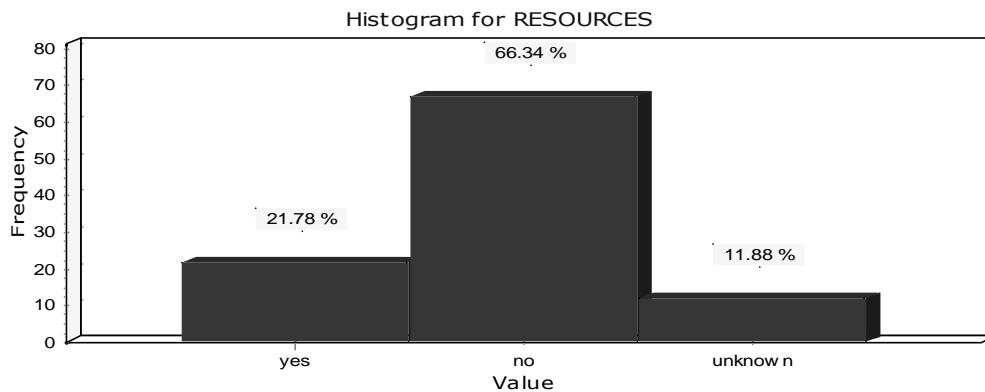
How participants became aware (Marked effects significant if $p = < 0.05$)



The grouping variable is gender and the variable being analysed is how the participants became aware of the programme. The mean for the males is 1.889 while that of females is 1.765. The difference between the means of the two groups is $p = 0.124$. The two groups are not statistically significantly different in terms of their mean scores. This graph indicates that more females learnt about the programme through their friends than males which is different to the pre - test/intervention findings where the opposite was the case.

Histogram 42:

Do you think students have sufficient resources to access this programme?



Frequency table 38:

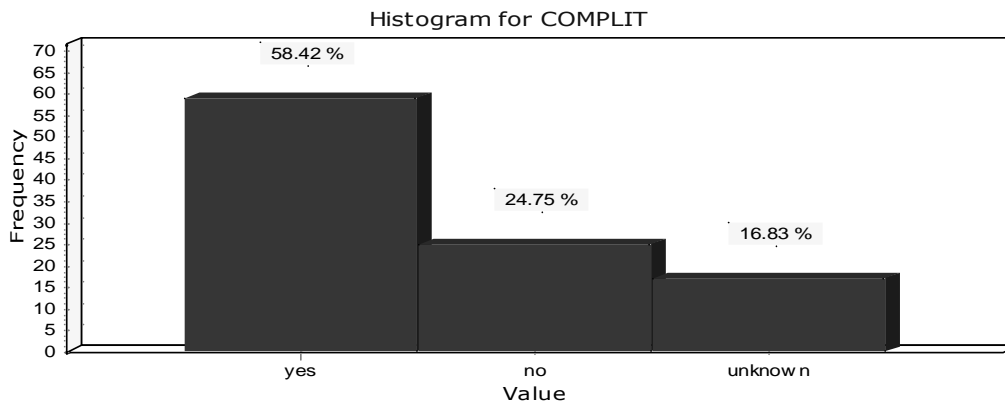
Sufficient resources (students)

Value	N	%	Cum. %
Yes	22	21.78	21.78
No	67	66.34	88.12
Unknown	12	11.88	100.00
TOTAL	101	100.00	

The histogram above shows that most respondents did not think that students have sufficient resources to access the programme. The above table and histogram indicates that sixty seven (67) out of the eighty nine (89) respondents (67%) did not think that students have sufficient resources to access the programme while only twenty one (21%) were of the opinion that students had enough resources to access the e-learning facility. In the initial survey fifty percent (50%) of the respondents did not think that there were sufficient resources to access an e-learning programme. This may point towards deterioration in information technology systems and the availability of computers generally at Unizul (See Histogram 9).

Histogram 43:

Are students computer literate enough to access the programme?



Frequency table 39:

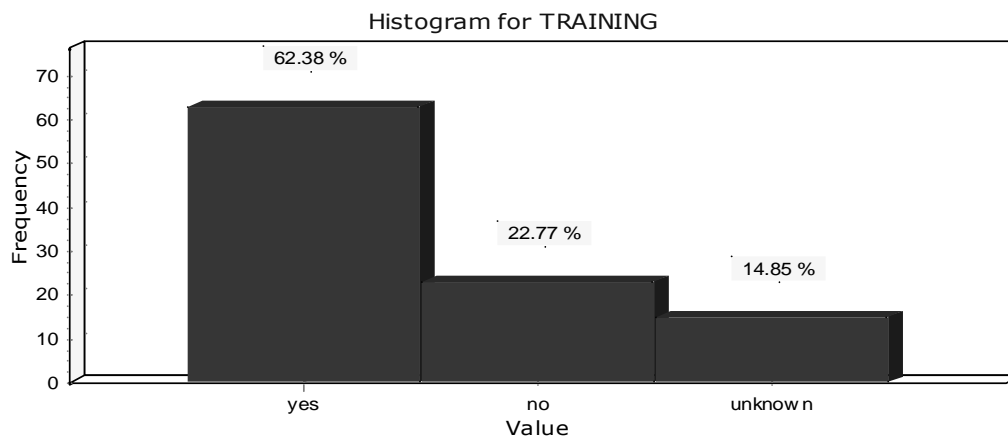
Computer literacy of students

Value	N	%	Cum. %
Yes	59	58.42	58.42
No	25	24.75	83.17
Unknown	17	16.83	100.00
TOTAL	101	100.00	

Eighty four (84) out of one hundred and one (101) respondents answered this question. According to the histogram fifty eight percent (58%) of them agreed that students are computer literate enough to access the programme while 25 (25%) disagree. This is similar to the finding in the pre-test intervention where the majority (74%) of respondents agreed that students are computer literate enough to access e-learning programmes (See Histogram 10).

Histogram 44:

Do you think training on how to use the programme should be made available for both students and staff members?



Frequency table 40:

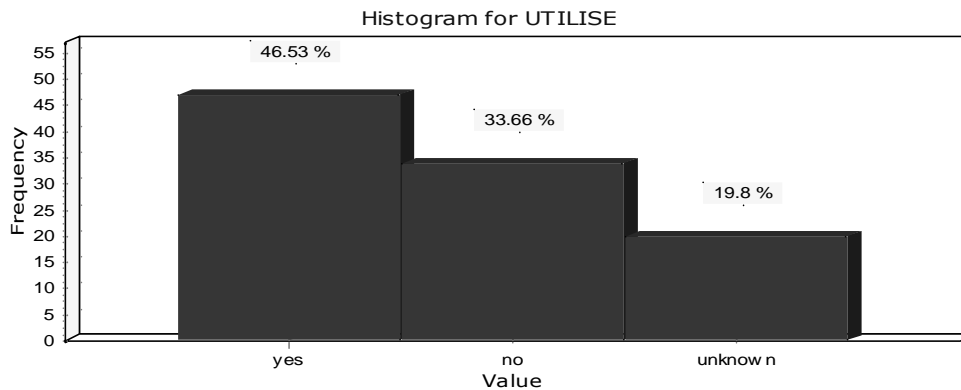
Necessity of Training

Value	N	%	Cum. %
Yes	63	62.38	62.38
No	23	22.77	85.15
Unknown	15	14.85	100.00
TOTAL	101	100.00	

Histogram 51 above shows that most respondents agree that there is need for training for both students and lecturing staff on how to use the programme. Frequency table 40 indicates that sixty three (63) out of the eighty six (86) respondents that answered this question (62% and 23% respectively) believed that both lecturing staff and students needed training on how to use the programme. These frequencies are not as high as in the initial survey where ninety percent (90%) or 104 respondents indicated that both lecturing staff and students need training (See Histogram 11).

Histogram 45:

In your opinion, do you think lecturing staff will fully utilise this programme?



Frequency table 41:

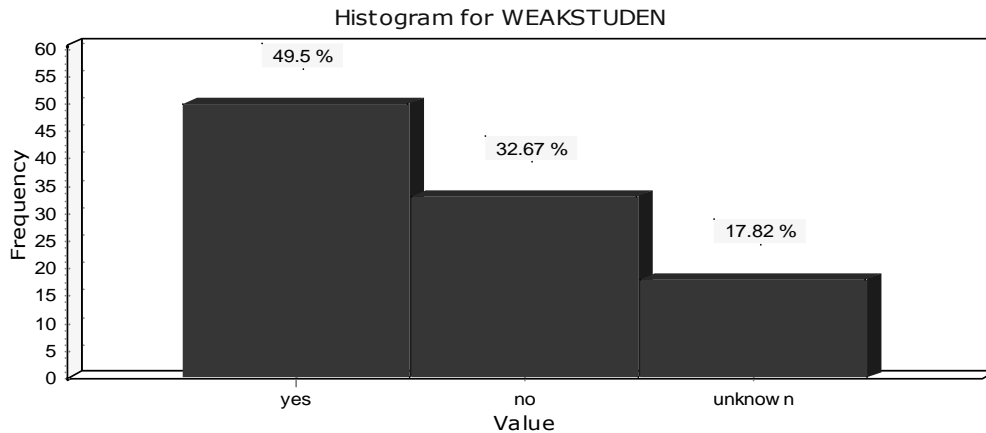
Full utilisation of programme

Value	N	%	Cum. %
Yes	47	46.53	46.53
No	34	33.66	80.20
Unknown	20	19.80	100.00
TOTAL	101	100.00	

Histogram 45 and Frequency table 41 indicate that forty seven percent (47%), or forty seven (47) of the respondents agreed that the lecturing staff are fully utilising the programme. The other thirty four percent (34%) or thirty four (34) respondents did not think that lecturing staff are fully utilising the programme. In the initial survey seventy percent (70%) of the sample indicated that lecturing staff will fully utilise the programme. This suggests that the one year after implementation in the faculty the programme is not being fully utilised.

Histogram 46:

Do you think lecturing staff will be able to focus more on giving individual attention to weaker students?



Frequency table 42:

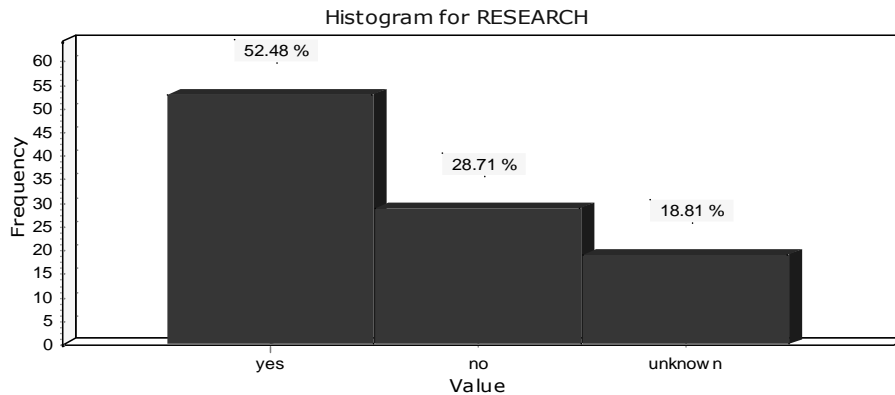
Attention to weaker students

Value	N	%	Cum. %
Yes	50	49.50	49.50
No	33	32.67	82.18
Unknown	18	17.82	100.00
TOTAL	101	100.00	

Fifty participants or fifty percent (50%) of respondents according to Histogram 46 state yes that lecturing staff will be able to focus more on giving weaker students more attention. Thirty three percent (33%) of respondents, that is 33 participants, do not agree with this.

Histogram 47:

Do you think this programme is giving lecturing staff ample time to do research?



