CHAPTER TWO
CONCEPTUALIZATION AND CONTEXTUALIZATION OF DISTANCE EDUCATION

What's in a name? That which we call a rose
By any other name would smell as sweet
Juliet (William Shakespeare)

2.1 INTRODUCTION

This chapter is an attempt to establish an understanding of distance education, set the context for its growth and development in Uganda and thereby describe its 'status quo' in the country. The chapter is also meant to act as a bridge to an understanding of the provision of In-Service Teacher Education for secondary schools (INSET) by means of distance education in Uganda. So, in order to achieve this, efforts will be made to:

- Discuss the different designations given to distance education.
- Trace the history and growth of distance education.
- Examine the different theories that have been put forward about distance education.
- Identify the common features of distance education.
- Where possible, relate all these to Uganda in general and teacher education in Uganda in particular.

2.2 DESIGNATIONS

There have been a number of efforts to try and define distance education and as will be discussed later, many of these definitions have been influenced by the contexts in which distance education is offered. These different definitions are what have been called designations here and some of the common ones will now be explained without necessarily comparing them. The ultimate purpose rather is to understand each of these designations that have variously been used and continue to be used. Suffice it to say however that, sometimes the usage may have regional or institutional preferences. For example, according to Moran and Myringer (1999:59), in North America, the terms 'distributed learning', 'technology mediated learning', and 'telematics' are used while in Australia, the term 'flexible learning/delivery' is more popularly used.

2.2.1 Correspondence Education

This is the oldest form of distance education. Commonwealth of Learning (2000) defines this form of education as '…*education that relies on print-based, self-study materials with communication through postal services'.* The greatest impetus to the growth of this form was the growth of both the print industry and the postal systems. This form of education usually entails printed learning materials and assignments being sent to the learners,

who then do the assignments and mail them back to the teacher or institution (Bates 1994:1574). Learning is thus mainly based on studying the printed study materials and the feedback from the teachers.

However, later when much more than only correspondence began to take place, this term 'Correspondence Education' was seen to be inadequate. Education no longer relied on only correspondence but began to include radio, television, and face-to-face meetings that were conducted to help learners. Holmberg (1986:1) says, '…*as more people seem to regard correspondence as something that takes place entirely in writing, distance education has been adopted as a more neutral term'.*

Nevertheless, Correspondence Education was the first terminology given to what today is commonly referred to as distance education.

2.2.2 Distance Education (DE)

Distance Education based on multi-media approaches (Holmberg 1986:1) relies on more than correspondence alone; education is now provided using a combination of:

- Print study materials
- Face-to-face meetings taking place at various locations
- Correspondence communication between learners and the institution
- Use of other media (and combination thereof) like telephone, radio, computers, TV and video conferencing for various activities.

This term, Distance Education was formally accepted in 1982 when the International Council of Correspondence Education changed its name to The International Council of Distance Education. This being an international organisation bringing together all institutions and agencies providing distance education, the adoption of its new name gave great recognition to this new terminology and form of providing what had earlier been known as Correspondence Education (Holmberg 1986:1, ICDE 2003a). However, when in 1969 the Open University UK was opened, the term Open learning came into use.

2.2.3 Open Learning

The opening up of the Open University, UK introduced new elements in the provision of distance education. Some of the major tenets of the Open University UK include openness as to people, place, methods of teaching and ideas (O'Shea and Downes 1997:58).

However, it should be pointed out that, in spite of this desire to be open, no institution has really achieved this total openness. Institutions including Open Universities have continued to have various restrictions (Paul 1990:40, Rumble and Keegan 1982:12).

Distance education was now seen as restrictive and not flexible enough or open enough to permit all who desired to receive education to do so regardless of previous qualifications. So this new form of providing distance education was seen as a major step towards democratising education; a step towards making available to all including those previously disadvantaged by the highly competitive and selective education systems. As Paul (1990:40) says, '…*open learning is merely one of the most recent manifestations of a gradual trend towards the democratization of education'.*

Later, increased access to computers introduced other new elements and a paradigm shift in open and distance learning. As a result there is now a plethora of terminology being used to refer to distance and open learning. Some of the terminologies are flexible learning, telematic education, distributed learning, on-line education and virtual universities. As will be shown in the subsequent sections, there are minor distinctions sometimes even confusion about these different terminologies (Guiton 1999:51, Moran and Myringer 1999:59) however, as mentioned earlier in section 2.2, no in depth comparative analysis of the different designations will be made.

2.2.4 Flexible Learning

The typical university student is changing with more and more adults returning to school (Berge 2001a:6, Peters 1994:28, Robinson 1996:6). These adults require education that is flexible with regard to pace of learning, methods of teaching/learning and with regard to programme activities - education that also allows them to study as they work. Flexible learning is therefore such an education system but as Guiton (1999:51) says, *'…as with most aspects of openness in education, interpretations of flexibility are as elastic as the term itself.'*

However, it is agreed that Flexible Learning is a student-centered education that uses a variety of methods and technology so as to ensure high levels of interaction and flexibility in terms of:

- Access to and exit from several learning programmes;
- Accreditation and portability of qualifications;
- Modes in which communication takes place; Study material;
- Time and place of study; and
- Pace at which learning takes place. (University of Pretoria – Telematic Education 1999:9)

Traditional internal university programmes have rigid structures that make it difficult for any student to progress at his/her own pace and to transfer credits from one institution to the other or from one programme to the other. This is also a problem that many distance education institutions still grapple with (Paul 1990:40, Rumble and Keegan 1982:12). Flexible learning is therefore a step towards overcoming this handicap.

2.2.5 Telematic Education

Perraton and Creed (2001:3) define telematics as *'the combined use of telecommunications and computer technology'.* From this definition, it is clear that Telematics like Flexible learning and Distributed Learning all rely heavily on technology. One of the major emphases of Telematics, according to the University of Pretoria, Telematic Education (1999:10) is the fact that it embraces the philosophy of flexible learning as already discussed in section 2.2.4. In fact on close examination, there may be no distinction between Flexible Learning and Telematics. The choice of which terminology to use may be driven more by preference than core distinction in philosophy.

2.2.6 Distributed Learning

Like Flexible Learning and Telematic Education, Distributed Learning relies heavily on technology, especially modern technologies, and emphasizes flexibility in learning. Multi-media is therefore used involving '*…workstations, servers, video conferencing … internet connection, phone lines…'* (Meyer-Peyton 2000:85). As a result of variety of technology, Distributed Learning can either be synchronous or asynchronous. That is either taking place in real time as with a videoconference or delayed as with e-mail.

Distributed Learning enables the student to study at home as long as they have access to the relevant technology. Alternatively, institutions that offer programmes under Distributed Learning can establish learner centres that are equipped with all the necessary technology and the students then access courses, information and other support through these centres.

The learning could therefore be said to be distributed in the sense that it can take place in different places using a variety of technology, enabling learners to participate and interact during the learning activities (Meyer-Peyton 2000:86).

2.2.7 On-Line Education

Increased access to computers, particularly to the Internet and the World Wide Web (www) technologies, has introduced concepts like On-line Education, Virtual Universities, Web-Based Education and E-Learning.

Jarvis (1999:195) defines the Virtual Learning Environment as:

> The use of electronic means to create a situation in which teaching and learning can occur when teachers and learners are separated from each other in space and time.

Bates (2000:173) also defines virtual universities in a similar manner although there seems to be controversy around the use of the label 'virtual' for literally translated, it means non-existent, unreal or artificial (Holmberg 2001:28). Perhaps it is for this controversy that On-line Education or Web-based Education is sometimes used to refer to the same form of education. Nevertheless, the growth and increase of access to computers and the Internet has enabled institutions to offer web-based courses to large numbers of students (Mason 2001:268, Schrum 2000:91,).

2.2.8 Conclusion

The many different designations that have been given to distance education have in many ways reflected the dominant mode of provision with each mode utilising different technologies (section 2.4) and permitting different levels of interaction. These designations have also varied from region to region and in some cases, the difference in meaning may be vague.

However, henceforth in this study, **distance education** will be used to refer to any of the forms discussed in this sub section unless in the discussion of specific issues it is required otherwise. This term distance education has been chosen because of its wide usage in Uganda and because to me, it is the one that elicits the least confusion and controversy.

2.3 DEVELOPMENTAL OVERVIEW

2.3.1 Introduction

As part of the effort to understand distance education, a developmental overview will be outlined in this section. Although this overview will be at a general and global level brief references to Uganda will be made. The more detailed outline of this development in Uganda will be covered in section 2.7 and in chapter 3 section 3.5.

2.3.2 History of Distance Education

According to Bates (1994:1574), "*correspondence teaching can be traced back at least as far as St. Paul's Epistles"*. Paul wrote a number of letters to different Christian groups giving instructions on how they should conduct themselves as Christians. It is for this reason that some people take this to be the first example of correspondence instruction, which was the precursor to present day distance education. Bates continues however to say that, in its modern form correspondence teaching began in the 19th Century.

On the contrary, Battenberg as quoted by Holmberg (1995a:47) says the earliest form of distance education may have been provided in 1728 by Caleb Phillips with his shorthand lessons, then in 1833 with composition writing lessons in Sweden, Lund and a few years later in 1840, the Isaac Pitman shorthand lessons through the post. The latter grew to become the Isaac Pitman Correspondence Colleges (Dinsdale as quoted by Holmberg 1995a:48).

However, distance education as it is largely practised today through formal institutions and universities has the University of South Africa (UNISA) as its pioneer. UNISA started as a University of Good Hope in 1873 *'as an examining body based on the model of the University of London'* (Holmberg 1995a:49). In 1962 the South African government established UNISA as a distance teaching university. Nonetheless, many believe (Perraton, Rumble, Holmberg, Robinson) that it was the establishment of the British Open University that gave distance education the impetus it has had to grow and become more acceptable. The next section now discusses some of the reasons for this growth.

2.3.3 Rationale for Distance Education

Distance Education is of growing interest to many institutions and educators and has developed a great deal in the last two - three decades. This growth is evident in the number of open and distance learning institutions that have since been opened, international conferences being organised and in the volume of literature now available on this subject.

The number of open universities has grown from only one Open University in 1969 to at least 40 today while a number of other previously traditional universities have also taken on distance education programmes thus becoming dual mode institutions. So, worldwide, it is believed that there are now a total of over 1,000 institutions providing

distance education programmes (Holmberg 2001:17 – 18, International Centre for Distance Learning (ICDL) 2003a:1, Robinson 1996:4).

The body of literature on distance education has also grown tremendously and according to ICDL (2003b:1) there are today *'…over 12,000 abstracts of books, journal articles, research reports, conference papers, dissertations and other types of literature relating to all aspects of the theory and practice of distance education*'.

The major reasons for this increased interest in distance education are the following:

- Growing demand for education.
- The need to provide equal access to education
- The changing nature of the typical university student
- As a strategy for meeting urgent needs for teachers
- Distance education is viewed as a more cost effective alternative of providing education
- Advances in technology have made it increasingly possible to run distance education programmes

Each of these will be briefly discussed here.

a) Distance Education and the demand for education

There are a number of reasons for the growing demand for education but one of these is the rapid growth in the population worldwide (Perraton 2000:3, Peters 1996:42, Saint 1992:xi). The world population is growing at the rate of 1.33% per year '…*adding an average of 78 million persons per year'* (United Nations 1999:1). It is therefore expected that the world population will be between 7.3 and 10.7 billion by 2050 with about 8.5 billion (80%) of this in the less developed countries. Between 1995 and 2015 alone, the population in the developing countries is expected to grow by nearly 1.5 billion!

Africa, particularly Sub Saharan Africa is worst hit because its population growth rate is the highest (2.36%)in the world compared with for instance Europe that has only 0.03%. Sub-Saharan Africa's population will therefore more than double in the next two decades (United Nations 1994:15, United Nations 1999:1). This is an enormous growth and in the face of poverty and lack in these less developed countries, there must certainly be more challenges in the provision of education to this huge population - in the provision of schools, colleges and universities.

The situation is equally challenging in Uganda where by 1975, the population was only about 10.8 million people but by 2001 this had grown to nearly 24 million people with about 50% of this below 15 years while only 2.6% is above 64 years (UNDP 2003:252). The majority of the population is therefore of school going age. In addition to this, there is an increasing number of adults returning to school.

Unfortunately, in spite of this enormous population growth (worldwide and in Uganda), the conventional schools, colleges and universities have not expanded at the same rate so as to adequately meet this increased demand for education. Governments have had therefore to find alternative means of meeting this demand and distance education is certainly an attractive alternative here because of the potential that it has to cater for larger numbers than traditional institutions. For example, Holmberg (2001:17) says that some open universities have *'…over 100,000 active students each year in tertiary education'.* Such figures are clearly impossible to accommodate in traditional institutions of learning.

b) Distance Education for equal access

Although school enrolments have been rising in a number of countries, there are still categories of people that do not easily get access to especially higher education. This includes the rural poor, women, displaced persons (refugees), and those geographically isolated (Saint 1999:12). Besides this, most education systems in developing countries are highly selective with fewer and fewer people receiving education as you go up the education ladder (Saint 1999:1). This is contrary to the world declaration on Education for All. According to this declaration everyone has a right to education so, selective systems of education violate the people's right to education.

Distance education has therefore been used as a means of addressing these inequalities (De Wolf 1994:1558, Holmberg 1995b:13, Rumble 1992:19). It has been used in countries with scattered populations to reach out to those who live in remote areas. New Zealand and Australia are such examples (De Wolf 1994:1558, Perraton 2000:136). In addition, distance education has been used to give people who may have for one reason or the other left school an opportunity to return to school. For example, in Sudan and Somalia distance education has been used for those displaced by war (Perraton 2000:172).

Another example is the Open University UK with '*an ideological statement that university education, with unimpeachable quality, should be open to all adults, regardless of their*

previous education or lack of it…' (Perraton 2000:10). Consequently, the OU, UK has as one of the elements of its vision to be *'open as to access'.* In so doing this university seeks to reach out to those desiring to receive university education regardless of their educational levels. As De Wolf (1994:1558) says giving such people a second chance to have education.

In Uganda also, the number of candidates qualifying for university education is higher than the number of places available, many of those who qualify are actually left out. For example, although Makerere University is often a first choice for all children who take the 'A' Level examinations, in 1999/2000 academic year 15,630 'A' Level candidates qualified for admission but of these, only 2,000 were admitted as government sponsored students and 7,816 admitted as private students. Thus a total of 5,814 eligible 'A' Level candidates were left out (Epelu-Opio 2000:5). Unfortunately, although Makerere has introduced evening programmes, this caters largely for those living in and around the University. This therefore was one of the reasons for the establishment of the External Degree Programme of Makerere University. It was meant to open up access so as to cater for the needs of adults desiring to return to education and to cater for the needs for those living far away from the University and unable to attend the evening programmes (CCE 1990:17).

In all these cases, distance and open learning can be said to be giving adults a second chance to have education and catering for the needs of those unable to attend school/university full time. It has therefore been used to open up access to education for those who would otherwise have not entered the system.

c) Distance Education for the changing nature of the university student

In many universities, the traditional university student was one who had received twelve to thirteen years of schooling. Many of the entrants were therefore directly from the high schools and were generally aged between 19 - 25 years. However, this is no longer the case. Today's student is likely to be a working adult, with a lot of previous experience, and one who will have expectations that go beyond what universities have always provided (Berge 2001a:6, Peters 1994:28, Robinson 1996:6).

Since distance and open learning permit a student to study while working and the student is not expected to spend many months in residence, many adults find this a convenient way of studying. Peters (1996: 45) says that this form of education does not

confine a student and so is less disruptive. Robinson (1996:6) argues in the same way when, while referring to the training of teachers by distance, she comments thus,

> Teachers can study while continuing to teach and schools are not depleted of teachers. Moreover it is less disruptive to teachers' lives, an important consideration for mature teachers with families, community obligations and second-income generating activities including food growing (often essential for low paid primary teachers).