Frequency table 43:

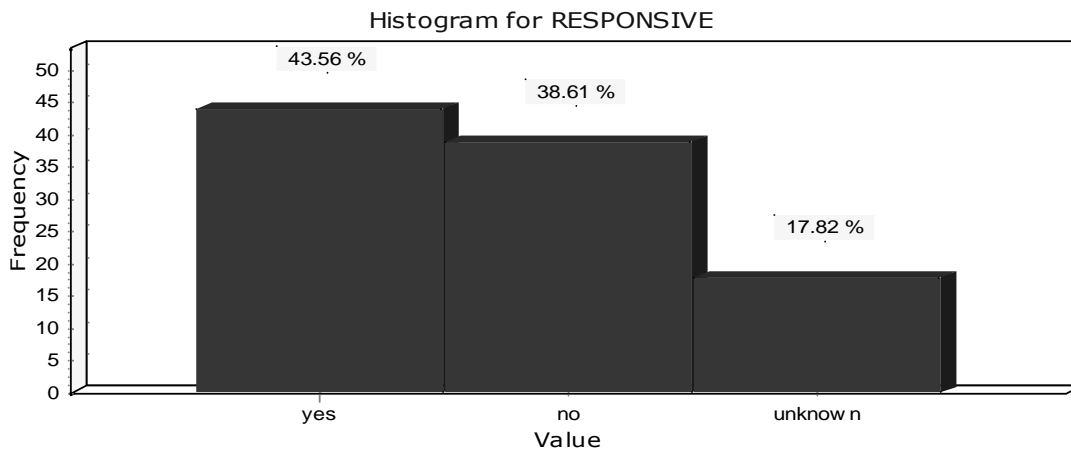
The availability of time for research

Value	N	%	Cum. %
Yes	53	52.48	52.48
No	29	28.71	81.19
Unknown	19	18.81	100.00
TOTAL	101	100.00	

The majority of the respondents think that lecturing staff now have more time to conduct research. This is shown by the histogram with fifty two percent (52%) participants with the response ~~yes~~yes to the question. The other twenty nine percent (29%) did not think that e-learning was giving lecturing staff ample time to conduct research.

Histogram 48:

Do you think students are more responsive to e-learning than traditional face-to-face learning?



Frequency table 44:

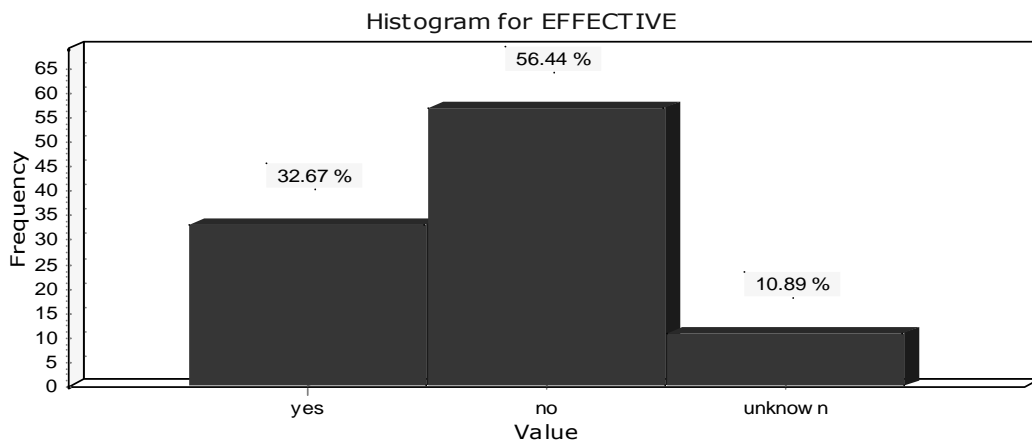
Students responsiveness to e-learning.

Value	N	%	Cum. %
Yes	44	43.56	43.56
No	39	38.61	82.18
Unknown	18	17.82	100.00
TOTAL	101	100.00	

For this question there was only a difference of five (5) respondents between the two responses. Forty four (44) respondents thought that students are responsive to e-learning while thirty nine (39) thought that students were not responsive to the programme. The histogram also shows that the most common response was ~~yes~~ with about forty four percent (44%) responses. In the pre-test intervention, fifty nine percent (59%) of the student participants agreed that they would be more responsive to educational technologies than face-to-face learning (See Histogram 15).

Histogram 49

Do you think e-learning programme is effective so far?



Frequency table 45:
Programme effectiveness.

Value	N	%	Cum. %
Yes	33	32.67	32.67
No	57	56.44	89.11
Unknown	11	10.89	100.00
TOTAL	101	100.00	

Most respondents do not think the programme has not been effective this far at Unizul. Histogram 48 above shows that about fifty six percent (56%) of the responses to this question did not think that the programme was effective while thirty three percent (33%) thought that the programme was effective. This is opposed to the pre-test intervention where seventy two percent (72%) thought that the programme would be effective (See Histogram 16).

4.8 Qualitative data analysis – students’ responses to questionnaire 1 after the implementation of e-learning (post test/intervention)

Table 15:
Impact of e-learning in the Faculty

Theme	Number of respondents
No response	64
Face-to-face	4
Access to information	4
Benefits students	6
Benefits Unizul	2
Lack of resources	5
No idea	16
Total	101

The majority of the participants failed to answer this question and some indicated that they had no idea what e-learning was and did not know it was running at Unizul. Failure to answer the question was also noted in the pre test intervention (See Table 17). In this case however five major themes were noted. Many participants were of the view that e-learning is helping them so far as it keeps them using computers and thus making them more computer literate and preparing them for the working environment. Some respondents on the other hand thought that the impact of the e-learning programme would be negative because of the lack of resources at Unizul. The lack of resources and poor infrastructure was also noted in the pre test intervention. Other student participants indicated that they preferred face-to-face learning. Some mentioned that they wanted face-to-face learning because the assignments they had to do for computer modules where they had to use the programme were difficult and they were failing to cope. Another theme that was mentioned was that the programme increased access to information as they could get course outlines and study guides online. Two (2) participants thought the programme is improving the image of Unizul by modernising.

4.9 Qualitative data analysis - Focus group responses (students)

For the focus there were six respondents, which were picked conveniently (from volunteers) from each department of the Faculty of Commerce, Administration and Law. The respondents were assured that their identity would remain confidential. The group consisted of three males and three females. To maintain anonymity each participant from each department had to use a code name which started with the alphabetical letter that their department started with. The code names and departments are as listed in Table 16 below.

Table 16:
Focus group code names

Department	Code Name
Accounting and Auditing	Aureen (female)
Business Management	Belinda (female)
Economics	Eugene (male)
Industrial Psychology	Ignatius (male)
Law	Lennon (male)
Political Science and Public Administration	Paula (female)

The responses and the questions were as discussed below.

Question 1

Do you know what e-learning is? If yes, please explain what it means.

Aureen: Yes, combined learning, lecturer plus technology.

Belinda: Not sure, distance learning for example the system used by UNISA.

Eugene: Yes, combining learning with internet like Mr. Muller's classes.

Ignatius: Yes, learning via internet.

Lennon: Yes, internet aided classes.

Paula: Not sure, use of internet

This question was to determine if every member of the group would know what was being discussed. The respondents tried not to say anything that would make the other feel that they gave an inadequate response. This is noted when none of them said that they did not say that they did not know what e-learning was but rather mentioned that they were not sure. Basically most of the respondents have a general idea of what e-learning is. It must be noted that two of the three female respondents were unsure of what e-learning is.

Question 2

Have you ever used an e-learning facility before? If yes, where?

Aureen: Yes, in Mr. Muller's classes.

Belinda: No, has never studied with UNISA.

Eugene: Yes, Mr. Muller's classes.

Ignatius: Yes, has a diploma with UNISA.

Paula: No, never used the internet to learn before.

Lennon: No

Paula and Lennon have not used e-learning before while Ignatius and Eugene have. On querying the responses Belinda believed that e-learning was for long distance learning only. Aureen and Eugene confirmed that they have used an e-learning facility with one of their computer modules at Unizul.

Question 3

What were your experiences with the e-learning programme?

Aureen: interesting and were guided step by step by the lecturer.

Belinda: no contribution

Eugene: it was difficult to catch up after he missed a step.

Ignatius: conveniently available course outlines and assignment.

Paula: no contribution

Lennon: no contribution

Belinda, Paula and Lennon had no responses for this question. Aureen and Ignatius found the programme helpful with the support of their lecturer. Eugene on the other hand felt it was difficult to catch up if he missed a step.

Question 4

Have you used the e-learning programme that was recently implemented in the Faculty?

Aureen: yes, in Mr. Muller's classes.

Belinda: no, though Marketing lecturer had notes posted on it.

Eugene: yes, in Mr. Muller's classes.

Lennon: no, did not know that it was available on campus.

Ignatius: no

Paula: have not used it but heard about it from Mr. Zungu (former lecturer).

Two participants had used the e-learning facility when they were doing a computer module. The participant from business management department confirmed that she had a lecturer who was posting course outlines and course handouts on the programme

though she has never accessed the facility. This participant went on to mention that she makes copies of the documents from her colleagues that would have downloaded them.

Question 5

What-if any-is the major drawback of this programme at Unizul?

Aureen: slow or no internet and few computers.

Belinda: no wireless internet.

Eugene: programme on intranet only and cannot be accessed elsewhere.

Ignatius: few computers.

Lennon: computer lab congestion.

Paula: few computers.

Most participants agree that the major drawback of this programme is that there are too few computers at Unizul. The other drawback is that the participants mentioned was that the internet is very slow and in most cases never there for students to access the internet. Another participant highlighted that there is no wireless internet to ease the computer lab congestion. This would help as some students have laptops. Another participant mentioned that the programme is only available on the intranet making it difficult to access it from elsewhere.

Question 6

What-if any- is the major advantage of the e-learning facility at Unizul?

Aureen: learning will continue even after hours.

Belinda: decreases face-to-face consultation for fearful students.

Eugene: improves computer literacy.

Ignatius: access assignments anytime.

Lennon: access of course content anytime.

Paula: no advantage if the number of computers is not increased in number.

The participants had different views as to what the major advantage of the programme would be. One participant thought the major advantage is that learning would continue even after class time as the course content would still be available to them. Another student mentioned that some students are afraid to consult their lecturers and therefore an e-learning facility would allow the student to email the lecturer their problem. Another mentioned that e-learning improves the computer literacy levels because students are constantly forced to access the programme. Two participants mentioned that the biggest advantage is that can be accessed anytime. One participant mentioned the programme does not have any advantage at Unizul if the if the ratio of computers to students is not improved. In a general discussion that followed it was observed that the males were more enthusiastic in the discussion than the female participants.

Question 7

Do you have any other contribution about the e-learning programme at Unizul that you would like to make?

Aureen: increase computers for students

Belinda: no contribution.

Eugene: Unizul should add computers for students.

Lennon: students should be informed by someone about such programmes.

Ignatius: students should be told about the programme.

Paula: no contribution.

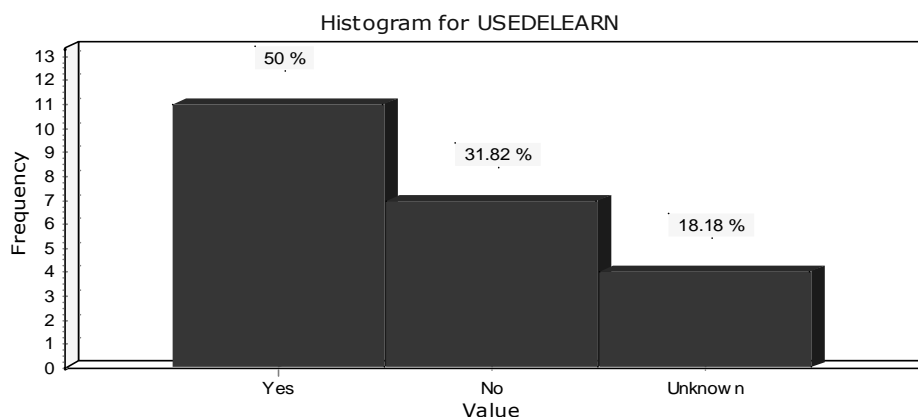
Two participants thought the students should be told about such programmes because chances are if they did not know that it is running at Unizul then there are students who also do not know about it. The other participants emphasized that the number of computers available to students should be increased.

4.10 Quantitative data analysis - Staff responses to questionnaire 1 (post test/intervention)

Questionnaire 1 was handed out to staff after the e-learning programme was implemented. No sample was drawn from the lecturing staff members as the population was small enough and manageable. Twenty two (22) participated in this survey out of the total number of forty three (42) lecturing staff in the Faculty of Commerce, Law and Administration. This is two (2) participants lower than the pre-test/intervention. The demographic data collected is the same (or similar) to that of the pre-test/intervention and as it is a repetition it is not reported again (See histogram 17 . 21). Histograms and tables are used to present the data. Non-parametric statistics are used as the sample is less than thirty.

4.10.1 Non demographic data

Histogram 50:
Have you ever used any e-learning facility?



Frequency table 46:
The use of e-learning.

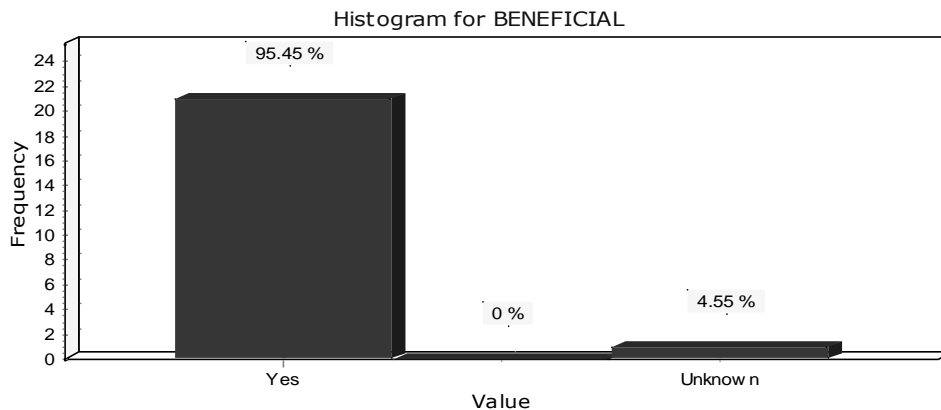
Value	N	%	Cum. %
Yes	11	50.00	50.00
No	7	31.82	81.82
Unknown	4	18.18	100.00
TOTAL	22	100.00	

Eighteen (18) of the twenty two (22) participants responded to this question. Fifty percent (50%) have used an e-learning facility while the other thirty two percent (32%) have never used an e-learning facility ever. The pre-test/intervention also revealed the same, that majority of the lecturing staff had used an e-learning facility before, though the percentage was fifty (50%) which is equal to the pre-test/intervention responses (See Histogram 22).

Question 8
If yes, where?

This question needed the respondents to state where they have used e-learning before. The following responses were noted. Eleven (11) respondents answered that they had used e-learning before though three did not specify as to where they had used it before. Three (3) staff members were currently using educational technologies to enhance their content delivery. The other five (5) stated that they had used the programme at UNISA. The pre-test intervention also had only two (2) lecturing staff that were using educational technologies to deliver their lectures.

Histogram 51:
In your opinion do you think e-learning is beneficial?



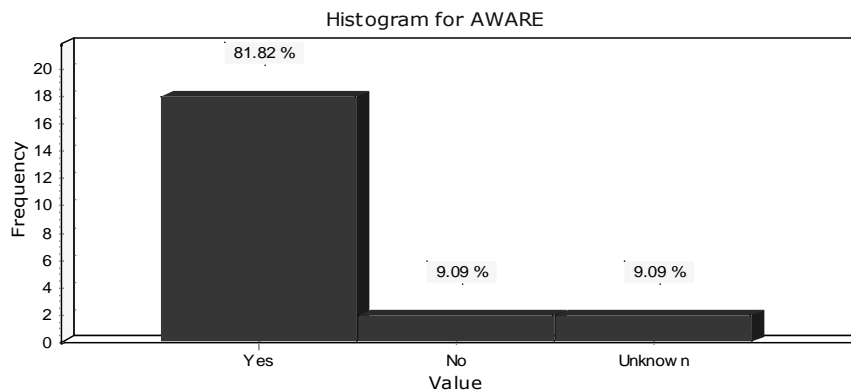
Frequency table 47:
In your opinion do you think e-learning is beneficial?

Value	N	%	Cum. %
Yes	21	95.45	95.45
Unknown	1	4.55	100.00
TOTAL	22	100.00	

Twenty one (21) of the respondents answered this question out of the total of twenty two (22) participants. All of the respondents agreed that e-learning was beneficial. This is the same as the pre-test/intervention responses were one hundred percent (100%) of the participants also agreed that e-learning would be beneficial (see histogram 23). This response is however different from that of student responses as some of them in them thought that an e-learning facility would not be beneficial (see histogram 6)

Histogram 52:

Are you aware of the e-learning programme that was implemented in the Faculty of Commerce, Law and Administration?



Frequency table 48:

The awareness of e-learning at Unizul

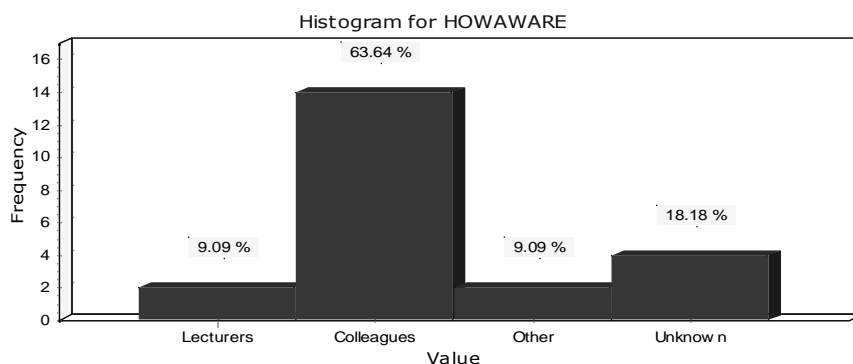
Value	N	%	Cum. %
Yes	18	81.82	81.82
No	2	9.09	90.91
Unknown	2	9.09	100.00
TOTAL	22	100.00	

Out of the twenty two (22) participants, twenty (20) responded to this question. Eighty two percent (82%) were aware of the e-learning programme that was implemented while the other nine percent (9%) were not aware. The pre-test/intervention for staff had revealed that seventy five percent (75%) knew about the e-learning programme had been implemented in the Faculty (See Histogram 24). From the student responses, it showed that only thirty four (34) percent of them knew about the e-learning programme that was implemented (see histogram 7). This is likely because organizational (institutional) structural changes are known by the staff members first before customers

(students) and when disseminating this information it might not reach the target audience.

Histogram 53:

If yes, how did you become aware of this programme?



Frequency table 49:

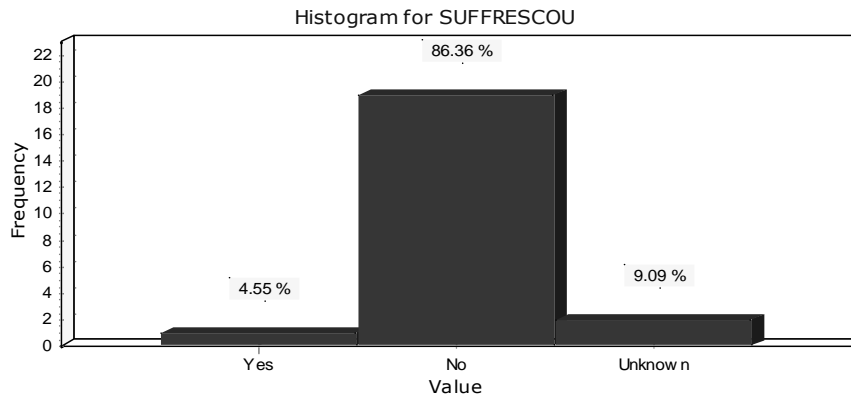
How they became aware

Value	N	%	Cum. %
Lecturers	2	9.09	9.09
Colleagues	14	63.64	72.73
Other	2	9.09	81.82
Unknown	4	18.18	100.00
TOTAL	22	100.00	

Eighteen (18) responded to this question. Sixty four (64%) became aware of the e-learning programme that was implemented through their colleagues. Nine percent (9%) found became aware of the e-learning programme through other lecturers and the other nine percent (9%) became aware through other sources. The other sources that made them aware of the programme was the presentation made in the Faculty of Commerce, Admission and Law Faculty Board Meetings by one of the E-learning Task team members.

Histogram 54:

Do you think students have sufficient resources to access this programme?



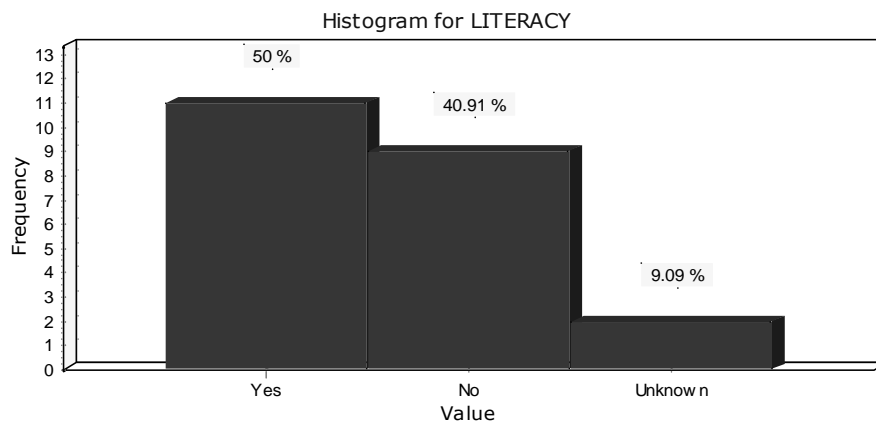
Frequency table 50:

Sufficient resources

Value	N	%	Cum. %
Yes	1	4.55	4.55
No	19	86.36	90.91
Unknown	2	9.09	100.00
TOTAL	22	100.00	

Twenty (20) out of twenty two (22) participants responded to this question. Eighty six percent (86%) do not think that students have sufficient resources to access the e-learning programme and the other five (5%) assume that students do have sufficient resources to access the programme. More staff members thought students do not have sufficient resources in this post test/intervention compared to the pre-test intervention with seventy one percent (71%) (See Histogram 26).

Histogram 55:
Are students computer literate enough to access the programme?



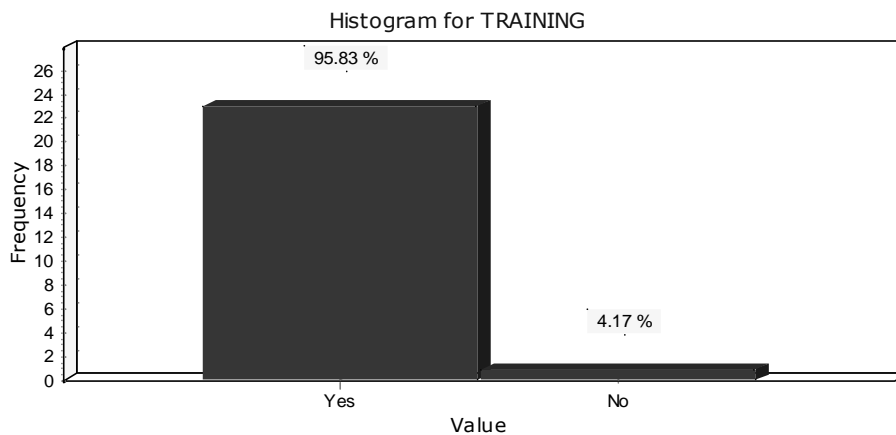
Frequency table 51:
Computer literacy of students

Value	N	%	Cum. %
Yes	11	50.00	50.00
No	9	40.91	90.91
Unknown	2	9.09	100.00
TOTAL	22	100.00	

Twenty (20) out of twenty two (22) participants responded to this question. Fifty percent (50%) think that students are computer literate enough to access the programme. On the other hand forty one percent (41%) think that students are not computer literate enough to access the programme. This is similar to both the students and staff pre-test/interventions where the majority of the participants thought that students are literate enough to access the programme (see histograms 10 and 27).