In Uganda also, there has been a shift in the nature of the typical university student. A number of universities in the country are running evening programmes that permit the working class to study. For example, Uganda Martyrs' University already has a total of 500 students enrolled for Diploma in Advanced Education Management, Diploma in Democracy and Development Studies and Diploma in Banking Management (Uganda Martyrs' University 2003). Makerere University on the other hand runs various evening programmes that permit working adults to pursue undergraduate and post graduate programmes. For example, of all the students admitted for the B.Com (External), nearly 50% are working adults while all those admitted for the B.Ed (External) are working teachers. This reflects a change in the character of the university student.

This change in the nature of the university student has partly been because of changing work demands and therefore *'the changing learning needs of society'* (Bates 2000:8). Some of the needs that Bates (2000:10) identifies include:

- More jobs in the private sector particularly in the service industries.
- Highly mobile workforce.
- Increased automation in corporations, institutions and industries and
- The growth of new jobs.

All this implies that there must be retraining or retooling of the workforce. In other words there is need for lifelong learning and distance education can play a very central role in doing this.

Distance education has consequently grown because of its appeal to this new student that wants more flexible and independent programmes. Rumble (2000:1) while quoting Levine says that students want universities of convenience - universities that work like department stores, and are therefore easily available with programmes that are delivered during convenient hours '…*preferably around the clock'.* Epper (2001:3) reiterates the

same view for according her students want programmes that offer opportunity for the *'"anytime, anyplace" teaching and learning'.*

d) Distance Education for urgent need for teachers

Some of the earliest distance education programmes run were especially designed to meet urgent professional needs. Perraton (1993a) documents a number of case studies of teacher education programmes that have been run by distance education and most of them were programmes that were designed to meet urgent need for teachers. For example, The Zimbabwe Integrated Teacher Education Course (ZINTEC) was designed to train teachers because as Chivore (1993:42) says, *'expansion in the provision of education did not go hand in hand with an adequate supply of professionally trained teachers'.* To cope with the expansion, a huge number of untrained teachers were employed so ZINTEC was designed to *'meet the primary-teacher shortage through an in-service type of teacher education'* (Chivore 1993:42).

Tanzania's Teacher Training by Distance programme of the 1970s had similar beginnings. In this case too, Tanzania had expanded its primary education through the declaration of Universal Primary Education (UPE) but did not have enough teachers to run the schools so, distance education was used to meet the urgent need for teachers (Chale 1993:22). Similar programmes have been run in Sri Lanka, Indonesia and in Brazil (Nielsen and Tatto 1993:95-135, Oliveira and Orivel 1993: 69-94).
Distance Education has been used to train, retrain and upgrade teachers because many countries still have problems related to the supply of teachers and to teacher education. According to Perraton, Creed and Robinson (2002:7), the major problems in education in the world are shortages of teachers, large numbers of unqualified teachers and many teachers who need further professional education and training.

In Sub-Saharan Africa in particular, they identified the following major problems:

- Shortage of teachers in the face of increasing pupil numbers
- Reduced life expectancy of teachers as a result of AIDS
- Under-trained and untrained teachers in the school systems
- Poor quality training of teachers
- New education goals that pose a challenge to teachers and to teacher education (Perraton et al. (2002:7)

All the above challenges and problems imply that the world, and Sub-Saharan Africa in particular, need to plan and provide more and better quality teacher education. In the face of inadequate funding and the need to keep teachers in the systems working while training is being provided, distance education has been used and continues to be used as a viable option.

Uganda has also used distance education for purposes of meeting urgent needs for teachers. For example, from 1967, it was used for upgrading teachers, and later for training of clerks for the public service (Kaye, October 1970:1-2). Also, the Teacher Development and Management System (TDMS) is a scheme that was started to train teachers and headteachers for primary schools (Odaet and Higwira 1994, Makau April 2001:1).

Although the majority of the case studies sited are for teacher education, distance education has also been used to meet urgent professional needs in different fields as well. For example, the need for skilled people in information technologies has been identified in Europe and according to Brande (1993:54),

> One of the identified solutions to the skill shortage problem is increased training and retraining through technologies. Most studies refer to the need for a new learning concept and propose large structural efforts in distance and flexible learning throughout Europe

All this reveals that one of the major reasons for the growth of distance education has been the need to meet the knowledge or training gap for professionals and has specifically been used a lot to meet the need for teachers. Is it possible this is one of the reasons why there is little faith in the efficacy of distance education for anything else other than train teachers?

e) Distance Education as a cost efficient alternative

As mentioned already in section 2.3.3a, education is becoming increasingly expensive because of the increasing number of people to be catered for especially since in many developing countries, education is provided and funded by governments that are expected to meet the costs of accommodation, food, transport and other allowances to college and university students (Saint 1992:xii). In addition, Bates (2000:8) says universities are under a lot of pressure *'to do more with less'.* For example, in situations where student numbers are generally increasing while government subsidies are decreasing, universities are still expected to provide high quality relevant education that sometimes includes introducing more courses. This can no longer be afforded so,

governments and universities are seeking for more cost effective and cost efficient alternatives of providing education. Distance education is in this regard an attractive option.

To establish a distance education programme, there is no need for the kind of infrastructure needed to establish a conventional institution. There is no need for halls of residence, many classrooms, and there is no need to pay students travel allowances (Perraton 2000:118, Berge 2001a:9). This cuts down the costs of distance education. Unfortunately, there are not many cost analysis studies done (Orivel 1994:1567) but Perraton (2000:126 -127) presents some examples with indicative comparative costs and according to these studies distance education was cheaper in the case of Junior Secondary Education in Malawi and Zambia; India National Open School; and in Mexico Telesecundaria. Perraton (2000:137) however adds, that in cases where numbers were very low, and a high level of student support provided, distance education was more costly.

It is therefore clear that distance education can be more cost effective but it must be remembered that there are other factors that need to be taken into account as well. Rumble (2001a:73) for example gives the following list:

- The number of students enrolled
- The number of courses presented
- The frequency with which course materials are remade
- The media (text, audio, video, computer-based, face-to-face) and technology employed
- The cost structure of the chosen media/technology
- The quality of the materials produced (print quality, video formats, etc.)

Other writers (Bates 2000:128, Berge 2001b:19, Orivel 1994:1572, Robinson 1996:20-27,) have expressed this same view. They also add that distance education requires high initial investment for the production of study materials. Unfortunately, this is one of the issues ignored by a number of policy makers to the detriment of distance education; with the result that poor quality and inadequate services are provided. Often these initial costs are *'…ignored, underestimated, or underbudgeted' (*Bates 2000:122).

Ultimately, although distance education could have lower costs per student and therefore cost efficient, drop out rates and poor quality learning may mitigate against it making it less cost effective (Rumble 2001b:5). Orivel (1994:1573) however concludes,

> Unless a massive misallocation of resources occurs as a result of poor management decisions, distance education projects are most of the time cost-effective even though the advantage of economies of scale is offset by the higher cost of developing multimedia, self-instructional materials.

f) Advances in technology and Distance Education

One of the major characteristics of distance education is the element of separation of the teacher and the learner and the need therefore for technology to mediate this distance (Holmberg 2001:38, Keegan 1996:119, Moore 1996:24, Perraton 1982:4, Peters 1996:51, Rumble 1992:17). When this occurs, technology enables the teacher and the learner to overcome what Moore (1996) calls transactional distance. See section 2.5.3 for a full discussion on transactional distance.

The development of different forms of distance education has been associated with the dominating technology of the time (Garrison 1989:52, 1996:17). For example, the very first distance education programmes were basically correspondence programmes that were dependant on the print. Later, with the onset of radio and television, distance education programmes began to incorporate these technologies as well. Distance education has therefore expanded partly as a result of the advances in technology; for distance education and technology are inseparable (Amundsen 1996:67).

In all this development however, distance education can be said to have had generations as Bates (1994:1574), Garrison (1996:17) and Rumble 2001a:73) all say. Bates and Garrison talk of three generations but Rumble talks of four generations. They all however do agree that these generations overlap one another and there are therefore no longer any pure examples of generations.

The major generations are now discussed in the next sections. However, although Rumble (2001a:73) identifies four generations, only three shall be discussed here because the third generation seems to cater for what Rumble calls the fourth generation.

2.3.4 First Generation Distance Education

This is a generation of distance education programmes that are dominated by a single technology that is print, radio or television (Bates 1994:1574, Garrison 1996:17 and Rumble 2001a:73). The programmes of this generation date back to the days of St. Paul according to Bates (1994:1574) and to 1840 according to Rumble (2001a:73) and these programmes are characterised by very little interaction between the learner and the teacher and also very little between the students. However, where any interaction

takes place, it is mostly by mail. According to Bates (1994:1575), one of the examples of such a programme is the external degree of the University of London. In this programme, students received reading lists and sample examination papers. The tutors then marked these and the students eventually sat the same examination as the University of London internal students. All this happened with only minimal interaction by mail.

One of the major strengths of this form of presenting programmes is that, it is cost effective particularly for increasing access because any additional students do not require huge additional costs thus making such programmes cost effective if large numbers are enrolled (Garrison 1996:17). This may be attractive in Sub Saharan Africa because, many of the programmes that have been run have each used largely a single medium. For example, ZINTEC (Chivore 1993), the Tanzania Teacher Training by Distance programme (Chale 1993), MITEP and NITEP of Uganda all used mainly printed materials with occasional face-to-face sessions for support. On the other hand, the Mauritius College of the Air programmes relied on Radio while in Cote d'Ivoire the main medium was television (Perraton 1993b:8).

These first generation programmes, however, have some weaknesses the major one being lack of direct interaction between the learners and the teachers and amongst the learners. Distance education learners suffer isolation from the institution and from one another (Holmberg 2001:38, Keegan 1996:119, Perraton 1982:4, Rumble 1992:17) and as Moore (1996:22 - 27) says, there is therefore a psychological and communication space to be crossed. To him, the quality of the dialogue that takes place between the learner and the teacher determines the quality of the learning experience. A programme that gives no opportunity for dialogue therefore fails in addressing the problem of separation of the learner and the teacher with the attendant problem of learner isolation.

Bates (1994:1574) cites another weakness of such programmes. He points out that such programmes have had very low completion rates. Considering the place of student support today in distance education, (Robertshaw 2000:2 Rumble 1992:62-64, 2000:2) it is clear that with inadequate dialogue or interaction between the learner and the teacher, isolation will take its toll on the learner who may therefore fail to complete his course.

2.3.5 Second Generation Distance Education

Programmes in this generation use integrated multimedia approaches for providing their distance education courses. Rumble (2001a:73) calls this generation the multimedia distance education systems and also adds that such programmes became prevalent in the 1970s. Garrison (1996:18) on the other hand calls it the generation of teleconferencing. What is worth noting however is that in spite of the difference in nomenclature given, both agree on the presence of opportunity for dialogue between the learners and between the teachers and the learners. The Open University UK is such an example. When it opened in 1969, it started by straightway adopting this multimedia approach (Bates 1994:1575).

In this approach, institutions continue to use the one-way media like print, radio, TV and cassettes, but begin to incorporate two-way communication mainly correspondence mail, telephone and face-to-face sessions (Bates 1994:1575, Garrison 1996:18). Because of the presence now of higher degree of dialogue with the institution, Garrison (1996:18) says students lost some autonomy but gained *'quality interaction'*.

The other major features of programmes of this generation are high variable costs and an emphasis on curriculum planning and materials development (Bates 1994:1575). A lot of effort is put to the production of high quality study materials often using production teams that consist of subject and media experts. This is partly why there are often high initial variable costs. Thereafter, such institutions using this approach do not incur high variable costs. However, to justify the initial high variable costs, high student numbers are necessary.

Most of the open universities in Europe and Asia like the Open University (UK), the Indira Gandhi National Open University, and the Allama Iqbal Open University of Pakistan are examples of institutions whose programmes belong to this second generation. In Australia, Canada and Africa the examples of such institutions are largely dual mode institutions. That is institutions that are providing both distance and conventional educational programmes.

2.3.6 Third Generation Distance Education

These are programmes dominated by computer mediated communication and they date back to 1985 when computer mediated communication began to be used (Garrison 1996:18, Rumble 2001a:73). Rumble (2001a:73) calls them *'online distance education systems'* while Bates (1994:1576) says these are courses that are based on electronic

information technologies. All three, Bates (1994), Garrison (1996), and Rumble (2001a) agree that courses of this generation are dominated by computer technology and these courses have high levels of interaction between the learner and the teacher and also among the learners for, as Bates (1994:1575) says,

> These third-generation technologies, based on telecommunications and computers, provide far greater facility for two-way communication, and result in much more even communication between student and teacher (and also between students).

The most typical technologies used in such programmes are *'computer-conferencing or computer networking, and audio- and video-conferencing (including audio-graphics)* and they also include use of television to transmit lessons to remote classes sometimes with two-way television or with voice telephone (Bates 1994:1576).

A number of programmes have now been run using these third generation technologies and perhaps the United States of America (USA) is where there are the most examples. The University of Phoenix, Arizona (USA) *'uses computer networking for the delivery of postgraduate business course'* while the National Technological University uses satellite based technology to transmit courses to more than 300 sites in the USA (Bates 1994: 1576). Other than in the USA, a number of other European and Asian institutions are now using these technologies to run various courses while a number like the Open University, UK are using the technology for student support (Rumble 2000:5).

Unfortunately there are hardly any examples of the application of these technologies in Sub Saharan Africa. However, there are modest efforts by the African Virtual University to integrate satellite technology in the transmission of programmes. Also, the World Links (WorLD) school pilot project is using this technology to link up schools in developing countries with schools in Europe, Canada and USA (Aguti 2000:260, Perraton 2000:146).

As mentioned, one of the major advantages of programmes using third generation technologies is the high potential for better interaction between the learner and the teacher and also among learners. However, the variable costs of these programmes are often very high because every additional learner implies more costs in communication. Also in Sub Saharan Africa, the fear of cost of the technologies has been a major deterrent for as Perraton (2000:143) says of the computer,

> …while it allows easy communication between tutor and student, it is available only to the relatively privileged and demands a higher level of investment than fax.

See also figure 2.6 on relationship between technology, cost, and level of interaction in the teaching/learning contract.

Distance education has clearly come a long way from the first correspondence lessons run by Pitman and this development is closely tied to technology. Bates (1994:1574) says, each generation of distance education reflects the major technological innovations of the time. It is therefore clear that distance education has had generations and different designations given to it depending on the major features of each as already discussed in section 2.2 however, distance education has faced and continues to face a number of challenges. The next section now focuses of some of these challenges.

2.3.7 Challenges faced by Distance Education

In spite of all the interest that distance education has generated and in spite of its growth, a number of criticisms have been levelled against it. Its growth cannot therefore be said to have been altogether smooth. As a result of these problems, distance education has been seen as a second rate option to traditional classroom based education (Paul 1990:59). Unfortunately, this kind of thinking is found amongst learners, parents, and in some countries amongst Ministry of Education officials as well (Perraton 2000:82, 199). Distance education therefore needs to establish its legitimacy.

Some of the reasons for taking distance education as a second rate option are:

- High drop-out rates in distance education
- That distance education promotes surface learning
- That distance education is also elitist

Each of these will now be discussed in a little detail.

a) High drop-out rates in Distance Education

One of the major reasons for advocating for distance education has been that it opens up access (De Wolf 1994:1558, Holmberg 1986:30, Rumble 1992:19). Unfortunately, although most distance education systems register high enrolment figures, completion rates are believed to be generally low and dropout rates therefore unacceptably high (Holmberg 2001:73, Keegan and Rumble 1982:228, Paul 1990:79, Perraton 2000:12, Perraton et al. 2001:30, Tooth 2000:2). In his concluding remarks, Perraton (2000:196) says,

> Dropout rates so reduce the efficiency of distance education in terms of successful completers or graduates that efficient programmes seem to be the exception rather than the rule.

It is therefore not sufficient for any distance education programme to record high enrolments; this must be followed by high completion rates. This is a major challenge to distance education.

However, as Perraton et al. (2002:12) conclude,

> A significant proportion of students give up along the way and do not complete their courses. But this is true for all students working part-time and not distinguishing mark of students learning at a distance.

Table 2.1 gives examples of dropout rates of some distance education programmes.

Table 2.1: Drop-out rates in some Distance and Open Learning Institutions

Institution	**Course**	**Year**	**Drop-out Rate**
University of Nairobi[a]	B.Ed	Late 1980s	46
Bangladesh Open University[b]	B.ED	1996	48
Indira Gandhi National Open University[b]	Management Programmes	1987 - 93	60
Makerere University[c]	B.Ed	1991 - 2001	39.7
Makerere University[c]	B.Com	1991 - 2001	44.9

Source:

[a] Perraton (2000:75)
[b] Perraton (2000:101)
[c] Department of Distance Education Records, Makerere University

So, should Distance Education sit back because other programmes have a similar problem of significant dropouts? This would be neither right nor justifiable; something should instead be done to address the dropout problem.

However, one weakness with the working out of these dropout rates has been, as Keegan and Rumble (1982:228) say that, the comparison is often with traditional universities yet the student populations are different. To them, perhaps the comparison if any should have been between distance education and part-time students. Also, in many distance education programmes, there is always a group of 'non-starters'. That is students who apply to join programmes, enrol but never really start studying. Such numbers boost the numbers of dropouts in programmes.

This matter is complicated further by lack of clear interpretation of what a dropout is. This could vary from institution to institution. A dropout could therefore be any of the following:

- A student who registers but leaves the programme without submitting the first assignment.
- A student who leaves the programme having completed all the assignments but without sitting any examination
- A student who leaves the programme having completed all the assignments but without sitting all the examinations
- A student who leaves the programme after completing all the assignments, sitting all the examinations but does not pass some or all of the subjects enrolled for.

On the other hand, the learner's motive of joining a particular programme may also impact dropout rates. For example, if a learner joins a particular programme to gain specific knowledge and skills, and after taking only a few courses achieves these objectives and so decides to discontinue the programme. Is such a student a dropout? Whilst the institution may count such a learner a dropout, the learner himself/herself may not think so.

Consequently, care is vital while discussing and comparing dropout rates.

b) Distance Education as promoting surface learning

One of the greatest credits given to distance education is that most of the programmes have high quality study materials. However, fears have been expressed that distance education may be excellent for the distribution of information and delivery of facts, but that it does not effectively promote deeper learning and the acquisition of critical thinking skills (Bates 1994:1577, Garrison 1996:12, Henri and Kaye 1993:27-28, Holmberg 1993:331, Paul 1990:85, Perraton 2000:12). Holmberg (1993:331) says,

> A self-contained course, which does not cause students to consult other sources of knowledge, may on the one hand be very effective, but on the other hand, it may not engage students in a scrutiny of arguments and develop their thinking.

So, whereas distance education programmes, have worked hard at developing study materials and providing students self-contained courses, this same practice is being

feared to lead to what Perraton (2000:12) calls *'rote learning'* and what Bates (1994:1577) calls *'lack of critical thinking'*. Also, Henri and Kaye (1993:28) say that this can lead to standardisation of knowledge. That is prescription of what constitutes knowledge and the learner therefore looses the autonomy to direct his/her own learning.

Any poor education programme that does not give its learners opportunity to actively participate in the learning task will certainly fail to promote deep learning. This therefore is not the preserve of distance education alone! For as Garrison (1996:12) says,

> …higher-level cognitive goals however, demand opportunities to negotiate learning objectives, encourage students to analyse critically course content for the purpose of constructing meaning.

This is what all education should be regardless of the mode of provision.

c) Distance Education as elitist

As mentioned earlier in sub section 2.3.3, distance education has grown as a result of its potential to increase access. However, it has nevertheless been accused of continuing, like the traditional school system, to be elitist. Most distance education programmes do not have entirely open access. Instead, there are restrictions as a result of entry requirements, fees levied, access to study materials and technology used. According to Henri and Kaye (1993:27), this implies that distance education programmes also shut out the very people the programmes were meant to reach.

So true, distance education has grown in terms of institutions running distance education programmes, actual programmes being run, and students being reached; and in the words of Holmberg (2001:11),

> Distance education is thus no longer either, unknown or exceptional, but constitutes a recognised part of the educational services provided in most parts of the world.

However, this growth is in the midst of criticisms about the quality of the programmes offered and the concerns about the high dropout numbers registered. Some of these criticisms are a result of bias about distance education and also as a result of judging distance education using traditional school type education as the yardstick.

It has been implied here that distance education has grown because of the advances in technology. The next section focuses on ICTs in distance education.

2.4 INFORMATION COMMUNICATION TECHNOLOGIES (ICTs) IN DISTANCE EDUCATION

2.4.1 Introduction

In section 2.3.2 f, it was pointed out that one of the reasons for the growth of distance education was the advances made in technology. Each of the generations of distance education has associated with its growth, particular technology of the time (Garrison, 1996:17) (sections 2.3.4 – 2.3.6). It is for this reason that Amundsen (1996:67) remarks that distance education and technology therefore seem to be inseparable. Other writers also point out that distance education will continue to depend on technology and particularly on electronic communication systems (Daniel 1997:50, Peters 1996:51, Verduin and Clark 1991:84). As already said, technology is crucial for the mediation of learning in all distance education programmes. To run its teacher education distance education programmes cost effectively, Uganda will have to consider the integration of technology in an educationally responsible way.

2.4.2 Importance of ICTs in Distance Education

ICTS are important in distance education and this is largely due to the number of functions that technology can perform. A lot has now been written on what these functions can be (Bates 1994:1576–77, Bates 2000:16, Moore 1996:24-32, Paul 1990:121-127, Peters 1996:51, Tschang and Senta 2001:5-6). Some of these functions will now be discussed.

a) Increasing access to education

The use of technology enables institutions to reach out to more people than would otherwise be reached in traditional internal programmes. According to Moore (1996:24), Peters (1996:51), and Bates (2000:16), technology enables the teacher and learner to bridge the distance between them. In this way, distance education is able to reach beyond distances. However, as Tschang and Senta (2001:6) point out,

> While it is certain that many learners will learn more and more learners will be reached by new forms of virtual education, other less privileged learners, such as poorer people, could also continue to be shut out because they cannot connect to the new technological infrastructure…

So, yes, technology is crucial in enabling distance education reach out to more and more people, but poor choice of technology could shut out the very people that are meant to be reached.

b) Mediation of learning

According to Tschang and Senta (2001:6), technology can be used to get the *'…right types of content and learning to the individuals…'* Technology has always enabled distance educators to produce study materials and get these to the learners. Desktop publishing has particularly been helpful for the production of study materials in quicker and cheaper ways. In addition, with access to Internet, World Wide Web (www), and with the use of e-mail services, materials can now be delivered to learners much faster than before; and these same tools can be used to increase interaction between students and their tutors and amongst students themselves (Epper 2001:7, Paul 1990:122, and also Tschang and Senta 2001:6).

c) Improvement of teaching and learning

Tschang and Senta (2001:6) as well as Bates (2000:16) believe that the use of ICTs helps improve learning. Moore (1996:24 -32) who believes that, technology can be used for inter-learner dialogue, and to enhance dialogue between the learner and the tutor also echoes this view. To him, this has the effect of improving the quality of teaching and learning. In this regard, technology can then be said to act as an enabler of learning (Tschang and Senta 2001:6). Epper (2001:6) shares the same view and adds that *'…intelligent use of technology can really improve the quality of teaching'.* So, although the use of ICTs *per se* does not necessarily lead to improved teaching/learning careful and well-planned integration of ICTs has the potential of improving both teaching and learning.

In addition, in a world where knowledge and skills in the use of particularly new media is important, integrating ICTs in the teaching/learning situation prepares *'students for a world where information technology is likely to be central to their work and everyday lives'* (Bates 2000:16).

d) Better management and co-ordination

Especially with computers, records can be kept and maintained and this can be used for better management and co-ordination of activities. For example, student records can be kept on-line with both students and staff able to access these records whenever necessary (Paul 1990: 124).

In spite of all this potential that technology has in distance education, Garrison (1996:19) cautions that it is dangerous for distance educators to focus on technology. Juma (2001:294) reiterates this when she says, *'it has to be emphasized that it would be*

unwise to apply media simply because it is available'. So the onus is on the distance educators to always carefully consider the technology or media and its instructional and teaching potential. Bates (1994:1577) however points out that, there is no empirical evidence to suggest that one media has any pedagogical advantages over another. Instead, Bates (1994:1577) suggests that instead choice should be made only after careful thought and after taking into consideration a number of factors. Some of these factors will now be elaborated upon.

2.4.3 Factors affecting choice of technology

a) Pedagogical factors

The nature and structure of the subject to be taught is likely to affect the choice of the technology to be used. It will therefore be necessary to consider for example:

- Course goals and objectives;
- Structure of the course;
- Expected course activities; and
- Number of students expected for the particular course. (Heidt 1989:396)

The technology chosen should support the fulfilment of all these (Meyer-Peyton 2000:84). She also adds that, *'…it is vital to note that the technology should not drive the course – the technology should be the vehicle for the course.'* It therefore becomes imperative that the technology chosen should adequately 'transport' the course. According to Juma, (2001:294) *'the chief criterion should not be the availability or access to media, but their instructional potential and teaching effectiveness.'*

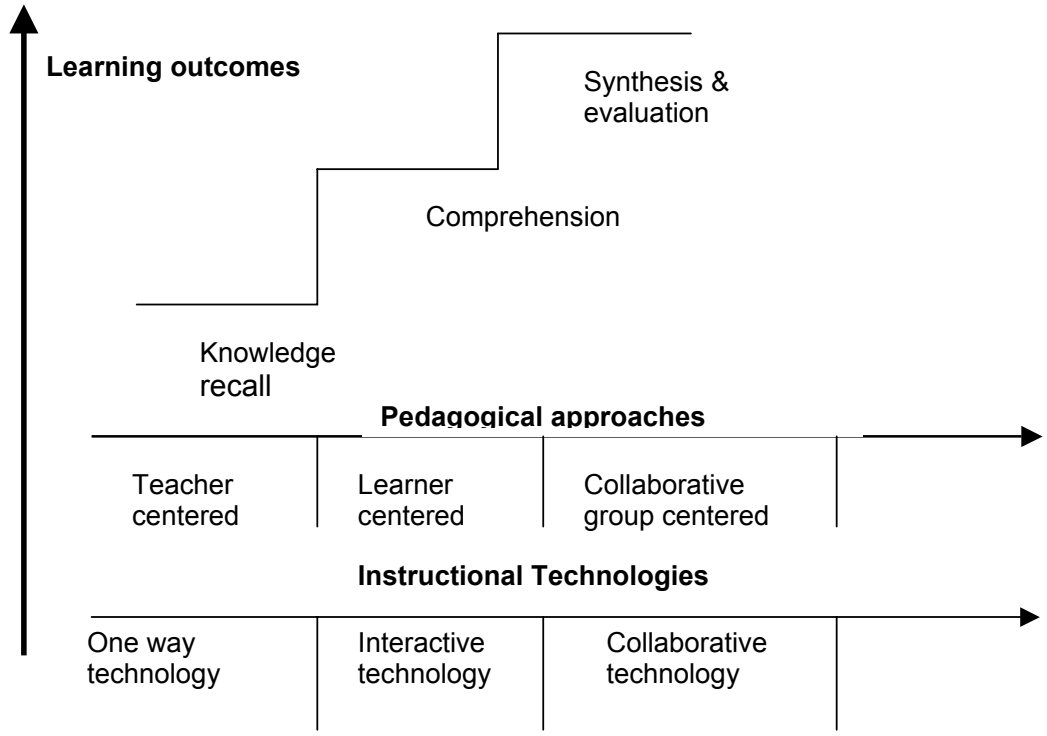
As already mentioned, although Bates (1994:1577, 2000:199) points out that there is no evidence that one technology has pedagogical advantages over another, how technology is used is likely to impact learning. For as Daniel (1997:147) says, *'technologies differ widely in their capacity to present content or inculcate skills'.* Mcloughlin and Oliver (1999:37) agree with this when they say,

> the uses and applications of technology can support learning outcomes, depending on the instructional approach adopted. Communications technologies differ in the degree to which they support interaction, dialogue and learning.'

For example, although radio and audiocassette are similar, changing from radio to audiocassette is likely to affect the level of control a learner has over the learning experience. Also, since with audio a learner can rewind and listen to the tape again and

again, difficult concepts can be reviewed and possibly understood better. Mcloughlin and Oliver (1999:37) illustrate this interaction diagrammatically as shown in figure 2.1.

Figure 2.1: The interaction between learning outcomes, pedagogies and technologies



Source: Mcloughlin and Oliver 1999:37

This model clearly presents the relationship between the technology chosen and the learner outcomes that could be obtained. For example, one-way technology like print for instance is likely to use a more teacher centred approach and will be best suited for recall of knowledge whereas interactive technologies like interactive television or video conferencing will be learner centred and will promote higher learner outcomes such as comprehension.

It is therefore clear that technology chosen should be appropriate for the type of learning outcomes and methods to be used in the study of a specific course. To maximise the benefits of technology, it would therefore be appropriate to use a combination of technology especially since at higher level a single course is likely to have different demands of learning outcomes. It is common for instance for a course to require recall at one level but demand comprehension and synthesis on another level. So whereas what Mcloughlin and Oliver (1999:37) present in figure 2.1 is a good guide to

understanding the interaction between learning outcomes, pedagogies and technologies, it should be remembered that there are no 'pure' demands from courses.

b) Access to institutions and students

Access to technology is likely to affect the choice of technology to be used in any programme. So, however educationally effective the technology is likely to be, if the staff and students do not have access to it, a decision to use it is likely to only lead to frustrations and failure. For as Bates (1994:1577) says, *'Distance education course designers are reluctant to use technologies that are not accessible to nearly all the potential students, because that limits access to the course…'*

The access here should include access to all the hardware, software and skills required to utilise the technology. For example, if the course is to be offered on-line, students and staff should have access to computers and accessories, software necessary for accessing the courses and skills for use of all these; because *'…if students experience frustration with the technology, they will drop out'* (Meyer-Peyton 2000:85).