Histogram 56:

Do you think training on how to use the programme should be made available for both students and staff members?



Frequency table 52:

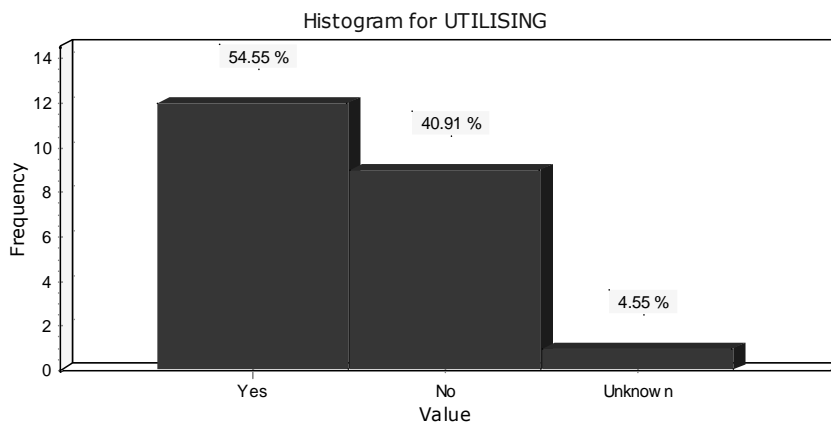
Training.

Value	N	%	Cum. %
Yes	20	90.91	90.91
No	1	4.55	95.45
Unknown	1	4.55	100.00
TOTAL	22	100.00	

Out of twenty two (22) participants twenty one (21) responded to this question. Ninety five percent (95%) think that training should be made available for both staff and students, and five percent (5%) does not think training is necessary. This result is similar with that the staff pre-test intervention where ninety six percent (96%) agreed that training was necessary (See Histogram 28).

Histogram 58

In your opinion, do you think lecturing staff are fully utilising this programme?



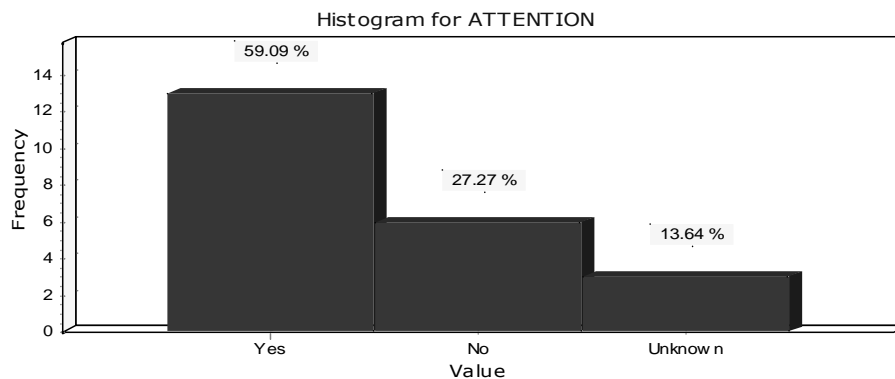
Frequency table 53:
Full utilisation of programme.

Value	N	%	Cum. %
Yes	12	54.55	54.55
No	9	40.91	95.45
Unknown	1	4.55	100.00
TOTAL	22	100.00	

Twenty one (21) out of twenty two (22) participants answered this question. Fifty seven percent (56%) think that lecturing staff are fully utilising the e-learning facility, while the other forty three percent (41%) were of the view that lecturing staff do not fully utilise these educational technologies. This is similar to the staff pre-test/intervention where fifty percent (50%) agreed that staff would fully utilise the facility (See Histogram 29).

Histogram 59:

Do you think lecturing staff are now able to focus more on giving individual attention to weaker students?



Frequency table 54:

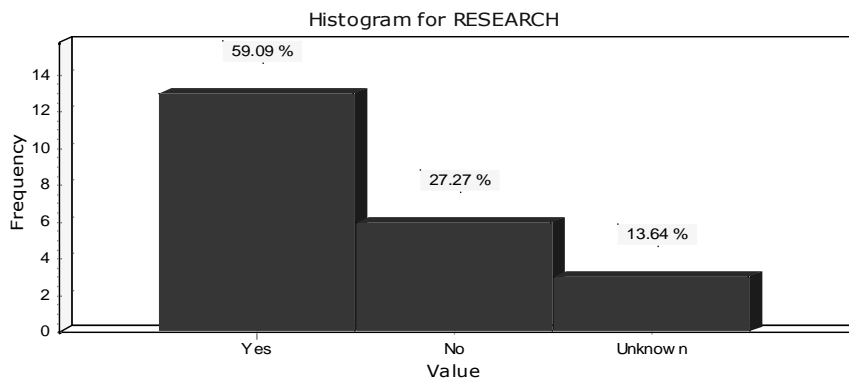
Attention to weaker students.

Value	N	%	Cum. %
Yes	13	59.09	59.09
No	6	27.27	86.36
Unknown	3	13.64	100.00
TOTAL	22	100.00	

Nineteen (19) out of twenty two (22) participants responded to this question. Fifty nine percent (59%) are of the view that lecturing staff are now giving more attention to weaker students, however twenty seven percent (27%) think otherwise. However, from the staff pre-test responses fifty percent (50%) thought that the introduction of such a facility would allow lecturing staff to concentrate more on their weaker students (See Histogram 30).

Histogram 60:

Do you think this programme is give lecturing staff ample time to do research?



Frequency table 55:

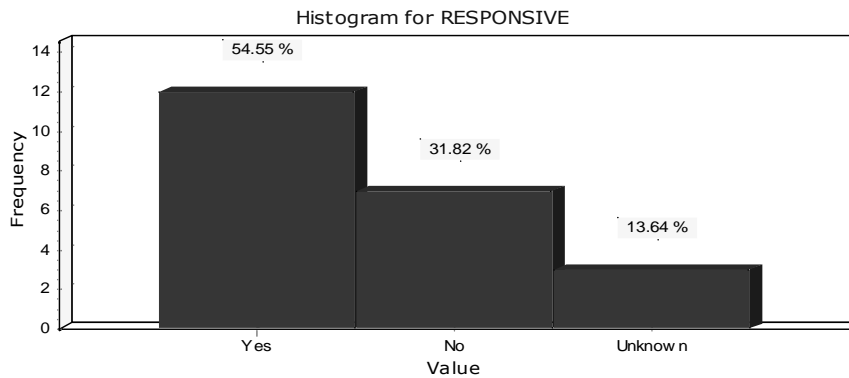
The availability of time for research

Value	N	%	Cum. %
Yes	13	59.09	59.09
No	6	27.27	86.36
Unknown	3	13.64	100.00
TOTAL	22	100.00	

Nineteen (19) out of twenty two (22) participants responded to this question. Fifty nine (59%) percent think that e-learning programme is giving lecturing staff ample time to conduct research, and the other twenty seven percent (27%) does not think that educational technologies are giving lecturing staff ample time to conduct research. Student participants agreed with this as seventy nine percent (79%) of respondents indicated that such an educational technology would give lecturing staff ample time to conduct research (See Histogram 14).

Histogram 61

Do you think students are more responsive to e-learning than traditional face-to-face learning?

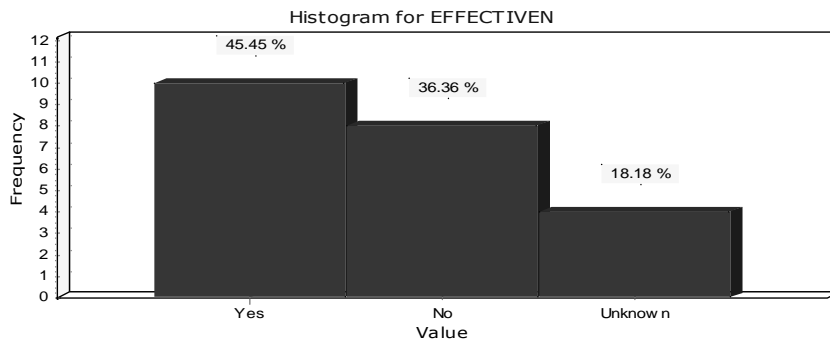


Frequency table 56:
Students responsiveness to e-learning.

Value	N	%	Cum. %
Yes	12	54.55	54.55
No	7	31.82	86.36
Unknown	3	13.64	100.00
TOTAL	22	100.00	

Nineteen (19) out of twenty two (22) respondents answered this question. Fifty five percent (55%) are of the idea that students are more responsive to e-learning than traditional face-to-face learning. Thirty two percent (32%) think that students are more responsive to face-to-face learning than e-learning. This is similar to the pre-test/intervention where fifty percent (50%) staff and fifty nine percent (59%) student participants agreed that students would be more responsive to e-learning than traditional face-to-face education (See Histogram 32 and Histogram 15).

Histogram 62:
Do you think e-learning programme is effective?



Frequency table 57:
Programme effectiveness.

Value	N	%	Cum. %
Yes	10	45.45	45.45
No	8	36.36	81.82
Unknown	4	18.18	100.00
TOTAL	22	100.00	

Forty five percent (45%) of respondents think that the e-learning programme is effective and thirty six percent (36%) percent do not think that the programme is effective so far. Eighteen (18), which is eighty three percent (83%) of the twenty two (22) participants responded to this question. There is a marked difference (22%) from the pre-test intervention for staff which is sixty seven percent (67%) agreeing that the e-learning programme would be effective (See Histogram 33).

4.11 Qualitative data questionnaire 1 – Lecturing staff (post test intervention)

Table 17:
Impact of e-learning in the Faculty

Theme	Number of respondents
Lack of communication	2
Benefits students	4
Research	1
Provision of resources and training	7
Infrastructure at Unizul	3
No response	5
Total	22

Five (5) participants did not answer this question and it is not clear why. About five themes were drawn from the responses participants were of the idea that University should provide sufficient resources and training for the programme to be successful. This is similar to the pre-test intervention for staff where forty two percent (42%) mentioned that there was need for more technological resources and infrastructure (See Table 35). Some stated that though the University may not have sufficient computers for all students they may provide wireless internet or a lab with internet port where students can go and sit and connect their laptops to access the intranet. Some suggested that the University may provide internet ports at student residences so that students may access internet at all times. Provision of training and resources would make the programme more effective. Some participants mentioned that the University's infrastructure must improve before the e-learning can become successful. In lecture halls computers and other support equipment have been installed but the equipment does not work most of the time. Some of the equipment has been stolen as well. Another common theme was that the programme was helping to improve learning especially for the slow students to catch up. This is because e-learning allows students

to learn at their own pace. Another theme that was drawn from the responses was that there was a lack of communication about the programme to staff and students from the responsible authorities. Respondents stated that the programme was implemented and they were not told officially but had to hear from their colleagues, and having to find their way around the programme has been a problem. Some of them have given up trying to use the programme. One (1) participant stated that in the long run research output may increase as educational technologies may cut down time for preparation for classes.