However, where access to technology for students use is limited, the option of using learner centres should be explored (Bates 1994:1577, De Wolf 1994:1561). Access to the chosen technology is therefore vital.

c) Cost of the technology

Distance education is believed to be cheaper but only in the long run because start up costs are often high. Some of the start up costs are likely to be high as a result of investments in technology to be used (Bates 2000:19, Berge 2001b:19, Orivel 1994:1572), and as Meyer-Peyton (2000:85) says, the cost of the technology must be researched before any decision to use it is reached. Some of the cost elements to be considered include:

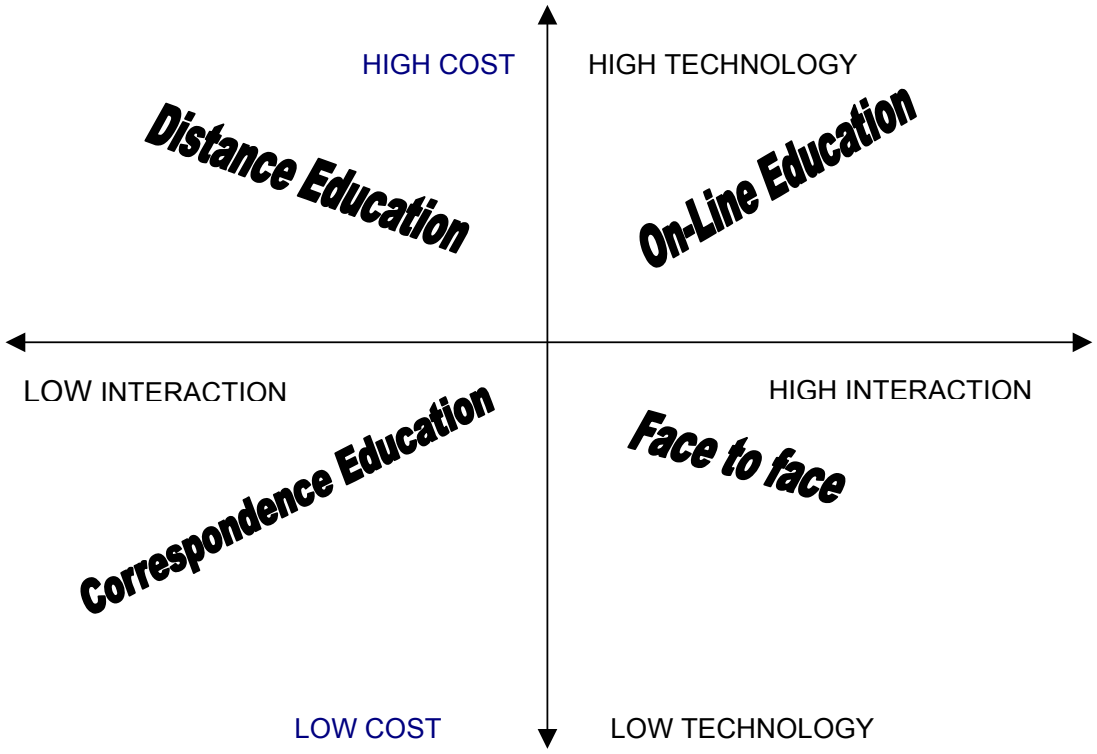
- Initial cost of purchase of technology
- Upgrades and maintenance of technology
- Spares and replacement of technology
- Technical staff to run and maintain technology
- Consumables
- Training of staff and students in the use of technology

Cost to the student is another factor that needs to be borne in mind for as Daniel (1997:100) says, *'when universities move to technology based teaching methods,*

students are likely to face additional expenses as well as the challenge of change'. So the institution should consider how much it would cost the students to either purchase the necessary technology or use the technology. For example, web-based courses transfer a lot of costs to students. Since reading text on-line is tiresome, inconvenient and expensive, a lot of printing and telephone costs are transferred to students (Holmberg 2001:53). This can marginalize the poor students.

It should also be remembered that the more sophisticated the technology the more costly it is likely to be. For example, print and radio are low technologies. They are less sophisticated than computer technologies and so are likely to be cheaper but unlike the computer, the radio and print will only permit minimal interaction. In the case of Correspondence Education and because of dependence on print material, which is low technology, there would be low interaction and low cost. Figure 2.2 illustrates this relationship between sophistication of technology, cost, and level of interaction. Face to face programmes have been included in this diagram for comparative purposes especially since distance education is often judged using face-to-face programmes as a yardstick.

Figure 2.2: Cost in different forms of Distance Education



In addition to this, the contribution of the technology to the teaching/learning experience should also be taken into account. For example, use of multimedia technologies in a course may imply high financial costs but because the quality of learner involvement and participation in the course is high and the dropout rate likely to be lower, a decision could be taken to invest in such technology (Rumble 2001a:80).

d) Politics

This factor may be a very subtle one and therefore one difficult to discuss or analyse. It is important that an institution wishing to integrate ICTs has commitment to its use for as Bates (2001:142) says,*' institutions without formal commitment to the use of instructional technology in teaching and learning are less likely to have policies for faculty development in this area'.* The political will of an institution is therefore crucial.

Also, the political climate within which a particular institution is operating is likely to influence the choice of media made. For example, a repressive government is likely to object to the use of technology that is likely to give learners more independence and autonomy. It will probably want to use the technology that can be easily controlled and monitored by government.

Related to this are decisions taken depending on what is politically correct. A broadcast medium like radio or television could be chosen so as to reach masses and satisfy demands for education. In China for example, according to Perraton (2000:140), the Chinese Radio and Television University system uses broadcasts because, as he says, *'the centralised management of education, and scale of demand, make a dedicated broadcasting system politically and economically realistic in China.'* He also concludes, again with regard to broadcasting saying, *'access to broadcasting has been a function of political control'.* In many countries, this situation may not strongly continue with the advent of FM radio stations although state radio and TV stations in most of the developing countries remain the ones with the widest coverage.

In addition to this all, there is currently a lot of pressure on governments and institutions to integrate modern ICTs and in Uganda, some projects have been initiated to utilise this (Aguti 2000:260-261). However particularly in developing countries, a few questions could be raised with regard to decisions on the choice of technology:

- What role does the interest of a negotiating government official have on the final decision of the technology chosen?
- What about the donor agencies and corporate companies, how far do they influence decisions on the choice of technology finally adopted? For example, according to Holmes, et al. (1993:138), when Nepal was planning to launch the Radio Education Teacher Training Project in 1978, the decision to use radio was taken partly because the local United States Agency for International Development (USAID) had interest in educational radio.

Bates (2000:18) refers to Postman (1992) and Noble (1997, 1998) who are passionate about this last point and actually believe that the emphasis on technology is all a *'hype'.* In Bates' (2000:18) words they see it as '*…a conspiracy by multinational companies and big business to sell technology and to hook young people forever as technology consumers'.*

In the next sections, each of the different technologies will now be discussed, highlighting some of their strengths and weaknesses. This is important especially if one is to identify the different technologies that can be used for teacher education in Uganda.

2.4.4 Print

In the growth of distance education, print has been used since it began as correspondence education (De Wolf 1994:1557, Verduin and Clark 1991:81). It has particularly been used for the provision of various study materials to distance learners (De Wolf 1994:1560, Verduin and Clark 1991:57 - 82). These study materials include:

- Textbooks
- Readers
- Study guides that are normally developed to accompany either textbooks or readers. The latter are actually a collection of articles selected as essential readings.
- Handouts and extracts from various literature
- Especially designed study materials. These are normally developed as self-contained courses written in a style appropriate for distance learners.

According to Verduin and Clark (1991:82), '*print has always been the dominant medium in distance education and will continue to be the most-used form of delivery in the foreseeable future'.* Even with the growth of electronic media, although the material may be distributed electronically, it is often still printed for study purposes because reading texts on-line is tiresome.

Apart from for purposes of providing study materials to learners, print has also been used to facilitate communication between the organising institution and its students. This can be in form of circulars or individual letters sent to the learners. Print has been greatly used because of some of its major advantages over other technology, although its disadvantages make it inappropriate for certain forms of learning.

Verduin and Clark (1991:82) and Sparkes (1996:139) say that print is effective for the dissemination of new information and ideas and it is for this reason that Holmberg (1993:335) believes that print is the best option for serious study. Besides all this, learners can use print in a more flexible manner (Verduin and Clark 1991:82). The learner can choose when and how to utilise the print material. This is in sharp contrast for instance to radio broadcasts that would have strict times and pace of presentation.

Perhaps one of the other attractive reasons for the use of print is the cost implication. Print is one of the cheapest technology options since print materials can be used again and again (Garrison 1996:17). In addition, production of study materials using computers has made it easier for these materials to be created, and updated.

As a result of all this, a number of distance education institutions continue to use print based materials as the core study packages; for example, Open University, (UK), UNISA, Fern Universität - Germany, Makerere University, and Indira Gandhi National Open University. However, in spite of this successful use of print, some disadvantages have been identified. According to Holmberg (1993:335), and Verduin and Clark (1991:82), communication between learners and their institutions is often slow because of reliance on print based communication. This they say is discouraging to students. In addition to this, Moore (1993:23) says that print does not often encourage interaction between learners yet this is a crucial part of the learning act. To Moore, it is necessary for learners to interact with one another because this enriches their learning.

Verduin and Clark (1991:82) identify the other problems. According to them, print is inadequate for the presentation of some skills. In teacher education for instance, print is inadequate for purposes of acquiring practical classroom skills. For as Robinson (1996:9) says, although most of the teacher education programmes in Africa have relied on print, the *'…practicum presents distance educators with major logistical problems of organisation and management'.*

Print has also been criticised for encouraging only accumulation of facts and information but not promoting critical thinking skills (Bates 1994:1577, Garrison 1996:12, Henri and Kaye 1993:27 -28, Holmberg 1993:331, Paul 1990:85, Perraton 2000:12). This may not be necessarily true because what is achieved depends on what the study materials present and how the content is presented. It should still be possible, in the written materials, to present content in an interactive and stimulating manner through use of didactic conversation.

2.4.5 Radio and audio

Radio is a one-way communication medium that can be used for a variety of purposes and also has a very high potential for mass education (Bates 1982:281). Today however, the radio can include two-way communication through phone in systems.

The radio has been used for a variety of distance education programmes. Perhaps the biggest has been the Nepal Radio Education Teacher Training Project that was run in Nepal to meet the need for primary school teachers. Between 1980 and 1987, a total of 6,429 teachers without the School Leaving Certificate enrolled in this project, 5,371 completed the course of which only 3,478 (54.1%) passed the examinations (Holmes et al. 1993:146).

Radio has been used in distance education due to a number of advantages it has. Radio broadcast has, as already mentioned, a very high potential for mass education and can be used to reach inaccessible areas. Therefore, where large numbers in remote areas are to be reached, it lends itself easily to this use through radio broadcasts. This was the case in Nepal for as Holmes et al. (1993:141) say,

> Given Nepal's rugged, mountainous terrain and the absence of a reliable transportation system, making delivery of printed materials highly problematic, it was proposed that radio carry a larger share of the instructional burden than was typically the case in other distance education systems.

Also according to Bates (1982:281), because radio is portable and can be used in non-electrified areas, it lends itself to easy use in many areas. When combined with audio, the programmes can be recorded and later listened to at the students' own leisure, thus giving the learner increased control over learning in terms of time and place of learning. Nevertheless, although radio and audiocassettes have been used for mass education, they still have a number of limitations that make them not entirely appropriate.

Access to programmes on radio is dependant on reception of the radio signal. This is sometimes problematic if the signal is weak. For example, in Uganda, people living along the Uganda - Kenya boarder receive Voice of Kenya much more easily than Radio Uganda, which is the national programme with a wider reach. So in cases where Radio Uganda is used, the intended audience may not be entirely reached.

Related to this is the fact that radio programmes tend to have fixed hours of transmission (Bates 1982:281) and this may pose a challenge to both the institution and to the student. Radio often has 'peak' hours; that is hours where the majority of the public is likely to be available. Unfortunately, such hours may be too costly for institutions if airtime is to be paid for. Programmes may therefore end up being aired at 'unfriendly' hours. This handicap can only be overcome if students can record these programmes for later use. It is also easy for an institution to relapse into the practice of continuing to produce programmes, probably poor programmes, so as to fill the slots (Bates 1982:181).

2.4.6 Television and video

Television (TV) has also been used for educational purposes in a variety of ways and in distance education, it has been used on both small and large scale. It has for example been used by Mexico's Telesecundaria Programme to reach rural based learners (Perraton and Creed 2001:23), and perhaps the widest use of the TV and videocassettes is the Chinese universities where *'by 1990 the television universities had enrolled 1.83 million students, produced 1.25 million graduates and had 420 students on roll'* (Perraton 2000:85).

TV can be enriched through use of phone in programmes to make it two-way communication, can be transmitted via satellite and this ensures much wider coverage and it can be run as video-conferencing. Alternatively, TV programmes can be recorded on videocassettes or digital video disks (DVD) and distributed to learners. Some Non Governmental Organisations (NGOs) in Peru are running video forums where learners gather together and watch a programme and this is then followed by a discussion (Perraton and Creed 2001:29). TV and video have attracted a lot of attention due to a number of advantages associated with their use.

One of the major attractions for utilising TV is its potential to reach high numbers. The broadcast facility ensures that large masses can be reached. As already mentioned, China has been able to reach millions using the TV. In addition, it lends itself to the

possibility of being enriched and made interactive through the phone in facility (Perraton 2000:85).

In the sciences, it can be imaginatively used to record processes that either take place beyond the naked eye or that take place too fast for the entire process to be followed if viewed particularly because of its rich visual appeal (Heinich et al. 2002:195, Perraton et al. 2002:41). In developing countries where there is general lack of science teachers and good study materials, well-developed and recorded lessons could be used to supplement teaching. However in spite of these strengths, TV has not been so widely used in most developing countries because of a number of problems associated with it. One of its major disadvantages is its cost. Start up costs are very high because of equipment and a network of booster stations and as Verduin and Clark (1991:74) say, '…*except for computer use, TV broadcasting has the highest start up costs and overhead'*. Perraton et al. (2002:39) actually say that when compared to radio, TV costs ten times more!

Partly due to the cost of the equipment and partly due to reception problems, TV is not accessible to all. Spronk (2001:19 while quoting UNDP 1997) says that in developing countries, there are only 140 TV sets per 1,000 people while in the developed countries there are 560 TV sets for every 1,000 people. With this kind of distribution, it becomes extremely difficult to ensure access. The distribution may have improved since 1997 but many still do not have access.

Also, where broadcasts are run and video recordings not provided, transmission times may not be necessarily appropriate to the learners. And lastly but not least, TV has also been accused of encouraging passive learning which is not very productive especially if the programmes are being run as one-way communication (Perraton et al. 2002:41).

2.4.7 Computers

Computers are the most recent addition to distance education and they have had a huge impact on the provision of distance education. As earlier discussed in section 2.2, this growth is partly responsible for the growth of new forms of distance education that were described variously as Flexible learning, Distributed Learning and On-Line learning. This is because computers provide many possibilities of both one-way and two-way communication. Besides, this can also be synchronous or asynchronous (Cao 2000:2, Garrison 1989:78, Hutchison 2001:94, Jegede 2000:50, Mcloughlin and Oliver 1999:37).

This growing use of computers in education in general and in distance education in particular is due to the number of advantages it has.

a) Advantages of computers

As already mentioned, computers are versatile and can be used for a variety of ways. One of the commonest uses of computers is for word processing and for general information processing and storage (Garrison 1989:78). However, with additional tools like CD-ROM, Internet, World Wide Web (www), and multimedia, computers can then be then used for wider purposes.

For example, access to Internet provides possibilities for:

- *'wide array of knowledge'* and instructional materials. This access opens the way for richer sources of material for electronic research (Hutchison 2001:96, 110).
- Using Internet for provision of courses also enables students to engage in self-paced learning since they will now have the option to study wherever and whenever they want to do so. (Cao 2000:4, Verduin and Clark 1991:78).
- Using the multimedia options computers provide, it is also possible to have rich simulations that could be used for teaching/learning of difficult or abstract concepts (Cao 2000:4, Hutchison 2001:96, 110). With this it is now possible therefore to illustrate scientific concepts, demonstrate experiments and present three-dimensional figures.
- Internet also makes it possible for 'just-in-time' interaction between students and the institution and also amongst students. Thus overcoming isolation and the distance barrier. This can be achieved using e-mail, chat rooms, threaded discussions, and bulletin boards (Cao 2000:2, Hutchison 2001:94, 110).

All this can have the overall impact of enriching teaching and learning. However, in spite of all this, there are some problems associated with use of computers in distance education.

b) Disadvantages of computers

Computer technology has been getting cheaper and cheaper; however, computers are still too costly for majority of persons particularly in developing countries. As Verduin and Clark (1991:74, 79), said at the start of the last decade,

> 'except for computer use, TV broadcasting has the highest start up costs and overhead… Unless public access is provided, only the relatively affluent will be able to afford computer-based distance education'

Unfortunately this is still true today even in countries like USA where access to computers has improved greatly. For example, while referring to students' access to computers in Bellevue Community College (BCC) in USA, Hutchison (2001:97) says,

> …student access to technology has become a major concern for the college. Even though more and more students have computers and Internet accounts at home or elsewhere, BCC acknowledges the responsibility to provide sufficient access on campus'

Apart from the cost implications of using computers in distance education, access to Internet also poses different challenges. Searching or 'surfing' the Internet can be a nightmare because of the sheer volume of information available. As Cao (2000:7) says, *'… this maze-like trek through cyberspace has the potential to cause anxiety in numerous individuals'.* To benefit from this vast resource requires high-speed computers, high bandwidth and adequate skills in the navigation of Internet both of which are not often available to the majority in developing countries.

While computer technology has been growing, the threat of virus attacks has also been growing. This in addition to the skills required to keep, run and maintain the technology are an added demand. Institutions choosing to use computers need to be vigilant about protecting their equipment from virus attacks and they also need expertise that can competently use, run and maintain the technology.

2.5 SOME THEORIES UNDERPINNING DISTANCE EDUCATION

2.5.1 Introduction

An Understanding of the different theories and their implications to distance education will be important in planning for teacher education by distance in Uganda because the model of distance education adopted for any programme is likely to be affected to some degree by the theory informing the thinking of the planners.

A number of writers have put forward theories on distance education and these include: O. Peters , M. Moore, B. Holmberg, D. Keegan, D.R. Garrison, D. Shale, M. Baynton, D. Rowntree, and C.A Wedemeyer. However, in this study only some of these theories will be discussed because of their importance to distance education and to teacher education in particular. Some of the key issues brought out by these theories are likely to impact this study in a number of ways. These theories are:

- Otto Peters' theory of distance education as an Industrialised form of teaching. Peters' analysis of distance teaching and the manner in which he relates it to an industrial process is relevant to current practices in distance education. Also, he has now stretched this theory to post industrialism and raises a number of pertinent issues that distance educators need to carefully think about if distance education is to remain relevant to the changing society.
- Michael Moore's theory of transactional distance. The question of distance continues to be a major one in distance education and so a theory that raises issues related to how best to negotiate this distance continues to be of importance to any distance education provider.
- Borje Holmberg' theory of didactic conversation. Holmberg's theory draws particular attention to the place of communication between the learner and the study material, learner and other learners and between the learner and the institution. This is key in any distance education and therefore needs to be examined.
- Desmond Keegan's theory of reintegration of teaching and learning acts. Like Michael Moore and Holmberg, Keegan's concern of distance and how distance education deals with this distance is also of interest.
- Derek Rowntree's theory of Self Instruction. Although in this presentation, Rowntree does not explore all aspects of distance education and cannot perhaps be said to have put forward a theory of distance education, his focus on self instruction material is important since most distance education programmes still rely on print based 'self-study' materials.

The next sub sections therefore outline these different theories and present some of the implications of these theories to distance education in general and distance education in Uganda in particular.

2.5.2 Otto Peters: Distance Education as an Industrialised Form Of Teaching

This theory was first published in 1967 as a monograph entitled Das Fernstädium an Universitäten und Hochschulen: Didaktische Struktur und Vergleichende Interpretation: Ein Beitrag zur Theorie der Fernlehre. (Distance Education at Universities and Higher Education Institutions: Didactical Structure and Comparative Analysis - Contribution to the Theory of Distance Teaching).

According to Peters (1994:59), distance education has some structural similarities with other forms of didactic instruction. To him distance education is therefore a combination of many teaching processes. Some of the processes he discusses include:

- Instruction using printed materials;
- Instruction using teaching, learning and working aids;
- Audiovisual lessons;
- Instruction with mass media
- Programmed instruction
- Computer-aided instruction

Distance education shares some characteristics with these various teaching processes although none of them qualifies to be called distance education (Peters 1994:98 - 101). The characteristics shared include:

- Use of personal correspondence
- Written tuition from tutors and written correction of assignments done
- Use of other literature like textbooks for additional support of the distance education courses
- Guidelines for the learners and provision of counselling
- Use of various media
- Individualised counselling and independence of learners.

In his comparison of distance education and the industrial process, Peters (1994, 1996) identifies major characteristics of an industrial process that are found in distance education as well. The major ones are rationalisation and mechanisation. Also, related to these two, he identifies division of labour, mass production, standardisation and centralisation as other important characteristics. The next sub sections will now discuss these major issues.

a) Rationalisation in Distance Education

Under rationalisation, the ultimate aim is to achieve high output while at the same time saving time and money. In the industrial process, this is achieved through division of labour, assembly lines, and mass production (Peters 1994:109). This Peters says is what is evident in distance education as well.

In conventional universities, a lecturer carries out all the teaching functions of any specific course. This he says can be compared to pre-industrial forms of study (Peters 1994:108). In distance education on the other hand, all these functions are split up and then carried out by different persons or by specialised sections implying division of labour and specialisation. Also, the courses and assignment scripts could be said to move in assembly lines. Peters (1994:113) says that division of labour in distance

education is vital and '*…is the main prerequisite for the advantages of this new form of teaching to become effective.'*

In addition to all these, as part of rationalisation, Peters says that preparatory work, planning and organisation are all very critical. This includes planning for the huge investments often required for the development of study materials. Therefore, since distance education processes involve many different persons and specialised sections, its success can only be achieved through rationalisation, through careful planning and organisation.

b) Mechanisation of Distance Education

With regard to mechanisation in distance education, Peters (1994:114) says '*distance study could be ascribed to the industrial levels as it cannot take place without the use of machines'.* Machines are constantly performing a number of distance education tasks and so distance education, like the industrial process, has been mechanised; and with advanced technology, some of these tasks have now been automated.

Division of labour and mechanisation of distance education have in turn led to mass production. In the industrial process, this can only take place where there is *'…a mass of consumers…'* In distance education, larger numbers of students can have access to education than is the case in conventional education; and through technology distance education provides study materials for these large numbers. To Peters (1994:116), the production of study materials represents mass production and he then concludes this by saying '…*distance teaching will one day equalize the opportunities to study…'*

In the end, division of labour, mechanisation and mass production all imply a standardisation of products. This is achieved in distance education when study materials are produced with a common format. Also unlike in lectures where lecturers may indulge in subjective comments or digressions, in distance education these are all eliminated and objectivity of content presentation is achieved and the study material standardised (Peters 1994:120). Having compared distance education to the industrial process, Peters (1994:125) then proceeds to define distance education as

> …a rationalized method - involving the division of labour - of providing knowledge which, as a result of applying the principles of industrial organization as well as the extensive use of technology, thus facilitating the reproduction of objective teaching activity in any numbers, allows a large number of students to participate in university study simultaneously, regardless of their place of residence and occupation.

c) Post industrialisation of Distance Education

Peters did not leave his theory at the industrial stage, since the current period of development could be counted as post-industrial. Peters (1996:39 - 58) has taken this theory forward. For as Amundsen (1996:62) says, '*Peters follows the same reasoning in describing how distance education must now change to match the changes in our industrial society as we enter the post industrial or post modern era'.*

To him, post industrialism is marked by three major changes that are taking place and these are increase in the service sector, emergence of new technology, and change in the decision-making structures so that decisions are no longer taken by an individual but by groups or teams of employees.
(Peters 1994:223, 1996:41-42).

These changes therefore imply that there is need for new knowledge and skills. However, in spite of these changes, distance education is still *'…basically an industrialized form of teaching…'* (Peters 1994:227, 1996:45). Nevertheless, in spite of these, Peters believes that there are some characteristics of post-industrial society that are evident in distance education as well. He highlights four of these:

- The learner is not tied down to the school and can study from wherever he/she is just as in post-industrial society the worker is no longer confined to a given place of work because of the flexibility Information Technology offers (Peters 1994:227, 1996:45).
- The learner takes responsibility for his/her learning and is given opportunity to develop *'…self-determination, self-direction and self-control…'* just as workers can determine how and when to work because the guiding principle is now meeting deadlines rather than presence at a specific place *(*Peters 1994:227, 1996:46).
- Social interactions are still important and are often provided through face-to-face sessions or through student self-help groups while workers achieve this through use of working groups (Peters 1994:227, 1996:46).
- Most distance education programmes today use electronic communications systems like radio, TV and computers just as in the post industrial setting it is no longer muscle power that is important but rather information (Peters 1994:228, 1996:46).

d) Effects of industrialization on Distance Education

With all these in mind, Peters (1994:229-235, 1996:47-53) then states that post industrialism is likely to affect distance education because of changes in work

requirements, change of learner characteristics and demands, and changes in technology. Some of these changes will be:

- *Demand for higher education* which is likely to increase especially for training, re-training and continuing education.
- *Students* will now enrol for different reasons and not necessarily so as to rise up in the social ladder.
- The learners *Objectives* for education will therefore be more of desiring to achieve self-realisation while for others this will be to improve their qualifications so as to get or keep certain jobs.
- The *structure* of education will have to change to cater for students who will want to study while working but with no undue stress. Distance education would therefore have to be integrated more into the daily work processes of its learners so as to remain relevant and appealing.
- Distance education institutions will need to provide courses that will be seen to be current and relevant. The *curricula* will therefore have to change to multi-disciplinary and multi-dimensional approach to course development.
- *Methods* used in distance education will also need to include group work through small groups, and involving frequent interaction between learners.
- As newer technologies emerge, distance education will continue to rely on *technology* and will need to continually integrate these new technologies.
- Institutions will no longer remain as custodians of knowledge. The democratisation of knowledge will mean changes in the functions of institutions. These institutions *'will become primarily service agencies whose main role it is to motivate, to inform, and to advise students expertly'* (Peters 1994:234, 1996:52).

The highlights of this comparison of distance education and the industrial process and then of distance education and the post-industrial society are therefore as follows;

- Distance education is certainly a product of industrialisation.
- However in the post-industrial era, distance education must change if it is to keep up with the emerging changes in learner needs.
- To manage these changes, new models of distance education will be necessary. Models that will promote group work, use of new technologies for acquisition of information and that will promote learner autonomy.

(Peters 1994:238-239, 1996:57)

e) Implications of Peters' Theory on Distance Education

Peters' theory of distance education as an industrial process raises a number of issues that are relevant to date. In a world where most governments and institutions are faced by the challenge of meeting costs of education amidst dwindling resources, it is imperative that both governments and institutions rationalise all the distance education processes so as to save time and money while maintaining quality. This is a tough balance to achieve but as Peters counsels, it is vital to carefully and deliberately prepare and plan for every distance education programme. Some programmes have in the past wound up because there was insufficient preparation and planning before the launching of the programmes.

However, since division of labour, mechanisation and mass production imply standardization of products, caution is necessary to avoid standardization of knowledge and loss of learner autonomy (Henri and Kaye 1993:28).

Lastly, Peters (1994:239, 1996:57) emphasises the need for relevant education using models that will appeal to the learners. This is something that distance education must fully grapple with for as he says, *'…slight and superficial alterations will certainly not do'.* Institutions therefore need to critically examine their systems and work towards transformation rather than make only superficial changes.

2.5.3 Michael Moore: The Theory of Transactional Distance

This theory was first put forward in 1972. According to Moore, separation between the teacher and the learner in distance education is more than just the distance separating them. To him, there is *'…a psychological and communications space to be crossed, a space of potential misunderstanding between the inputs of the instructor and those of the learner'* (Moore 1996:22). This is the space that Moore calls transactional distance. This distance affects both the teaching and learning and so efforts should be directed at crossing this distance so that effective teaching and learning can take place.

Moore puts forward three major variables that will affect the transactional distance (Moore 1986:11, 1996:23). These are instructional dialogue, programme structure and autonomy of the learner. These variables work in combination of each other thus together affecting transactional distance.

a) Instructional dialogue

This is the dialogue that takes place between the learner and the teacher and to Moore (1996:24) this is meant to lead to an understanding of the course. However, both the learner and the teacher should be partners in this dialogue. It is for this reason Moore (1996:24) says that the direction and extent of this dialogue will depend on the *'…educational philosophy of the individual or group responsible for the design of the course, by the personalities of teacher and learner…'*

The other major determinant is the medium of communication. Choice of media is therefore critical for it determines what kind and how much dialogue will take place between the teacher and the learner and ultimately, how far the transactional distance is reduced (Moore 1986:11, 1996:25). Some media will work better at reducing this distance than others. For example, *'…highly interactive electronic teleconference media, especially personal computers and audio conference media, permit a more intensive, more personal, more individual, more dynamic dialogue than can be achieved in using recorded medium'* (Moore 1996:25).

The number of students that a distance education tutor is handling and the frequency with which he communicates with his students can also affect dialogue. For example, if a tutor is expected to handle many students and there are no good opportunities for him to communicate with the students then very little dialogue will take place and the transactional distance will remain great.

b) Programme structure

The second major variable that Moore (1986:11, 1996:26) identifies is the programme structure. To him, a number of processes have to be structured into every programme. These are presentation of content; support of the learners' motivation; helping learners develop skills of analysis and criticism; advise and counsel for the learners; arranging for learners to practice, apply, test and evaluate what is learnt; and lastly arranging for learners to create knowledge. How each of these is structured into the programme will determine whether that programme will overall be highly structured or less structured and ultimately this determines the transactional distance that will exist between the learner and the teacher. The structure will determine the level of rigidity or flexibility in the programme.

A highly structured programme will for instance *'…set course starts and ends, have established due dates for assignments, use packaged course materials designed for*

*more than one set of students…' (*Amundsen 1996:63). With these set deadlines the learner will have much less flexibility, whereas a programme with less structure will *'allow course registration throughout the year, submission of assignments within a broad time period, and contract individually with students as to course composition'* (Amundsen 1996:63).

Moore (1996:27) also points out that a number of factors influence the structure of the programme and he identifies four of these:

- The nature of the communications media chosen
- Philosophy and character of the learners
- Philosophy and character of the teachers and
- Constraints that are imposed by the institution.

As with the case of dialogue, the nature of the media chosen for use will either impose structure on the programme or give the programme room for flexibility. For example,

> …a recorded television programme, …is highly structured, with every word, every activity of the instructor and every minute of time provided for, and every piece of content predetermined (Moore 1996:26).