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CHAPTER 5: CONCLUSION

5.1 Introduction

The results from the pre and post questionnaires, staff questionnaire are discussed broadly terms of the study assumptions and results of interest. The study assumptions are:

- lecturing staff are unlikely to use e-learning programmes
- students will have a poor understanding of e-learning programmes

The qualitative results are also summarised and the analysis that is presented is underpinned by the above assumptions and findings of interest. In analysing the focus group data an endeavour will be made to examine if males and females perceive e-learning differently.

5.2 Discussion of quantitative pre- and post test staff and student surveys with reference to the study assumptions

The pre - and post-test interventions for students revealed that more than half of the respondents had never used an e-learning facility. All the respondents were first years from the Faculty of Commerce, Administration and Law, and basic computer modules are part of all first years curriculum. These computer literacy modules also allow students to download, for instance, assignments and upload them for marking. Results of this study therefore show that students have a poor understanding of what e-learning is, because the post-test questionnaire was sent out at the end of the academic year

and all first year students would have used e-learning at least in the computer modules not with the other modules. Furthermore the results reveal that lecturing staff are not using the e-learning facility though they knew that it was implemented. This could be because they thought that students would fail to cope with such a programme and would prefer traditional face-to-face teaching and learning methods.

These results underpin the study assumptions namely that lecturing staff are unlikely to use e-learning programmes and that students will have a poor understanding of e-learning programmes.

5.3 Discussion of the staff questionnaire with reference to the study assumptions

The results for the survey questionnaire that was sent to staff only reveal that most lecturing staff are not using the e-learning programme that was implemented (See Histogram 35). This supports the assumption that the lecturing staff are unlikely to use e-learning programmes. This could be because the implementation of the programme was not clearly communicated to them, or they did not receive any training on how to use the programme. It could also be that they do not feel motivated as they do not receive any incentives monetary or otherwise.

The few lecturers that use e-learning stated that most of the students respond badly while some have problems using the facility (See Histogram 36), this could be because students do not understand how the programme works, or that they did not have

sufficient training on how to go about using the programme. This appears to support the hypothesis that students have a poor understanding of e-learning. It could be that students might not understand educational technologies because of the general background of the students at Unizul, many of them are from rural homes and rural schools where they have not been exposed to computers or modern learning technologies. It seems that the programme was not well communicated or explained to them either and training in the use of the e-technology is lacking.

5.4 Discussion of Focus Group results with reference to whether males and females perceive e-learning differently

Two of the three females in who participated in the focus group were unsure of what exactly e-learning is. One thought that it was utilised only for long-distance learning. When an enquiry was made about the groupsqexperience of e-learning two of the females made no contribution, although the other said she found it interesting. Comments by male and female members were generally similar however, female participants tended to be more unenthusiastic. It is notable that when asked what advantages e-learning will offer one female commented that students may fear it as it decreases face-to-face communication (lecturing) and another commented that it would not have any advantages if there were not enough computers. As the focus group was comprised of six students it is difficult to take a broad view of any findings. However, in this group a general observation underpinned by an analysis of answers to the questions, is that the three males and one of the females seemed to perceive e-learning in a positive manner and two of the females in a less positive manner.

5.5 General summary of study results

The results generally reveal that most female students are older than the male students, while there are more male lecturers than female lecturers and most of the lecturing staff are full time staff members (See Table 3). The majority of the students and staff are black. This is a true reflection of the population structure of Unizulu's students and staff members.

There is need for letting all stakeholders know when a new technological facility is introduced in an organisation for it to be a success. In the case of Unizul the e-learning programme was implemented and was only communicated to lecturing staff in the Faculty Board meeting and the information failed to disseminate to students. Lecturers would have talked about the programme in class or have notices pasted on notice boards for students to see. Though staff knew about the programme they do not use the facility for their classes (Histogram 34). The few lecturing staff that use the e-learning programme use it mainly for giving their students study material. Because the modules are not computer based modules, the few lecturers that use it cannot give assessments via e-learning. Lecturing staff that do use the programme stated that the greatest benefit from the programme was that it enables students to learn at their own pace (See Table 9). The benefits outweigh the barriers, hence, and the greatest barrier to this programme is lack of awareness of technical training (See Table 10). Training students and staff on how to use the programme is also of pertinent importance, because though lecturing staff know about the programme, they are reluctant to use it because they claim students have problems finding their way around it. Lecturing staff that are not

using the programme revealed that they would like to introduce educational technologies to their programme deliveries (See Histogram 37) and would like to use the programme especially for providing general course information as well as providing study material to their students (Table 13). Both students and lecturing staff in the pre and post test intervention thought that an e-learning facility would be beneficial (See Histograms 6, 23, 39 and 51), even though most of the students in both pre and post test intervention have never used an e-learning programme ever.

Before the programme started running students both students and staff thought that the programme would be effective, but a year later after the programme was introduced, staff still thought it was an effective programme though students did not think it was effective (See Histograms 33 and 62). Both lecturing staff and students in the pre and post intervention revealed that they would be more responsive to e-learning than traditional face-to-face learning (See Histograms 15, 32, 48 and 61). This could be because both students and lecturing staff want to have other ways in which there can be teaching and learning that can improve the pass rate. Both students and lecturing staff in the pre and post evaluation indicated that the educational technologies would allow them to conduct more research, as well as give the lecturing staff more (ample) time to focus on weaker students as it is naturally believed that technology is invented to make ways of doing things easier. However, a few lecturing staff thought that the e-learning programme would add to their workload and therefore decided not to use it. This could be because they need a monetary incentive for them to use the programme.

5.6 Conclusion

Robbins, Odendaal and Roodt (2003) note that there are six (6) specific forces that can make an organisation change. These forces are the nature of the workplace, technology, economic shocks, competition, social trends and world politics. Technology was listed as one of the major forces that can effect change in an organisation; specific elements of technology are the availability of faster and cheaper computers, Total Quality Management (TQM) programmes, as well as re-engineering some programmes. Technology actually affects the rest of the factors one way or the other. Contemporary tertiary institutions are organisations that operate in a manner similar to business organisations and should also keep abreast with technological changes in the marketplace. E-learning is a technological tool that is being used by academic institutions to keep up with competition in the global environment. Like all the other forces that stimulate change in an organisation technological programmes have to be monitored. This happens so that the management of academic institutions or training departments can see if they are operating at global standards.

New electronic technologies are largely reshaping the way organisations communicate and the way the business is run the same can be said for tertiary institutions. Electronic communications make it unnecessary for employees to be physically available at their desk or workstation. Similarly, e-learning does not need a student and lecturer to be physically present (in the same place and at the same time) for learning to take place.

The sample of Unizul students in the present study thought that e-learning would benefit them even before the programme was implemented. There could be a number of reasons for this. One could be that they find it easy to use computers and access information generally through search engines such as Google. E-learning interventions could be considered an extension to this type of computer use. Some students may prefer e-learning because they are afraid of one on one consultation with their lecturers. These students would support e-learning as it would allow them to consult with lecturers indirectly by sending their questions to the lecturer through the e-learning programme. It may also be that students are happy to use e-technologies as they are able to go over the course work repeatedly, until they understand it, without necessarily seeing or consulting the lecturer involved (See Tables 1, 15, and 17).

It must be noted that in an ideal situation lecturing staff in the Faculty of Commerce, Administration and Law, will benefit from e-learning programmes at Unizul as the average class size is large, up to eight hundred (800) students per module (See Table 16). E-learning will thus help the lecturer as he or she can post replies to queries or questions on the e-learning site for all to see. Students would only have to consult face-to-face with lecturers if he or she had a unique problem.

In the pre-test questionnaire the sample of students reported knowing what e-learning is. The questionnaire revealed that most had never used an e-learning facility before. However, when the post test intervention was conducted many of the respondents had

been in contact with some form of e-learning because they had enrolled for some practical computer modules which used the e-learning intervention.

Although lecturing staff had to let the students know about the programme it was apparent from the results that this did not always happen. It is likely that many staff members were not informed about the programme themselves. In the post test survey many of the lecturers in the sample reported to knowing what e-learning is. At least half of them had never used the e-learning facility even though it had been implemented and had been running for over a year when the post test intervention was conducted (See Histogram 50). If the institution had taken the initiative of training the staff in e-learning when the programme was implemented, it is more likely that the staff would have started using the intervention. It follows that if staff made use of the intervention then students would also be obliged to use it. For instance, if a lecturer posted assignments and quizzes for students to download on the e-programme and gave dates when these assignments had to be uploaded (so they could be marked), and indicated that feedback would be posted on the programme students would have to familiarize themselves with the e-learning intervention.

The greatest barrier to the successful delivery of the e-learning programme at Unizul's Faculty of Commerce, Administration and Law was lack of training in e-learning initiatives and lack of communication about the implementation of the programme plus general lack of resources. The implementation of the e-learning programme was not communicated to the students in an appropriate manner. Many respondents noted that

they did not know about it even though it is likely that some had used the programme (during computer classes). It is important that when an e-learning programme is implemented information must be delivered to all the stakeholders.

Verbal communication is the manner in which the implementation of the programme was communicated to students. It appears that many students and staff members did not receive any verbal communication from the official parties. It seems that the only way that many students and staff could have known about the e-learning programme is through unofficial verbal communication or the grapevine. Verbal communication, unless all parties are reached in a methodological process, is ineffective. A proper process that used verbal and written communication about the e-learning intervention should have been used. For communication to be successful feedback is important, particularly when new technologies are going to be deployed. This is because it can be difficult for individuals to accept change, they may even resist it. It is possible that lecturing staff did not try to use the programme on their own because of fear of the unknown. They had no idea, or were not given reasons, as to why the programme was being implemented. It is likely that some thought that the programme would add to their workload, when in essence it was implemented to make their workload more tolerable. It is true that the first stages of any e-learning intervention would require staff to spend a little more time designing their courses but after uploading the content it would only require annual updates to keep the content contemporary and relevant.

Contemporary business practice tries to save natural resources. An interesting point, ecologically speaking, is that e-learning technologies cut down on the use of paper. This, in the long term, reduces deforestation. Educational technologies help ecological imperatives by reducing the number of textbooks and paper handouts that each student needs. Unizul should provide sufficient resources for students to have access to the intervention (See Histogram 9, 26, 42 and 54). Insufficient resources makes it problematic for Unizul to disseminate information from the lecturer to the student, hence paper handouts are still given to students. Students still submit hard copies of their assignments which could be done electronically if e-learning was implemented properly.

The results of the study as noted in the previous chapter indicate that the Faculty of Commerce, Law and Administration at Unizul has to overcome many challenges before it can successfully implement a technological intervention such as e-learning. The atmosphere and environment for change has to be right before such technologies can be implemented. E-learning at the institution is therefore not fully operational and there are clearly many problems that need to be overcome before it becomes an integral part of the educational mix at Unizul. These problems include communication, training and better and more up-dated technological facilities.

CHAPTER 6: RESEARCH EVALUATION AND RECOMMENDATIONS

6.1 Introduction

The research was carried out in a manner consistent with quantitative and qualitative techniques used in the business sciences. Ethical procedures a rigorous process was used in designing, analysing and reporting the research findings. The methodological weakness and strengths of the study are reported below as are recommendation for future research.

6.2.1 Research Evaluation methodological strengths of the study

- a) The study used a random sample for quantitative pre and post test surveys which allowed the use of inferential statistics
- b) Descriptive statistics painted a clear picture which facilitates easy understanding of the results.
- c) Both qualitative and quantitative research tools were used which is consistent with triangulation which gives a broader picture of the phenomena under investigation.
- d) The study was conducted pre and post the intervention of the e-learning programme and took place over a period of twelve months which gave ample time to evaluate its success.
- e) The use of a focus group allowed student participants to air their views and share their experiences around e-learning.

6.2.2 Research Evaluation – methodological weaknesses of the study

- a) The study sample was drawn from a single faculty it may be that this could bias results.
- b) A focus group aimed at staff members as well as students would have gleaned more information on staff members' thoughts and feelings about e-learning.
- c) Although the questionnaires were fit for purpose however, a more rigorous attempt to find questionnaires previously used in research in South Africa would likely have been more appropriate.
- d) The student sample was random and inferential statistics were used on appropriate data however, the survey questionnaires could have been adapted so that likert type scale questions (interval data) were used which would have yielded more significant results (and comparison of means).
- e) The use of several focus groups both pre and post intervention would have gleaned a broader picture of whether male and female participants perceived e-learning differently.

6.3 Recommendations for future research

Recommendations for future research at Unizul and elsewhere include:

- a) investigations into stakeholders' participation in e-learning programme implementation;
- b) research into how to effectively communicate the implementation of e-learning at tertiary institutions;

- c) investigations into whether there is a relationship between lecturing staff's motivation to use e-learning programmes and students' willingness to use such programmes should be conducted;
- d) It is necessary to conduct research on the impact (if any) of modern learning technologies at all educational facilities for instance, rural and urban schools

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Annexure 1 – Mobile Learning Devices

Notebook computers



Tablet Personal Computer



Personal Digital Assistants



Cell phones



Smart phones



Appendix 1

Medunsa E-learning intervention.

DATE	DAY	TIME	COURSE	TIME	COURSE	TIME	COURSE	TIME
5-Jan	Monday							
6-Jan	Tuesday							
7-Jan	Wednesday							
8-Jan	Thursday							
9-Jan	Friday							
12-Jan	Monday							
13-Jan	Tuesday	08:00-12:00	BPharm (4th years)					
14-Jan	Wednesday							
15-Jan	Thursday							
16-Jan	Friday							
19-Jan	Monday							
20-Jan	Tuesday							
21-Jan	Wednesday			12:00-13:00	PRACTICAL			
22-Jan	Thursday							
23-Jan	Friday							
26-Jan	Monday	09:00-10:30	SWT 1 Mod 2.1					
27-Jan	Tuesday							
28-Jan	Wednesday							
29-Jan	Thursday							
30-Jan	Friday							
2-Feb	Monday							
3-Feb	Tuesday							
4-Feb	Wednesday			10:30-12:00	Psychology	13:00-14:30	Psychology	
5-Feb	Thursday							
6-Feb	Friday	08:00-11:00	Test 1					
9-Feb	Monday	08:00-11:00	PRACTICAL (B Cur 1 SPLA 1)	11:30-12:55	CAE-BScA	13:00-14:00	CAE Extra Lesson	14:00-15:25
10-Feb	Tuesday	07:45-09:55	CAE - BDT/DOH BRAD			13:00-14:00	CAE Extra Lesson	14:00-15:25
11-Feb	Wednesday	08:30-0955	CAE-Bcur	10:45-12:10	CAE-BScB	13:00-14:00	CAE Extra Lesson	12:15-12:55
12-Feb	Thursday			10:00-13:00	CAE Extra Lesson	14:00-16:00	MBCHB 11 (PRAC BLOC B OT11 / B Physio 11	
13-Feb	Friday	07:45-10:00	PRACTICAL (B Cur 1 SPLA 1)	11:00-13:00	B OT1 / B Physio 11	13:00-15:00	B Physio 11	14:00-16:00

16-Feb	Monday	09:00-10:30	EOM 2.1					13:00-14:00	CAE Extra Lesson	14:00-15:25
17-Feb	Tuesday	07:45-09:10	CAE-BTD/DOH BRAD	10:10-12:45	Bpharm			13:00-14:00	CAE Extra Lesson	14:00-15:25
18-Feb	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	CAE Extra Lesson	12:15-12:55
19-Feb	Thursday			10:00-13:00	13:00-14:00	CAE Extra Lesson	14:05-16:00		MBCHB 11 (PRAC BLOCK)	
20-Feb	Friday	08:00-09:30	BPharm 2, MOD 2.2 ANS Test	11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson	
23-Feb	Monday	07:45-08:45	CAE-BDT/DOH BRAD	12:15-13:00	ICT Comp Literacy			13:00-14:00	CAE Extra Lesson	14:00-15:55
24-Feb	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	CAE Extra Lesson	14:00-15:25
25-Feb	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	CAE Extra Lesson	12:15-12:58
26-Feb	Thursday			10:00-13:00	13:00-14:00	CAE Extra Lesson	14:05-16:00		MBCHB 11 (PRAC BLOCK)	
27-Feb	Friday			11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson	
2-Mar	Monday	09:15-10:40	CAE BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	CAE Extra Lesson	14:00-15:55
3-Mar	Tuesday	07:45:09:10	CAE-BDT/DOH BRAD					13:00-14:00	CAE Extra Lesson	14:00-15:25
4-Mar	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	CAE Extra Lesson	12:15-12:58
5-Mar	Thursday	08:00-10:00	BPharm 2, MOD 2.2 Short Test 1	10:00-13:00	13:00-14:00	CAE Extra Lesson	14:05-16:00		MBCHB 11 (PRAC BLOCK)	
6-Mar	Friday	08:00-11:00	SWT Mod 4.1	11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson	
9-Mar	Monday	09:15-10:40	CAE BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	CAE Extra Lesson	14:00-15:55
10-Mar	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD	09:15-12:15	EOM 4.1			13:00-14:00	CAE Extra Lesson	14:00-15:25
11-Mar	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	CAE Extra	12:15-12:58

										Lesson	
12-Mar	Thursday	08:00-10:00	Test (B Cur1 and SPLA 1)	10:00-13:00	13:00-14:00	MBCHB 11	14:00-16:00	MBCHB 11 (Test BLOCK			
13-Mar	Friday	09:00-11:00	MOD 4.1 - EOM	11:30-13:00		B OT1 / B Physio 11	13:00-15:00	B OT1 / B Physio 11			
16-Mar	Monday	09:15-10:40	CAE BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	Extra Lesson	14:00-15:55		
17-Mar	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	Extra Lesson	14:00-15:25		
18-Mar	Wednesday	08:30-09:55	CAE-Cur BSc (Diet)	10:45-12:10	CAE-BScB		13:00-14:00	Extra Lesson	12:15-12:58		
19-Mar	Thursday	08:30-10:00	IV:Ipilinfo demo	10:00-11:25	13:00-14:00	CAE Extra Lesson	14:00-16:00				
20-Mar	Friday	08:30-10:00	BSc (Diet) II: FoodFinder	11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson			
23-Mar	Monday	08:00-10:00	Bpharm 2, MOD 2.2 Short Test 2	10:00-11:25	13:00-14:00	CAE Extra Lesson	14:00-15:55	CAE-OT			
24-Mar	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	Extra Lesson	14:00-15:25		
25-Mar	Wednesday	08:30-09:10	CAE-Cur	10:45-12:10	CAE-BScB		13:00-14:00	Extra Lesson	12:15-12:58		
26-Mar	Thursday			10:00-11:25	13:00-14:00	CAE Extra Lesson	14:00-16:00				
27-Mar	Friday	08:00-11:00	Test 2 (BDS 2 ANT	11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson			
30-Mar	Monday	09:15-10:40	CAE BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	Extra Lesson	14:00-15:55		
31-Mar	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	Extra Lesson	14:00-15:25		
1-Apr	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB		13:00-14:00	Extra Lesson	12:15-12:58		
2-Apr	Thursday			10:00-11:25	BSc Diet II		13:00-14:00	Extra Lesson	14:00-15:55		
3-Apr	Friday			11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson			
6-Apr	Monday	09:15-10:40	CAE BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	Extra Lesson	14:00-15:55		
7-Apr	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	CAE	14:00-15:25		

								14:00	Extra Lesson CAE	15:25
8-Apr	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson CAE	12:15-12:58
9-Apr	Thursday	08:00-10:00	Test (B Cur1 and SPLA 1)					13:00-14:00	Extra Lesson	14:00-1
10-Apr	PUBLIC HOLIDAY									
13-Apr	PUBLIC HOLIDAY									
14-Apr	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD	10:00-13:00	13:00-14:00	CAE Extra Lesson	14:00-15:25	CAE - Speech CAE		
15-Apr	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson CAE	12:15-12:58
16-Apr	Thursday	08:30-11:30	BPharm 2, MOD 2.2 EOM Assessment MOD 4.2 SWT					13:00-14:00	Extra Lesson	14:00-1
17-Apr	Friday	08:00-11:00	1	11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson CAE	
20-Apr	Monday	09:15-10:40	CAE BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	Extra Lesson CAE	14:00-15:55
21-Apr	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	Extra Lesson CAE	14:00-15:25
22-Apr	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson CAE	12:15-12:58
23-Apr	Thursday			11:30-12:55	CAE-BRAD			13:00-14:00	Extra Lesson	14:00-1
24-Apr	Friday							13:00-14:00	CAE Extra Lesson	
27-Apr	PUBLIC HOLIDAY									
28-Apr	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	CAE Extra Lesson	14:00-15:25
29-Apr	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson CAE	12:15-12:58
30-Apr	Thursday							13:00-14:00	Extra Lesson	14:00-1
1-May	PUBLIC HOLIDAY									
4-May	Monday	09:15-10:40	CAE BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	CAE Extra	14:00-15:55

									Lesson CAE		
5-May	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	Extra Lesson CAE	14:00-15:25	
6-May	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson CAE	12:15-12:58	
7-May	Thursday			10:00-13:00	13:00-14:00	CAE Extra Lesson	14:05-16:00		MBCHB 11 PRACT BLOCK		
8-May	Friday	08:30-09:30	MOD 2.3 Quiz (Pharmacy)	11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson CAE		
11-May	Monday	08:00-11:00	MOD 4.2 SWT 2	12:15-13:00	ICT Comp Literacy			13:00-14:00	Extra Lesson CAE	14:00-15:55	
12-May	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD	09:30-11:00	SWT 1 (Pharmacy)			13:00-14:00	Extra Lesson CAE	14:00-15:25	
13-May	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson CAE	12:15-12:58	
14-May	Thursday							13:00-14:00	Extra Lesson CAE	14:00-15:25	
15-May	Friday			11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson CAE		
18-May	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	Extra Lesson CAE	14:00-15:55	
19-May	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	Extra Lesson CAE	14:00-15:25	
20-May	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson CAE	12:15-12:58	
21-May	Thursday			10:00-13:00	13:00-14:00	CAE Extra Lesson	14:05-16:00		MBCHB 2 PRACT BLOCK		
22-May	Friday			11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson CAE		
25-May	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	Extra Lesson CAE	14:00-15:55	
26-May	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	Extra Lesson CAE	14:00-15:25	
27-May	Wednesday	08:30-09:55/08:00-13:00	CAE-Cur / MOD 4.2 - EOM	10:45-12:10 / 08:00-13:00	13:00-14:00	CAE Extra Lesson	12:15-12:58	CAE - PHYS	15:30-16:55	CAE	