A teleconference on the other hand will be more flexible allowing for students' input. So a programme run using teleconferencing will require much less structure than a programme presented using recorded television.
The philosophy and nature of the instructor and the nature of the institution also determine the extent to which a programme will or will not be structured. A teacher or institution that is unwilling to provide opportunity for dialogue with students will probably design a highly structured programme. In addition to this, the institutions' capacity to provide management and operational structures that give opportunity for dialogue and flexibility all determine the final structuring of the programme (Moore 1996:27).

c) Autonomy of the learner

This is the third major factor that Moore (1996: 29) identifies as key in determining the transactional distance between the teacher and the learner. So, to him a learner is autonomous when he/she has a great role in teaching/learning decisions. Therefore the greater the learner's role in the teaching/learning relationship the greater the transactional distance and the greater autonomy that learner will have. Moore (1996:32) however points out that some learners '…*preferred, or succeeded in less dialogic and*

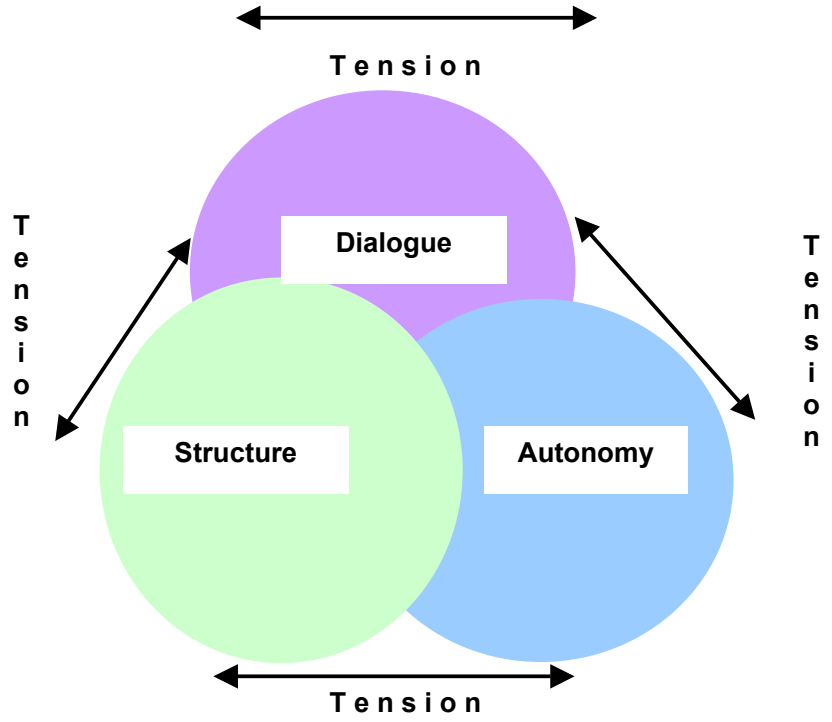
more structured programmes…' while others succeeded or preferred less structured programmes.

d) Implications of Moore's Theory on Distance Education

From all this, Moore certainly puts a lot of emphasis on the place of dialogue, programme structure and learner's autonomy on transactional distance and there are a number of lessons that distance educators can learn from this.

It is clear that there is tension as these three factors interplay and this is represented graphically as shown in figure 2.3.

Figure 2.3 Interrelationships of factors determining Transactional Distance



Achieving balance in the interrelationship between dialogue, programme structure and learner autonomy would perhaps be the ideal. That is having programmes that provide for dialogue, learner autonomy and at the same time, have some structure. For, lack or excessive structure, dialogue or learner autonomy could easily breed chaos. Institutions need not therefore seek to structure programmes, provide for dialogue, and learner autonomy for the sake of it. There must be careful planning and integration of each of this for maximum benefit to all.

For example, one of the advantages flaunted by distance educators is that it gives opportunity for flexible learning (Henri and Kaye 1993:28, Holmberg 1995a:50). However, some of the programmes that have been run before have been criticised for being too rigid with set deadlines for registration, handing in of assignments and examinations and with students progressing as cohorts. Henri and Kaye (1993:28) say, '*the autonomy that distance education claims to promote is therefore seriously compromised*'. Also, there have been some fears expressed that because of the highly structured study materials provided to the distance learners, only assimilation of facts is encouraged with very little of analytical and creative learning (Henri and Kaye 1993:27, Holmberg 1993:331). So if distance educators have to truly ensure flexibility and learner autonomy, then the structuring of programmes will need to be carefully considered.

In addition, if the choice of medium is likely to affect the dialogue that will take place between the teacher and the learner, then media must be chosen very carefully taking into consideration the expected level of dialogue. A specific medium should not be used for its own sake but for what it can bring to the teaching learning experience. Distance educators should also take into account other factors like the personality of the teacher and the administrative arrangements made to facilitate the teacher's work because all these are critical ultimately to how far the transactional distance is closed.

Moore's theory of transactional distance draws attention to important elements of the teaching/learning experience that must therefore be taken into account in the provision of distance education programmes.

Hence this theory is relevant to teacher education in Uganda. One of the teacher's responsibilities is to help the learner discover his own potential and develop analytical and creative skills. Teacher education provided by distance education should therefore be structured in such a way as to permit the student teachers develop these skills and prepare to help their own pupils develop the same skills. Teacher trainers should not run rigid and inflexible programmes that do not promote learner autonomy and yet expect the teacher to go to schools and offer flexible programmes that help the school children develop autonomy. The teacher trainees, as learners should experience flexibility and learner autonomy. Only then can they be expected to promote the same. This is an area worth exploring further in Uganda.

2.5.4 Borje Holmberg: Theory of Guided Didactic Conversation/Theory of Teaching-Learning Conversations

Holmberg, a former Professor of Methodology of Distance Education at the FernUniversität, put forward a theory of what he called Guided Didactic Conversation. However, he revises this title later and calls it the *'Theory of Teaching-Learning Conversations'* (Holmberg 2001:42). This theory was first reported in English in 1983 and its focus is three key areas, guided didactic conversation, learner autonomy and non-contiguous communication (Holmberg 1986, 1995a, 1995b, 2001).

a) Non-contiguous communication

Holmberg (1995b: 2) says communication is of two kinds:

1. One-way traffic in the form of pre-produced course materials sent from the supporting organization and involving students in interaction with texts; this can be described as simulated communication.
2. Two-way traffic, i.e. real communication between students and the supporting organisation

This communication is non-contiguous and need not therefore take place face-to-face but is instead mediated by different media especially print, recordings and telephone. However, modern media like telefax, and electronic mail can also be used today.

Closely related to non-contiguous communication is **didactic conversation** which is the other important element in distance education. Didactic conversation refers to the language used in the texts. This language is expected to be conversational.

b) Autonomy of the learner

To Holmberg, learning is principally an individual affair and the organisation can only be supportive. So, like Moore, he too places a lot of importance on the autonomy of the individual learner. All this is reflected in what he puts forward as the key requirements for distance education (Holmberg 1986:34). According to him these requirements are:

- Non-contiguous feedback to meet the need for human contact…
- Free pacing to allow the students to work when their circumstances permit independently of any plans of their university or school;
- Opportunities to sit for examinations when students are ready to do so;
- A credit-point organisation that allows and encourages them gradually to acquire competence in one subject or part of a subject after another.

As mentioned earlier, isolation is one of the problems that distance learners face and so Holmberg (1986:35) recommends that there must be feedback to the students so as to enrich learning and provide guidance to the learner. He however emphasises that this feedback need not be given in a face-to-face session but can instead be provided using media.

In his later publication Holmberg (2001:39), emphasises what he calls *'…personal relations and empathy between the students and those representing the supporting organisations.'* To him, these are vital in motivating students and influencing learning favourably. This interaction between students and the supporting organisation can be developed and promoted through media.

On pacing of students, Holmberg (2001:21) gives two approaches to this. The first one is what he calls *'…an extra-paradigmatic innovation…'* In this type of teaching/learning, students' pacing is not imposed on students for, as he says, *'pacing imposed on students creates difficult problems'.* In this regard, he recommends that each student should be permitted to progress at his or her own pace; and consequently, compulsory deadlines for assignments are unacceptable because, as he says, these create difficulties and may promote dropping out. Using the same argument, Holmberg also says that students should be allowed to sit examinations whenever they choose to. To cope with this, he suggests the support organisation arrange for examinations to take place *'two or three times per term in each subject or part of a subject for which marks are to be given'* (Holmberg 1986:35).

Although what Holmberg suggests here would be the ideal, a highly flexible programme would be most difficult to manage. Allowing for instance 500 students enrolled on a single course to submit assignments whenever they are ready would be tantamount to having 500 different deadlines! A challenge no academic or administrative staff would want to deal with. Perhaps this is why the second option he proposes seems more attractive to many distance education institutions.

The second approach is one he calls *…innovation within an accepted paradigm…'* This is a much more structured approach than the first one and is characterised by classes/cohorts, fixed starting times, fixed schedules for assignments, and fixed duration of the course (Holmberg 2001:21). Most dual mode institutions follow this approach. For example, the Makerere University External Degree Programme is an example of a programme that runs on this basis.

Holmberg however advises that distance education should adopt the credit point system that would allow students to concentrate on single subjects while at the same time accumulating credits for the award. This would be another way of making this structured approach more flexible.

c) Principles and characteristics of Distance Education

Having identified the basic requirements for distance education to take place, Holmberg (1986:108-111, 1995b:47, 2001:38-41) puts forward five salient principles and characteristics of distance education and these are:

1. Learning is an individual affair and student support should therefore only facilitate learning. As a result, distance education is much more suitable for adult learners who often already have a high degree of independence.
2. Teaching should as a result facilitate learning. Methods and media that the support organisation chooses to use should be those that will enhance this function of teaching.
3. Course materials developed for the distance learner should be presented in an interactive manner. The learner should be addressed personally and should be given opportunity to interact with the material through the self-checking exercises.
4. Empathy is critical as a pre-condition for effective presentation of learning matter and for provision of learner support. This gives opportunity for a two-way communication between the learner and the support organisation. Various media can be used to mediate this since communication is core in distance education.
5. *'Organised distance education requires an administrative framework'* (Holmberg 1986:110) *a*nd this to him implies that an institution can be public, private, independent or part of another institution. However in each case the institution would only act as a support organisation whose major role would be to take decisions. On this matter, Holmberg agrees with Peters that '…*division of labour, rationalisation and automation…'* are vital particularly if students are many (Peters 1994:109).

d) Teaching as facilitating learning

According to Holmberg's theory, the central concept is that teaching is meant to facilitate learning and this teaching is through the study materials and support the student gets. It is therefore for this reason Holmberg is concerned about the teacher/organisation's view of what constitutes learning. The policies and procedures adopted will be influenced by this view.

Holmberg (1986:123) then states his theory as:

> Distance teaching will support student motivation, promote learning pleasure and effectiveness if offered in a way felt to make the study relevant to the individual learner and his/her needs, creating feelings of rapport between the learner and the distance-teaching institution (its tutors, counselors etc.), facilitating access to course content, engaging the learner in activities, discussions and decisions and generally catering for helpful real and simulated communication to and from the learner.

Holmberg's theory does raise a number of pertinent issues that are important in distance education. The next sub section therefore examines the implications of this theory on distance education.

e) Implications of Holmberg's theory on Distance Education

One of the major contributions of Holmberg's theory has been his concept of didactic conversation or teaching/learning conversations as he later calls it. It is therefore essential that providers of distance education establish ways and means of optimising the didactic conversation when designing study materials and when choosing media to use.

The issue of learner autonomy is also critical so programmes should be designed in such a way as to offer the learner opportunity to take charge of his/her learning experience. The learners must be given some degree of independence. However, the issue of maximum flexibility in pacing is still an elusive one for many of the distance education programmes that have been run.

Holmberg's view of the providing institution as a support organisation is also important in distance education. It implies that institutions need to plan for support structures that will enable it to actually provide support to the distance learners.

2.5.5 Desmond Keegan: Theory of the Reintegration of Teaching and Learning Acts

Keegan (1996:113 – 134) put forward this theory believing that distance education theory forms part of general education theory. In putting forward this theory, Keegan confesses that he is influenced by the views of Wedemeyer, and by Garrison and Shale. It is also clear from his theory that in some respects [for example on the issue of separation of teaching and learning acts], he agrees with the views of Moore.

a) Major elements of Distance Education

In his theory, Keegan attempts to define distance education and he does this by identifying the major elements of distance education. To him, the major elements are:

- Students study at home and at other related locations but nevertheless away from the institution and teacher (Keegan 1996:118)
- Students and teachers are separated in a quasi-permanent basis. This to him is when the *'…teacher and the learner are totally or substantially separated and that this may be for the length of the learning process…'* (Keegan 1996:119)
- Study is institutionalised. In other words, there is an institution that is involved in planning and management of the teaching and learning processes (Keegan 1996:118)
- Technology is used *'…to unite teacher and learner and carry the content of the course'* (Keegan 1996:120). This is a major component because to him, without communication, there can be no distance education and this communication is possible through the use of technical media.
- 'Two way communication is provided *'… so that a student may benefit from or even initiate dialogue'* (Keegan 1996:120)
- Quasi-permanent absence of a learning group. The learner does not have to study in a group but can be taught as an individual.

b) Keegan's definition of Distance Education

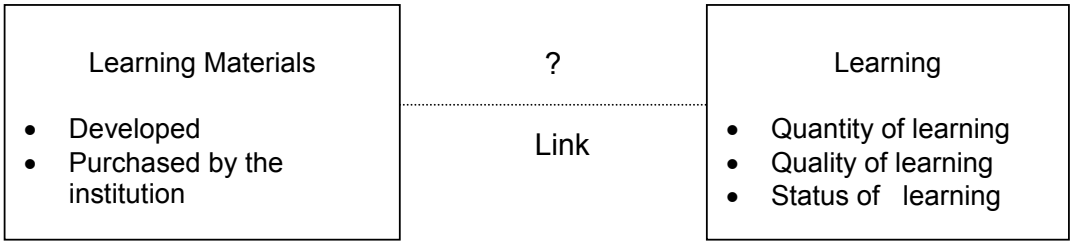
Having identified these major components of distance education, Keegan (1996:120) then proceeds to define distance education as:

> A type of education characterized by the quasi-permanent separation of teacher and learner throughout the length of the learning process; the influence of an educational organization, both in planning and preparation of learning materials and in the provision of student support services; the use of technical media - print, audio, video, computer - to unite teacher and learner and carry the content of the course; the provision of a two-way communication so that a student may benefit from or even initiate dialogue; the quasi permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals not in groups, with possibility of occasional meetings for both didactic and socialization purposes.

c) Reintegration of teaching/learning Acts

Keegan (1996:130) considers '*linking of learning materials to student learning'* as the crux of the matter since in distance education, students and teachers are separated. He then presents this diagrammatically as shown in figure 2.4.

Figure 2.4: Linking learning materials to learning



Source: Keegan 1996:130

Establishing a link between the learners and the teachers is what Keegan calls the reintegration of the teaching/learning acts. This is important because reducing the gap between the learners and the teacher enriches the teaching/learning acts. This to him can be best achieved through:

- Two-way communication between the distance learners and the distance teacher through technical media.
- Study materials that are developed in such a way as to give the learner opportunity to interact with the materials. To achieve this, the materials should, to Keegan (1996:131,) have interpersonal communication characteristics which he identifies as:
  - easily readable style,
  - careful structuring of content,
  - self-testing questions within the material,
  - well stated instructional objectives, and
  - simulations of classroom, lecture or tutorial situations.
- Reintegration of the course development and student support. These he says are the two major sub-systems of distance education and the two should be linked up.

Keegan is concerned about reintegration because to him, that is the only way distance education can reduce on the number of dropouts in the programmes. Also, a higher quality of education can be achieved thus enhancing the status of the organising institution as well (Amundsen 1996:67, Keegan 1996:132).

d) Implications of Keegan's theory on Distance Education

Like all the other theorists discussed, Keegan once again draws our attention to the element of separation of the teacher and the learner. So distance educators really need to take this element into account because it is the one consistent element arising in all the theories discussed here. And as Keegan reminds us, it is only when efforts are made to bring the two together that dropouts can be reduced, quality education achieved

and the status of the institution improved. These are the three 'sticky' points in distance education. Distance education programmes have been accused of producing many dropouts (Keegan and Rumble 1982:228, Perraton 2000:193). Efforts must be made to remedy this and if reintegration of teaching/learning acts is going to help in this, then it should be ensured.

Also, distance education has sometimes been called a second rate alternative of education because it does not offer high quality education (Keegan and Rumble1982:232). This needs to be addressed if distance education is to receive acclaim and general acceptance by all its stakeholders. Keegan's views cause us to focus on these issues.

2.5.6 John R. Verduin, Jr. and Thomas A. Clark: The Three Dimensional Theory of Distance Education

These two put forward this theory in 1991, building on Moore's theory. And like Moore, their theory was heavily influenced by theory of Adult Education. In this Three Dimensional Theory therefore, the focus on adult education is retained (Amundsen 1996:68) but also general practice in distance education is reflected. Verduin and Clark (1991:124) say,

> We believe that using many of Moore's concepts to develop a theory that better fits distance education in practice, while tying it to adult and conventional education overall, presents an evolution not a rejection, of the concepts he advanced.

They retain the adult education focus because to them *'distance education can be characterised as a form of adult education'* (Verduin and Clark 1991:4-5). They then continue to identify what to them the adult education characteristics found in distance education are.

a) Adult Education characteristics found in Distance Education

The characteristics identified are:

- Distance education programmes' dealings with time and place are often appealing to adult learners who prefer to study either in the evenings or during weekends.
- Units or departments that have traditionally run adult education programmes run a number of distance education programmes. For example continuing education or extension services units.
- A lot of literature that has been written on distance education programmes is about programmes whose clients are adults.

- *'Successful study at a distance requires certain traits that are more typical of adult than pre-adult learners'* (Verduin and Clark 1991:5). For example, studying as a distance learner requires self-motivation and independence both of which are found in adult learners.

b) Verduin and Clark's definition of Distance Education

In terms of a definition of distance education, Verduin and Clark adopt a definition that retains the central concept in the earlier definition given by Garrison and Shale (1987). To them, distance education might therefore be *'any formal approach to learning in which a majority of the instruction occurs while educator and learner are at a distance from one another'* (Verduin and Clark 1991:8). This definition retains Keegan's concept of separation of the teacher and the learner (Amundsen 1996:68).

This theory is called a 'Three Dimensional Theory of Distance Education' because Verduin and Clark identify three major dimensions that to them are critical in understanding distance education and these are:

- dialogue/support
- structure/specialized competence
- general competence/self-directness

c) Dimensions of Distance Education

Dialogue/support

The first dimension they identify is that of *Dialogue/support.* This begins with Moore's concept of dialogue (Amundsen 1996:68, Moore 1996:24, Verduin and Clark 1991:124,), but later, they introduce the concept of support; for to them, the *'basic reason for dialogue is to provide support of one kind or another to the distance learner'* (Verduin and Clark 1991:124). Their major argument for emphasizing support for learners is that a more independent student will not require a lot of emotional support whereas a dependent student will on the other hand *'use dialogue to receive emotional support'* (Verduin and Clark 1991:124). In other words, such a dependent student will require more than content information and study directions. For such a student to be retained on the distance education programme, he/she will need other forms of support.

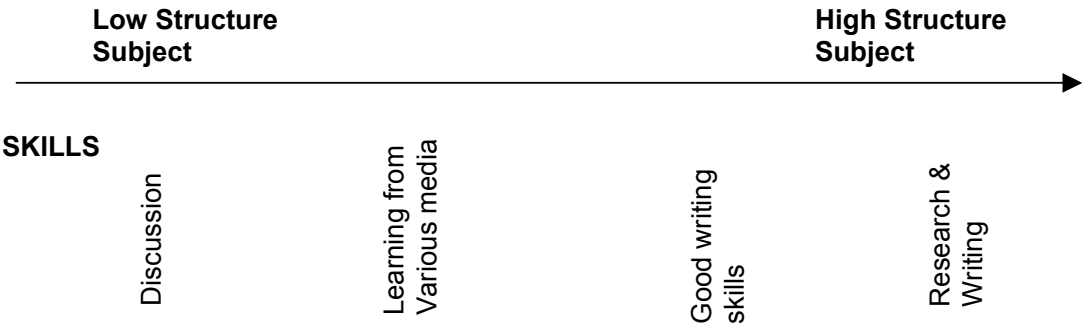
Structure/specialized competence

The second dimension that Verduin and Clark identify is *Structure/Specialized competence.* Once again, they start developing this concept by adapting from Moore his concept of structure of the programme and then include the concept of specialized

competence (Verduin and Clark 1991:125). According to Amundsen (1996:68), for the first time in the development of theory on distance education, the issue of content of the subject becomes an important factor. This is because Verduin and Clark believe that different subjects require different levels of specialized competence for the learner to effectively study the said subject. So to them, structure and specialized competence are inseparable (Verduin and Clark 1991:125). The more highly structured the subject, the more specialized competence will be required for the learner to study that subject.

They contend that for a learner to be a self-directed learner, he/she needs certain specific skills. They then present these skills in a hierarchy. A low structured subject to them would require low-level discussion skills so as to engage in learner discourse. On the other hand, a highly structured subject where prerequisite knowledge would be required before proceeding to another level, more specialized skills of research and writing would be necessary (Verduin and Clark 1991:126). This can be graphically represented in figure 2.5.

Figure 2.5: Hierarchy of skills required for different subject structures



General competence/self-directedness

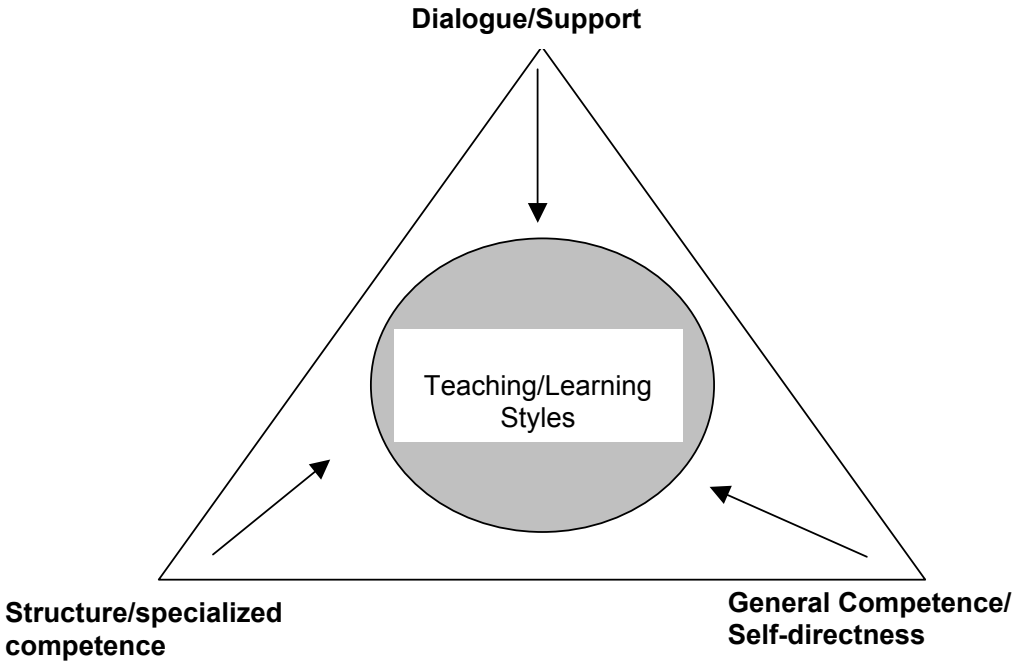
The last dimension that Verduin and Clark put forward as vital is *general competence/self-directedness.* In this, they believe that self-directedness is not *'inherently good or bad'* (Verduin and Clark 1991:127). However, to them, it is wrong to assume that subjects will promote autonomy but rather it should be recognised that a learner will need specialised competence and this is dependent on the structure of the subject. General competence alone is not sufficient. Therefore to determine the levels of self-directedness or general competence a learner requires to study a specific subject, it is necessary to do the following:

- *'determine whether the student is competent in that field at that level,'*
- *'estimate the student's general competence'*

- *'…see if appropriate structure and dialogue have been afforded…'* (Verduin and Clark 1991:127)

From this theory it is evident that Verduin and Clark put a lot of importance on understanding the learner, particularly the adult learner, with all his/her potentials. In addition, the three dimensions they put forward are closely related and so, often a course will have some content that is highly structured and requires specialised competence and other content that is of low structure but requiring specialised competence. Distance Educators have a lot to learn from this theory. This interplay of factors can be represented diagrammatically as shown in figure 2.6.

Figure 2.6: Three dimensions to teaching/Learning



d) Implications of the Three Dimensional Theory on Distance Education

Verduin and Clark state that distance education is a form of adult education partly because most of the programmes that have been run have been for adult learners. Also, since adult learners often have great motivation and are often self-directed, distance educators should take this into consideration when planning programmes or courses. Courses run should exploit these strengths in the learners to the benefit of the learners.

Also, like Moore, Verduin and Clark invite distance educators to critically examine the structure of the subject, the level of support, and the level of competence required for a learner to be able to effectively participate in the programme. These three are interrelated and the style of teaching adopted will depend on the teacher's attitude with regard to these three. Likewise, the style of learning adopted will depend on whether the learner is one to work best with little or with much dialogue, low or high structure and his/her level of competence with regard to the course to be studied.

2.5.7 Derek Rowntree: Self-Instruction

Derek Rowntree was actively involved in the development of study materials at the Open University UK, and as a result put forward guidelines for teachers, lecturers, trainers and instructors wishing to produce effective self-instructional materials. According to him, self-instruction has been known by different names including:

- distance education
- packaged learning
- open learning
- flexistudy
- independent/individualized learning
- home study
- computer based training/computer aided instruction

Rowntree (1986:9)

It is however difficult to accept his view that self-instruction is synonymous with all the terminologies he gives here, (section 2.2 discusses some of these), but nevertheless each of these forms of learning do utilise self-instruction. Also, as he points out, all the learners involved in self-study have one thing in common, '*…they rely very heavily on **specially prepared teaching materials'**. That is the teaching will have been largely pre-planned, pre-recorded, and pre-packaged'* (Rowntree 1986:11). The basic principles Rowntree puts forward are discussed in the next sub-sections.

a) Characteristics of Self-Instruction

To distinguish self-instruction from what he calls conventional instruction, Rowntree identifies a number of features and these are:

- Self-Instruction depends on materials that have been especially produced for use by a specific group of learners and with specific objectives in mind (Rowntree 1986:11).
- Learners involved in self-instruction will *'do most, if not all, their learning from the materials alone'.*
- The materials designed should carry all the functions of a teacher. In other words, the study material should guide, motivate, question, intrigue and provoke the learner.

- Learners may learn from each other; however, since this may not always be easy to implement, *'self-instruction materials may need to compensate for lack of contact with other learners as well as with teachers'.*
- The learners are encouraged, and sometimes required to make *'occasional contact with a tutor'.* This contact can be by telephone, through assignment tutoring or through seminars and tutorials.

(Rowntree 1986:11 –13)

b) Major features of self-instructional materials

Having identified the key characteristics of self-instruction, Rowntree then puts down some features of self-instruction materials that would ensure that the materials perform the teaching function. Some of the major features are:

The self-instruction materials may be produced by either course teams or by individual course writers (Rowntree 1986:19 –23).

- Already existing courses can also be adapted whether in whole or only in part as long as in so doing the needs of the learners and objectives of the course are met (Rowntree 1986:30 -32).
- Maintenance of the course should be planned for right from beginning. To him, maintenance of the course would among other things include: tutoring, producing new assessment materials, maintaining course records, dealing with problems that arise during the course, evaluating and improving the course (Rowntree 1986:32 - 33).
- The course material should not be overloaded because this can lead to stress for the students (Rowntree 1986:58).
- The content chosen should be carefully sequenced according to what is most likely to appeal to students, and what will promote learning (Rowntree 1986:66).
- Although in self-instruction, the main media is print, other media can be integrated. The media chosen should, according to Rowntree (1986:74), be performing the following functions:
    - Catching the learners' interest.
    - Reminding them of earlier learning
    - Stimulating new learning
    - Explaining and provoking thought
    - Getting learners to respond actively
    - Giving them speedy feedback to their responses
    - Encouraging them to practise and review
    - Helping learners assess their own progress

- Learner activities included should cause learners *'… to work with the subject-matter - rather than merely reading about it'* (Rowntree 1986:83).
- Self-instruction material should be highly readable. In other words, the material should be written in a *'conversational style'* and in a plain manner so as to ensure that the learners can easily enjoy studying it (Rowntree 1986:207).
- The study material developed should also include tasks that invite learners to carry out practical work. While additional practical work can be carried out during face to face sessions, at the learner's place of work, using experimental kits and/or using pictures or videos to demonstrate the practical work the learners are expected to carry out and/or learn from (Rowntree 1986:237).

All the features mentioned here should have the effect of promoting active learning (Rowntree 1986:119).

c) Implications of self-instruction on Distance Education

Rowntree's outline of the major features of self-instruction presupposes that the learners and the teachers (course writers/developers) are separated, for as he says, *'some forms of self-instruction cater for learners who are learning "at a distance'* (Rowntree 1986:10). This is in agreement with other theorists discussed earlier (in sub-sections 2.5.1 – 2.5.6) who identify distance as a major characteristic of distance education. Also, written study materials form the core of many distance education programmes and so the principles that Rowntree puts forward as critical in ensuring active learning are relevant to all programmes. These same principles can also be stretched beyond print materials. For, regardless of the medium used or technology used for instruction, learning should still be an active process. Therefore the study materials should be developed in a manner that will encourage the learner to actively participate in the learning process.

This whole section has focused on some theories of distance education and for each one of them, the implication on distance education has been discussed. Section 2.6 draws on these theories for the conceptualisation of distance education and table 2.2 summarises each of the theories.

Table 2.2: Some Distance Education theories, key issues raised and their implication to Teacher Education

Theorist & Theory	Major issues	Implications for DE Teacher Education
Otto Peters **Distance Education as An Industrialized form of Teaching**	**Rationalisation in DE** • Division of labour for DE activities • Like in industry, courses and assignment scripts move in 'assembly lines'. • DE aims at mass access to education and mass production of course materials • Standardisation of products **Mechanisation of DE** • DE cannot take place without the use of technology. **Post Industrialism has huge implications on DE** • Has affected the demand; type of student enrolling and their objectives for doing so; curricula of courses offered; methods of teaching/learning; type of technologies being used, and functions of the providing institutions.	• DE implies involving many different persons and specialised sections • Careful preplanning and continuous planning of programmes • Since there is likelihood of standardisation of knowledge, need care so as to avoid causing complete loss of student autonomy • Need transformation of institutions and programmes to cope with changes in society.
Michael Moore **Theory of Transactional Distance**	**Instructional dialogue: dialogue that takes place between the learner and the teacher** • This dialogue affected by the philosophy of the institution and the teacher • Also affected by medium of communication chosen • Number of students a tutor handles also affects dialogue. **Programme structure** • All major processes of a programme and how they are structured or organised will determine the transactional distance that will exist between the institution and the learners • Highly structured programme implies less flexibility for the learner • Less structure implies more flexibility for the learners **Autonomy of the learner** • To what extent does the learner have control over the teaching/learning contract	• Strive for balance between dialogue, programme structure & learner's autonomy • Programme should be designed carefully so as to enable learners to develop analytical and creative skills • Careful choice of the media • Development of didactical sound programmes

Borje Holmberg **Theory of Guided Didactic Conversation/Theory of Teaching Learning Conversations**	**Non-contiguous communication**	• Institutions should be support organisation – facilitating not directing learning • Materials developed should be interactive • Media chosen should promote communication between the learner and the teacher/institution • Programme organisation should promote learner autonomy
	• This communication does not have to take place face to face. • Communication is mediated by media	
	Autonomy of the learner	
	• Learning is an individual affair. Institution should only be supportive	
	• Students must be given feedback. This does not have to be face to face	
	• Free pacing of the students helps them work whenever they can	
	Principles and characteristics of DE	
	• Learning is an individual affair. Institution should only be supportive	
	• Teaching should only facilitate learning	
	• Course materials should be interactive	
	• Empathy is critical for provision of learner support	
	• Organised DE requires an administrative framework	
	Teaching as Facilitating Learning	
	• Teaching in DE is through study materials and student support	
	• Learning should be made relevant	
Desmond Keegan **Theory of the Reintegration of Teaching and Learning Acts**	**Major elements of DE**	• There must be deliberate efforts at bridging the gap that separates the teachers and the learners • This will help reduce dropouts, improve quality of education and status of the institution • Study materials developed should be interactive • Media should be carefully chosen so as to ensure two-way communication
	• Student studies away from the institution and the teacher	
	• Students are separated from the teacher either totally or substantially	
	• Study is institutionalised.	
	• Technical media is used to link up the teacher & the learner	
	• Two-way communication provided	
	• Learner does not have to study in a group	
	Reintegration of teaching/learning act	
	• DE is characterised by separation of teaching/learning acts	