28-May	Thursday	08:00-10:00	Test (B Cur1 and SPLA 1)	10:00-13:00	13:00-14:00	CAE Extra Lesson	14:05-16:00	MBCHB 2		
29-May	Friday	08:00-11:00	Test 3 (BDS11 ANAT)	11:30-12:55		CAE-BRAD		13:00-14:00	CAE Extra Lesson	
1-Jun	Monday	09:15-11:30	Test (SPLA 111 ANT)	12:15-13:00		ICT Comp Literacy		13:00-14:00	Extra Lesson	14:00-15:55
2-Jun	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD	09:15-13:00		MOD 4.2 - EOS 1		13:00-14:00	Extra Lesson	14:00-15:25
3-Jun	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10		CAE-BScB		13:00-14:00	Extra Lesson	12:15-12:58
4-Jun	Thursday			10:00-11:30	13:00-14:00	CAE Extra Lesson	14:05-16:00	MBCHB 2	PRACT BLOCK	
5-Jun	Friday			12:55		CAE-BRAD		14:00	CAE Extra Lesson	
8-Jun	Monday	09:15-10:40	CAE-BScA	12:15-13:00		ICT Comp Literacy		13:00-14:00	Extra Lesson	14:00-15:55
9-Jun	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	Extra Lesson	14:00-15:25
10-Jun	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10		CAE-BScB		13:00-14:00	Extra Lesson	12:15-12:58
11-Jun	Thursday			10:00-13:00	13:00-14:00	CAE Extra Lesson				
12-Jun	Friday	08:00-10:00	MBCHB 11	10:00-13:00	13:00-14:00	MBCHB 11	14:00-16:00	MBCHB 2	CAE	
15-Jun	Monday	09:15-10:40	CAE-BScA	12:15-13:00		ICT Comp Literacy		13:00-14:00	Extra Lesson	14:00-15:55
16-Jun	PUBLIC HOLIDAY									
17-Jun	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10		CAE-BScB		13:00-14:00	Extra Lesson	12:15-12:58
18-Jun	Thursday	08:30-11:30	EOM (Pharmacy)					13:00-14:00	CAE Extra Lesson	
19-Jun	Friday			11:30-12:55		CAE-BRAD		13:00-14:00	CAE Extra Lesson	
22-Jun	Monday	09:15-10:40	CAE-BScA	12:15-13:00		ICT Comp Literacy		13:00-14:00	Extra Lesson	14:00-15:55
23-Jun	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	Extra Lesson	14:00-15:25
24-Jun	Wednesday	08:30-09:55	CAE-Cur	10:45-		CAE-BScB		13:00-	CAE	12:15-

				12:10			14:00	Extra Lesson CAE	12:58
25-Jun	Thursday	08:00-10:00	Test (B Cur1 and SPLA 1)	11:30-12:55			13:00-14:00	Extra Lesson CAE	14:00-1
26-Jun	Friday			12:15-13:00	CAE-BRAD		14:00	CAE Extra Lesson CAE	
29-Jun	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	Extra Lesson CAE	14:00-15:55
30-Jun	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	Extra Lesson CAE	14:00-15:25
1-Jul	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB		13:00-14:00	Extra Lesson CAE	12:15-12:58
2-Jul	Thursday						13:00-14:00	Extra Lesson CAE	14:00-1
3-Jul	Friday			11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson CAE	
6-Jul	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	Extra Lesson CAE	14:00-15:55
7-Jul	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	Extra Lesson CAE	14:00-15:25
8-Jul	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB		13:00-14:00	Extra Lesson CAE	12:15-12:58
9-Jul	Thursday						13:00-14:00	Extra Lesson CAE	14:00-1
10-Jul	Friday			11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson CAE	
13-Jul	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	Extra Lesson CAE	14:00-15:55
14-Jul	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	Extra Lesson CAE	14:00-15:25
15-Jul	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB		13:00-14:00	Extra Lesson CAE	12:15-12:58
16-Jul	Thursday	PUBLIC HOLIDAY							
17-Jul	Friday			11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson CAE	
20-Jul	Monday	09:15-10:40	CAE-BScA	12:15-	ICT Comp Literacy		13:00-	CAE	14:00-

				13:00		14:00	Extra Lesson CAE	15:55
21-Jul	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD			13:00-14:00	Extra Lesson CAE	14:00-15:25
22-Jul	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB	13:00-14:00	Extra Lesson CAE	12:15-12:58
23-Jul	Thursday					13:00-14:00	Extra Lesson	14:00-15:25
24-Jul	Friday			11:30-12:55	CAE-BRAD	13:00-14:00	CAE Extra Lesson CAE	14:00-15:25
27-Jul	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy	13:00-14:00	Extra Lesson CAE	14:00-15:55
28-Jul	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD			13:00-14:00	Extra Lesson CAE	14:00-15:25
29-Jul	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB	13:00-14:00	Extra Lesson CAE	12:15-12:58
30-Jul	Thursday					13:00-14:00	Extra Lesson	14:00-15:25
31-Jul	Friday			11:30-12:55	CAE-BRAD	13:00-14:00	CAE Extra Lesson CAE	14:00-15:25
3-Aug	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy	13:00-14:00	Extra Lesson CAE	14:00-15:55
4-Aug	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD			13:00-14:00	Extra Lesson CAE	14:00-15:25
5-Aug	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB	13:00-14:00	Extra Lesson CAE	12:15-12:58
6-Aug	Thursday					13:00-14:00	Extra Lesson	14:00-15:25
7-Aug	Friday			11:30-12:55	CAE-BRAD	13:00-14:00	CAE Extra Lesson CAE	14:00-15:25
10-Aug	PUBLIC HOLIDAY							
11-Aug	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD			13:00-14:00	Extra Lesson CAE	14:00-15:25
12-Aug	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB	13:00-14:00	Extra Lesson	12:15-12:58

13-Aug	Thursday							13:00-14:00	CAE Extra Lesson	
14-Aug	Friday			11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson	
17-Aug	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	Extra Lesson	14:00-15:55
18-Aug	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	Extra Lesson	14:00-15:25
19-Aug	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson	12:15-12:58
20-Aug	Thursday	08:00-10:00	Test (B Cur1 and SPLA 1)					13:00-14:00	Extra Lesson	14:00-15:55
21-Aug	Friday			11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson	
24-Aug	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	Extra Lesson	14:00-15:55
25-Aug	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD	10:00-13:00	13:00-14:00	CAE Extra Lesson	14:00-16:00	MBCHB 2 CAE		
26-Aug	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson	12:15-12:58
27-Aug	Thursday			10:00-13:00	13:00-14:00	CAE Extra Lesson	14:00-16:00	MBCHB 2 PRACT BLOCK		
28-Aug	Friday	08:00-11:00	BDS 11	11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson	
30-Aug	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	Extra Lesson	14:00-15:55
1-Sep	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	Extra Lesson	14:00-15:25
2-Sep	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB			13:00-14:00	Extra Lesson	12:15-12:58
3-Sep	Thursday	08:00-11:00	BDS 11	11:00-13:00	BDS 11			13:00-14:00	CAE Extra Lesson	
4-Sep	Friday			11:30-12:55	CAE-BRAD			13:00-14:00	CAE Extra Lesson	
7-Sep	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy			13:00-14:00	Extra Lesson	14:00-15:55
8-Sep	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD					13:00-14:00	CAE Extra	14:00-15:25

								Lesson	
				10:45-			13:00-	CAE	
9-Sep	Wednesday	08:30-09:55	CAE-Cur	12:10	CAE-BScB		14:00	Extra Lesson	12:15-12:58
10-Sep	Thursday	08:00-11:00	BDS 11	11:00-13:00	BDS 11		13:00-14:00	CAE Extra Lesson	
11-Sep	Friday			11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson	
14-Sep	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	CAE Extra Lesson	14:00-15:55
15-Sep	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	CAE Extra Lesson	14:00-15:25
16-Sep	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB		13:00-14:00	CAE Extra Lesson	12:15-12:58
17-Sep	Thursday	08:00-10:00	Test (B Cur1 and SPLA 1)	10:00-13:00	13:00-14:00	MBCHB 11	14:00-16:00	MBCHB 11	
18-Sep	Friday			11:00-13:00	B OTI / B Physio 11		13:00-14:00	CAE Extra Lesson	
21-Sep	Monday	09:15-11:30	Test (SPLA 111 ANT)	12:15-13:00	ICT Comp Literacy		13:00-14:00	CAE Extra Lesson	14:00-15:55
22-Sep	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD	10:00-13:00	13:00-14:00	CAE Extra Lesson	14:00-16:00	MBCHB 11	
23-Sep	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB		13:00-14:00	CAE Extra Lesson	12:15-12:58
24-Sep	PUBLIC HOLIDAY								
25-Sep	Friday	08:00-10:00	Test Additional (B Cur 1 SPLA)	11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson	
28-Sep	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	CAE Extra Lesson	14:00-15:55
29-Sep	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD				13:00-14:00	CAE Extra Lesson	14:00-15:25
30-Sep	Wednesday	08:30-09:55	CAE-Cur	10:45-12:10	CAE-BScB		13:00-14:00	CAE Extra Lesson	12:15-12:58
1-Oct	Thursday						13:00-14:00	CAE Extra Lesson	
2-Oct	Friday			11:30-12:55	CAE-BRAD		13:00-14:00	CAE Extra Lesson	
5-Oct	Monday	09:15-10:40	CAE-BScA	12:15-13:00	ICT Comp Literacy		13:00-14:00	CAE Extra Lesson	14:00-15:55

								Lesson		
6-Oct	Tuesday	07:45-09:10	CAE-BDT/DOH BRAD	10:00- 13:00	13:00- 14:00	CAE Extra Lesson	14:00- 16:00	MBCHB 11 CAE		
7-Oct	Wednesday	08:30-09:55	CAE-Cur	10:45- 12:10	CAE-BScB		13:00- 14:00	Extra Lesson	12:15- 12:58	

Appendix 2:

Questionnaire 1

Research Project

UNIVERSITY OF ZULULAND

Faculty of Commerce, Administration and Law

I am a master's student in the Department of Business Management doing a research project on, e-learning and its impact on students and lecturing staff of the Faculty of Commerce, Law and Administration. My supervisor is Dr. K. Nel in the Department of Industrial Psychology and co-supervisor is Mr. J. Cloete in the Department of Business Management. The findings of this research project will be presented as a dissertation in the fulfillment of a Masters Degree in Business Management. The permission to conduct this research was obtained from the Dean of the Faculty. All respondents will remain anonymous; information gathered from them will be confidential as the questionnaire will not require participants to identify themselves. The filled in questionnaires should be put in the envelope supplied and placed in a box provided at Deans Personal Assistants office. Student respondents may also return the questionnaires as soon as they are completed as they will be given in class and collected immediately after. Questionnaires will be collected on the 14th of May 2008.

Supervisor

Researcher

Please mark the appropriate box with an (X)

Section A

1. Gender Male ☐ Female ☐

2. Age

16 . 20	<input type="checkbox"/>
21 . 25	<input type="checkbox"/>
26 . 30	<input type="checkbox"/>
31 . 35	<input type="checkbox"/>
36 . 40	<input type="checkbox"/>
41 . 45	<input type="checkbox"/>
46 . 50	<input type="checkbox"/>
51 . 55	<input type="checkbox"/>
56 and above	<input type="checkbox"/>

3. Ethnic group

Black	<input type="checkbox"/>
White	<input type="checkbox"/>
Indian	<input type="checkbox"/>
Coloured	<input type="checkbox"/>

4. **For students only.** Level of study

1 st year	<input type="checkbox"/>
2 nd year	<input type="checkbox"/>
3 rd year	<input type="checkbox"/>
4 th year	<input type="checkbox"/>
Post Graduate	<input type="checkbox"/>

5. **For Staff members only.**

<i>Title</i>		<i>Rank</i>	
Miss	<input type="checkbox"/>	Head of Department	<input type="checkbox"/>
Dr	<input type="checkbox"/>	Senior Lecturer	<input type="checkbox"/>
Mrs	<input type="checkbox"/>	Lecturer	<input type="checkbox"/>
Mr	<input type="checkbox"/>	Junior Lecturer	<input type="checkbox"/>
Prof	<input type="checkbox"/>		

6. Which department are you in?

Accounting and Auditing

Business Management

Economics

Industrial Psychology

Political Science & Public Administration

Law

Section B

7. Have you ever used any e-learning facility?

Yes ☐

No ☐

8. If yes, where? õ õ õ õ õ õ õ õ õ õ õ õ õ ..

9. In your opinion do you think e-learning is beneficial?

Yes ☐

No ☐

10. Are you aware of the e-learning programme that is to be implemented in the Faculty of Commerce, Law and Administration?

Yes ☐

No ☐

11. If yes, how did you become aware of this programme? Through

Friends

Lecturers

Colleagues

Other specify õ õ õ õ õ õ õ õ õ õ õ ..

12. Do you think students have sufficient resources to access this programme?

Yes

☐

No

☐

13. Will students be computer literate enough to access the programme?

Yes

☐

No

☐

14. Do you think training on how to use the programme should be made available for both students and staff members?

Yes ☐

No ☐

15. In your opinion, do you think lecturing staff will fully utilise this programme?

Yes ☐

No ☐

16. Do you think lecturing staff will be able to focus more on giving individual attention to weaker students?

Yes ☐

No ☐

17. Do you think this programme will give lecturing staff ample time to do research?

Yes ☐

No ☐

18. Do you think students will be more responsive to e-learning than traditional face-to-face learning?

Yes ☐

No ☐

19. Do you think e-learning programme will be effective?

Yes ☐

No ☐

20. In your own words what do you think will be the impact of the e-learning programme on the Faculty of Commerce, Administration and Law?

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Appendix 3

Focus Group Questions

1. Do you know what e-learning is? If yes, please explain what it means.
2. Have you ever used an e-learning facility before? If yes, where?
3. What were your experiences with the programme?
4. Have you used the e-learning programme that was recently implemented in the Faculty?
5. What-if any-are the major drawbacks of this programme?
6. What if any are the major advantages of the e-learning facility at Unizul?
7. Do you have any other contribution about the e-learning programme at Unizul that you would like to make?

Appendix 4:

Questionnaire 2

Research Project

UNIVERSITY OF ZULULAND

Faculty of Commerce, Administration and Law

I am a masters student in the Department of Business Management doing a research project on, e-learning and its impact on students and lecturing staff of the Faculty of Commerce, Law and Administration. My supervisor is Dr. K. Nel in the Department of Industrial Psychology and co-supervisor is Ms. M. F Vezi in the Departments of Business Management. The findings of this research project will be presented as a dissertation in the fulfillment of a Masters Degree in Business Management. The permission to conduct this research was obtained from the Dean of the Faculty. All respondents will remain anonymous; information gathered from them will be confidential as the questionnaire will not require participants to identify themselves. The filled in questionnaires should be put in the envelope supplied and placed in a box provided at Deans Personal Assistants office. The last day of submitting the questionnaires will be collected on 17 November2008.

Supervisor

Researcher

Section A

1. What is your gender

Male ☐

Female ☐

2. How old are you? (Please write your age below)

3. What is your ethnic group?

Black/African ☐

White ☐

Indian/Asian ☐

Colored ☐

4. Are you:

Contract / part time staff ☐

Full time ☐

Section B

5. There are currently many definition of e-learning Please could you tell me your understanding of the term?

6. Do you currently use e-learning as part of your programme delivery?

Yes ☐

No ☐

7. To what extent do you use-learning?

All the times ()
Sometimes ()
Never ()

8. How have your students responded to the use of e-learning?

Very well ()
Well ()
Some problems ()
Badly ()

9. For what purposes do you use e-learning programs? (Please tick the application below)

Providing general programme information ()
(e.g. module study guide)
Providing programming study materials (e.g. lecture notes, power point slides, interactive leaning materials) ()
Providing links to web resources ()
Taking part in programme online discussions or group work ()
Contacting other programme participants by email on study matters ()
Assignment handling ()
Assignment feedback ()
Online tutor support ()
Providing online tests or quizzes ()
Tracking participation ()
Other (Please specify below) ()

10. What do you feel are the greatest benefits from introducing e-learning? (Please tick the 3 greatest benefits)

- | | |
|---|-----|
| Ability for students to learn at their own pace | () |
| Communication | () |
| Encouraging a deeper knowledge of the subject | () |
| Helps build on specific skills | () |
| Helps target on specific weaknesses | () |
| Ability to access from anywhere or/at anytime | () |
| Helps to organize and manage programmes | () |
| Other (Please specify) | () |

11. What . if any . do you think are the greatest barriers to your successful delivery of e-learning? (Please tick the three that you see as the most important to overcome.)

- | | |
|---|-----|
| Lack of technical training | () |
| Lack of awareness of e-learning benefits | () |
| Reliability of the technology | () |
| Lack of tutor support and contact | () |
| Ease of use of on-line learning system | () |
| Time to prepare materials | () |
| Additional resources required for development | () |
| Management encouragement | () |
| Lack of understanding what is available | () |
| Student attitudes | () |

Other (Please specify)

()

12.If you do not use e-learning, what are the main reasons for you not using the programme? (Please tick the 3 that you see as the most important to overcome.)

Lack of tutor training

()

Reliability of the technology

()

Lack of tutor support or contact

()

Difficulties of use of the on-line learning system

()

Time to prepare materials

()

Additional resources required for development

()

Management encouragement

()

Understanding what is available

()

Student attitudes

()

Other (Please specify)

()

13.If you are not currently using e-learning would you like to be able to introduce e-learning to your programme delivery?

Yes

()

No

()

14. If yes, which are the areas of use that interest you the most? (Please tick all that apply)

Providing general programme information ()

(e.g. module study guide)

Providing programming study materials (e.g. lecture notes, power point slides, interactive learning materials) ()

Providing links to web resources ()

Taking part in programme online discussions or groupwork ()

Contacting other programme participants by email on study matters ()

Assignment handling ()

Assignment feedback ()

Online tutor support ()

Providing online tests or quizzes ()

Tracking participation ()

Other (Please specify below) ()

15. Any other comments regarding e-learning at the University of Zululand.

GLOSSARY 1

Asynchronous learning is learning in which interaction between teachers and students occurs occasionally with a time delay.

Bandwidth is the amount of field available to each communications licensee. It is the capacity of the transmission medium.

Blog according to Irvine (2005) is short for web log, an online diary written on a computer and posted on the World Wide Web. It is a website where entries are made in paper style and displayed in a reverse sequential order. They often provide commentary or news on a particular subject more like personal online diaries. It typically combines text, images and links to other web pages, and other media related to its topic. Most of them are primarily textual although some focus on photographs (photoblog), videos (vlog), or audio (podcasting), and are part of a wider network of social media. Blog can also be used as a verb, meaning to maintain or add content to a blog.

Bluetooth wireless technology is a short-range radio technology. Bluetooth makes it possible to transmit signals over short distances between telephones, computers and other devices and therefore simplify communication and synchronization between devices.

CD-Rom is abbreviation for Compact Disk, Read-Only Memory. This is a type of storage device that looks just like an audio CD and stores a certain amount of data, making it a

popular means of distributing or storing items such as photos, electronic encyclopedias, games, and multimedia offerings. As the name indicates, however, one can not save or change files on a CD-Rom.

Constructivism is a set of assumptions about the nature of human learning that guide constructivist learning theories and teaching methods of education. Constructivism values developmentally appropriate teacher-supported learning that is initiated and directed by the student. The theory of constructivism suggests that learners construct knowledge (Fox, 2001)

Computer-based learning according to Botha et al (2008), this is learning or training that is done on a stand-alone computer. The programme will have no link via the internet to a server or other users. It may be programmed on a CD Rom or a memory stick or the computer's hard drive.

E-commerce is the use of internet to buy or sell goods and services. At the simplest level, an organisation will probably have a website that provides details of products and contracts.

General Packet Radio Service (GPRS) is a packet-linked technology that enables high speed wireless internet and other data communications. GPRS provides about four times greater speed than conventional GSM systems.

Global System for Mobile Communications (GSM) is one of the leading digital cellular systems. Georgiev et al (2004) explained that GSM provides integrated voice mail, high speed data, fax, paging and short message capabilities, as well as secure communications. It offers the best voice quality of any current digital wireless standard.

Infrared Data Association (IrDA) is an association defined a suite of protocols for infrared exchange of data between two devices, up to one or two meters apart.

Intranet is an internet based network that is owned by an organization and is only accessible to people working internally. It is protected from external users by some form of protective measure. Certain courses and content used within an institution are considered to be Intranet courses and cannot be accessed outside the institution. In other words, the programme is only accessible to internal staff, and students.

Just-in-time is the planned e-learning in which students are able to access the information they need exactly when they need it.

Knowledge Database is the most basic form of e-learning that provides indexes explanations and guidance for software questions along with systematic instructions for performing specific tasks. (Herselman and Hay 2005).

M-learning is the term given to the delivery of training by means of mobile devices such as Pocket PCs, Mobile Phones and Palmtop computing devices. Mobile Learners are

seeking "just in time, just for me" lessons in small manageable formats that they can undertake when it suits them.

Multimedia is a term used to denote the real integration of text with still images, graphics, video, and sound (Adrich, 2004).

Online learning although similar to we-based learning, Botha et al (2008) defines online learning as a new blend of resources, interactivity, performance support and structured learning activities.

Online Support offers the opportunity for asking specific questions. It is usually in the form of forums, chat rooms, bulletin boards, live instant-messaging and emails.

Pedagogy is the art, science, or profession of teaching.

Portal is a Website that acts as a doorway to the Internet. It will specialise in generating as much traffic as possible.

Server is a computer that stores application and data files for all workstations on a network; also referred to as a file server (Adrich, 2004)

Synchronous learning is a live real-time, instructor-led online learning event where all participants are logged on at the same time and communicate directly with each other (Clark, 2008).

Technology-delivered learning is distance learning according to Botha et al (2008).

Technology enhanced learning is the type of learning that uses technology to aid learning. The complexity of the technologies will vary depending on the particular course design.

Web-based learning according to Botha et al (2008) is web technologies such as, web browsers and web servers, are used to access and deliver the learning material that may be distributed across the globe. Web-based learning makes it possible for the learner to interact with other learners as well as with the lecturer in discussion forums and during chat sessions.

Web site is a location on the World Wide Web that is owned and managed by an individual, company or organization. it usually contains a home page and additional pages that include information provided by the site's owner, and may include links to other relevant sites.

Wiki is a type of website that allows the visitors to that site to easily add, remove and otherwise edit and change some available content, sometimes without the need for

registration (Britt, 2004). This ease of interaction and operation makes a wiki an effective tool for shared authoring.

Wireless Application Protocol (WAP) is a free, unlicensed protocol for wireless communications. It makes possible creation of advanced communications services and access to internet pages from a cellular phone.

GLOSSARY 2

NoteBook computers. These are popularly known as laptops and have the abilities of a desktop computer, though they are very small in size and support wireless communications.

Tablet Personal Computer. These also have a full range of abilities like those of a personal computer. Some of them do not have keyboards but have software to recognise handwritten text.

Personal Digital Assistant (PDA). They have small sizes and significant processing power. They can recognise handwritten text and can play different types of multimedia files.

Cellular Phones. They can also be used to send multimedia messages (MMS)

Smart Phones. These are hybrid devices which combine the abilities of a PDA and that of a cell phone. It is smaller in size than a PDA but bigger than a cell phone.

GLOSSARY 3

instructional design . this is a traditional pedagogy of instruction which is curriculum centered, and is developed by a centralized educating group or a single teacher.

social-constructivist . this pedagogy allows the use of discussion forums, blogs, wiki and online collaborative activities. It is a collaborative approach that opens educational content creation to a wider group including students.

Salmon's five stage model . is particularly relevant to e-learning, and the five-stage model is a pedagogical approach to the use of discussion boards (Salmon 2000).

cognitive perspective . focuses on the cognitive processes involved in learning as well as how the brain works.

emotional perspective . focuses on the emotional aspects of learning, like motivation, and fun.

behavioural perspective . focuses on the skills and behavioural outcomes of the learning process.

contextual perspective . focuses on the environmental and social aspects which can stimulate learning. Interaction with other people, collaborative discovery and the importance of peer support as well as pressure.