	• Crux of the matter should therefore be the reintegration of these acts through: - two-way communication - readable and interactive materials - linking course development and student support	
John R. Verduin Jr. & Thomas A. Clark **The Three Dimensional Theory of Distance Education**	**DE as a form of adult education**	• DE providers should seek to understand their learners. • Programmes should be planned according to the learners' interests and abilities • Programmes should also exploit the learners' motivation and strengths • Critically examine the structure of the subject, level of support and the level of competence the learner needs so as to cope.
	• DE appealing to adult learners	
	• Many DE programmes run by units/departments of Adult Education	
	• A lot of DE clients are adults	
	• Adults cope better with DE	
	Dimensions of DE	
	• Dialogue is a means of providing support to the learners. A dependant learner will require more support than the independent learner.	
	• Different subjects require different levels of competence to effectively study. A highly structured course requires more specialised skills	
	• General competence alone is not sufficient, specialised skills will be necessary. Not all subjects will promote learner autonomy.	
Derek Rowntree **Self-Instruction**	**Characteristics of self-instruction**	• Since most DE Teacher Education programmes rely on print materials, these materials should be carefully developed to ensure active learning. • Even where other media is used, learning should still be active
	• Depends on especially prepared study materials	
	• Learners depend almost entirely on study materials	
	• Study materials should carry all the functions of a teacher	
	• Learners do not always get opportunity to learn from each other	
	• Learners may have some contact with their tutor	
	• Study materials should promote active learning	

2.6 DISTANCE EDUCATION CONCEPTUALIZED

2.6.1 Introduction

A number of theories have been put forward and analysis of all these helps in the understanding of distance education. From the discussion of the different designations given to distance education (section 2.2), the role of technology in distance education (section 2.4) and from the discussion of the theories discussed in section 2.5, a number of characteristics of distance education can now be identified. Also a number of lessons can be drawn, particularly for Teacher Education in Uganda.

2.6.2 Learner and teacher separated

All the theories discussed in this study agree that in distance education the teacher and learner are separated (Amundsen 1996:61-79, Holmberg 1995b:2, Keegan 1996:119, Moore 1996:22, Peters 1994:227, 1996:45, Verduin and Clark 1991:8). This is one of the major characteristics and this distance can be:

- in terms of physical distance and time (Keegan 1996:118-119)
- the separation of the teaching and learning acts (Keegan 1996:130)
- psychological and communications space (Moore 1996:22)

This separation is both a challenge and an opportunity. It is a challenge, because then the distance education institutions must plan for effective and efficient ways of bridging this gap. It is, however, an opportunity because it opens avenues for creativity so as to bridge this gap. Also the different dimensions of this separation should all be taken into consideration.

Distance education teacher educators in Uganda therefore need to examine the different dimensions of this separation with regard to their teacher trainees. The design of the programmes should therefore be in such a way that all this distance is bridged, for only then can quality be achieved and dropouts reduced (Keegan 1996:132).

2.6.3 Technology important for bridging distance

Since distance is a challenge and opportunity to distance education, all the theories discussed agree that this distance must be bridged. They also agree that technology or communications media is critical for this purpose. In their views, this can be achieved through:

- Mechanisation of the distance education processes (Peters 1994:114).

- Use of technology to facilitate dialogue between the learner and the teacher and amongst the learners (Moore 1996:25). Verduin and Clark (1991:124) believe that this enables institutions to give learners support.
- Study materials that give the learner opportunity to interact with the materials through the manner in which they are presented and through the kind of activities the study materials invite the learners to engage in (Amundsen 1996:67, Holmberg 1995b: 2, Keegan 1996:131,Rowntree 1986:207).

All these bring out a major characteristic of distance education, which is, the need for deliberate attempts to bridge the gap between the teacher and the learner and between learners through the use of technology.

It should however be pointed out that the choice of the technology depends on a number of factors and also that the different technologies can facilitate this dialogue in different ways. Choice should therefore be according to the type of dialogue desired. Technology should not be chosen for the sake of it but for what it will help achieve. Hence, the choice of technology to be used in teacher education programmes in Uganda needs careful thought taking into consideration access to the technology, the likely costs, and benefits of each technology (Bates 1982:278).

2.6.4 Distance Education promotes learner autonomy

The learner is very important in distance education and so the needs of the learner need to be catered for. The learners have the possibility of choosing when and where to learn. In other words, the learners can manage their own learning (Moore 1996:29, Peters 1994:227, 1996:46, Verduin and Clark 1991:4-5). So, study materials being developed and used in many distance education programmes are designed in such a manner as to encourage learners to be autonomous.

The role of the institutions is to help learners become independent learners. Distance education institutions should therefore design and manage programmes in such a way as to promote this learner autonomy.

This question of autonomy is rather difficult to achieve because as Henri and Kaye (1993:28) point out, a number of programmes that have been run in the past do not actually promote this learner autonomy because of rigid programmes. Nevertheless, this is something that ought to be taken seriously since with post-industrialism, as Peters (1994:239, 1996: 57) says, society needs and work demands will change and so the new

models of distance education '*will have to rely on self-directing and self-controlling - that is, on students becoming autonomous*'.

Teachers carry out a lot of independent work in schools and so their training ought to help them acquire and develop knowledge and skills that will enable them do so. The challenge therefore for distance education teacher educators in Uganda is to find ways of taking advantage of this.

2.6.5 Careful planning and organisation

Distance education involves a lot of activities that demand high levels of planning and organisation. Peters (1994:118) says this is a result of division of labour. Bringing together all the different persons and processes therefore requires this planning and organisation for as he adds,

> The importance of organization in distance teaching can be assessed by the fact that it is often difficult to distinguish between the operational (technical) organization of distance study and the methodical organization of the actual academic contents.

Some of the many activities that each distance education institution has to perform include production of study materials; provision of student support; managing programmes, students and staff; and assessment and evaluation of programmes and students. Each institution therefore ought to have systems that will ensure that these activities are efficiently and effectively carried out.

For these activities, according to Keegan (1996:120), imply institutional involvement and as he says, distance education involves '*… the influence of an educational organization, both in the planning and preparation of learning materials and in the provision of student services*'.

Therefore, to avoid problems arising from poor planning and organisation, all distance education programmes in Uganda need to ensure that each of these major functions are well planned for and well organised. The Makerere External Degree Programme, for example, has had some difficulties with production of its study materials and provision of student support because this was not well planned for initially (Aguti 1996:84, 88).

2.7 DISTANCE EDUCATION CONTEXTUALIZED

Distance Education is growing in Uganda and this growth and development could be taken as an indicator of the potential that it has in the country. This section will therefore be concerned with a brief outline of this growth. Since its beginnings in Uganda in 1967, a number of programmes have been run, although this growth and development was halted in the Amin years as a result of the general political, social and economic degeneration of the time (Aguti 2000:256). This was a period of near total break down of all social, economic and political services. However, today Uganda can boast of a variety of programmes but nonetheless, these programmes are faced by a number of challenges. Addressing these challenges could become opportunities for further growth although failure to address the challenges could impede this growth and development.

2.7.1 Educational need of Uganda and the potential of Distance Education

Uganda is a developing country with only a small proportion of its population receiving tertiary education. For example, in 1998 the Gross Enrolment Ratio (GER) for all levels of education was only 34% compared to 57%, which is the average of developing countries, and 83% for the industrial countries (UNDP 1998). This situation could not have changed drastically since 1998 so, this indicates a huge need for tertiary education among other needs. With distance education there is potential to improve the tertiary enrolment, and to improve the quality of education, train the untrained teachers, train teachers of Science, English and Mathematics, and provide education in many other needed fields.

a) Improving quality of education

There has been an enormous increase in the number of secondary schools in the country but unfortunately, according to Kasozi ([s.a]:4) there has been no corresponding improvement in the quality of education. Yet improved primary and secondary education form the basis of further tertiary and lifelong education. Thus it is imperative that teachers are well trained initially and given further training on an on-going basis. Unfortunately, there is particularly inadequate further training of teachers and the quality of initial training has also been questioned (Odaet 1985:45). There is therefore need to deal with this and one way could be retraining of teachers so as to equip them to teach better. In addition to this, it should be possible to utilise distance education methodologies to enrich the teaching/learning experiences thus improving the quality of education.

b) Train the untrained and under-trained Teachers

One of the strategies for the improvement of education in Uganda is to train the untrained and under-trained teachers in the country. According to the Republic of Uganda (2002:119), the secondary school system has a total of 37,227 teachers. However, 3,512 (9.43%) of these are untrained and 244 are under trained. See table 3.4 for details of the numbers of teachers. The primary school system has also faced the problem of untrained and under-trained teachers. For example, by 1992, 80% of the primary school teachers in Mubende and Kiboga districts were untrained (Robinson and Murphy 1996:15); while NITEP was also launched with the purpose of training 3,000 untrained teachers in Northern Uganda (Wrightson 1998:55). In addition to the untrained and under trained teachers in the secondary school system, many of the Diploma teachers are teaching classes they are not qualified to teach (Republic of Uganda, Ministry of Education and Sports May 2001:34).

So, there is need to train the untrained and under-trained teachers, although Uganda also still needs more teachers. The Commissioner for Secondary Schools Yusuf Nsubuga, said recently, *'the Government is short of 710,000 secondary school teachers'* (The New Vision 5th May 2003). Although the break down of the subjects for which these teachers are needed is not available, past experience shows that most of the teachers needed are for Science, English Language and Mathematics.

Distance education has been used in other countries and in Uganda to provide continuous professional development opportunities to teachers and to train untrained or under trained teachers; and it can still be used to do so.

c) Meet increased demand for education

School education in Uganda has been growing with the resultant effect of growth in the demand for particularly higher education. For example, in 2000, the total enrolment in tertiary institutions was 75,462 but by 2005 this is expected to rise to 117,813 and to 232,433 in 2010 (Kasozi [s.a]:14). Unfortunately, existing facilities will not cope with such numbers, the institutions are not expanding at the same rate and neither are new ones being built at a rate that will help deal with such a massive demand (Kasozi [s.a]:14). There is therefore likely to be a huge gap between the numbers demanding tertiary education and the number of places actually available in the institutions and distance education can be used to bridge this gap.

d) Train professionals in other fields

Although this study focuses on INSET for secondary school, distance education has potential to meet the need for other professional as well. Kasozi ([s.a]:15) identifies the need to develop *'…the science, the technology and research capacity...'* in the country. With the potential that ICTs provide in distance education, it should be possible to provide education that will help develop these capacities.

In addition, globalisation has given rise to a new breed of professionals, those doing *'back-office-jobs'.* This is where companies in the developed countries contract professionals to carry out some tasks in their own countries. For example, '*India manages web sites and other information networks for many companies in the USA, Germany and Japan'* (Kasozi [s.a]:34). The question that arises then is, can Uganda chip into this market and what needs to be done for this to happen? Maybe distance education can be used to retool some professionals and prepare them to compete for such jobs.

It is therefore evident that the need for particularly tertiary education in Uganda is enormous and this is an opportunity that distance education can use to widen its coverage and to constructively contribute to the development of the country. To illustrate this potential, the next section traces the history of distance education in Uganda.

2.7.2 History of Distance Education Uganda (1967 – 1989)

Distance education in Uganda has its beginnings in the programme for the up grading of the 'vernacular' teachers to Grade II level. The Ministry of Education and UNICEF financed this programme while the newly formed Makerere University Centre for Continuing Education (CCE) run it. It began in August 1967 with 1,000 teachers. In December 1970, 946 sat the examinations set by the National Institute of Education. Of these, 877 passed the examinations, 8 missed the examination, 63 completed the course although they did not reach the required standard and 52 did not complete the course (Kaye, June 1971:2). This was an extremely high completion rate and on the basis of this, the Ministry of Education run other programmes.

Makerere University, through its Centre for Continuing Education (CCE) also ran an Intermediate Certificate course and the subjects taught in this course were Economics, Government and Communication. These courses appeared in The People newspaper as an educational supplement and the Milton Obote Foundation funded this. At the end of the training programme, the students were awarded the Makerere Intermediate

Certificate. In 1969 the CCE launched another course; this time for adults wishing to sit for the East African Certificate of Education Examinations. The subjects studied included English, History, Commerce, Mathematics, Principles of Accounts and Luganda (Kaye, October 1970:1-2).

In the same year 1969, after consulting the Ministry of Public Service and Cabinet affairs, CCE introduced various subjects for the Uganda Public Service Clerical Examination. This was with the view of helping the Ministry of Public Service and Cabinet Affairs and various other organisations train clerical officers. About 500 students were enrolled for this course (Kaye, October 1970:2).

In spite of those early beginnings with correspondence courses, distance education is still not well established in Uganda.

2.7.3 Distance Education activities in Uganda (1990 – to date)

The late 1980s reopened debate and interest in distance education. The Ministry of Education (1989:122), for instance recommended distance education as one strategy that should be adopted so as to democratise education in the country. Since then, Non-Governmental Organisations (NGOs) and individuals have initiated a number of programmes. Also, government is keen to implement some of the recommendations of the White Paper, and is presently engaged in a number of pilot projects especially in teacher education. One example of this growing interest in distance education is the Task Force that was set up in November 1999 to look into the possibilities of establishing an Open University of Uganda. This Task Force submitted its report to the Ministry of Education and Sports so an Open University of Uganda may be established soon.

Some of these programmes will be briefly described here but in Chapter Three, Teacher Education programmes will then be discussed in more detail.

a) Mubende Integrated Teacher Education Project (MITEP)

This is a project that was launched in Mubende and Kiboga districts because up to 80% of the districts' primary school teachers were untrained (Robinson and Murphy 1996:15). The community in these districts, therefore, initiated Mubende Integrated Teacher Education Project so as to meet the need to train this large percentage of untrained teachers. This project was launched in January 1992 with funds from Overseas

Development Agency (ODA) and Action Aid United Kingdom (AAUK); a development charity organisation based in the U.K. The main aims of the project were to '*...improve the quality of primary education in Mubende District'* and to assess *'...the cost effectiveness of MITEP... in order to assess its worth as a model for replication throughout Uganda'* (Robinson and Murphy 1996:15).

To train the teachers, the course was run by distance education using print based materials supplemented through student support activities. 900 untrained and under-trained teachers were recruited but only 306 completed and passed the Grade III Teachers' Certificate Examinations.

b) The Northern Integrated Teacher Education Project (NITEP)

MITEP was followed by the launching of a similar project, NITEP, by the Ministry of Education as part of a national programme to rehabilitate the North and North Eastern parts of Uganda that were ravaged by war and civil strife.

NITEP aimed to train up to 3,000 untrained primary school teachers. However, by the time the project wound up in 1998, a total of 2,051 teachers had been trained and had passed the Grade III Teachers' Certificate Examinations (Wrightson 1998:55).

c) Rakai Integrated Teacher Education Project (RITEP)

This was another local initiative, this time in Rakai District; it also dealt with the problem of untrained teachers in primary schools. RITEP received its financial support from the Lutheran World Federation, and trained up to 200 untrained teachers in the district. To do this, RITEP used some of the MITEP modules although the project developed some of its own materials (Odurkene, 1995 as quoted by Aguti 2000:259).

d) T*eacher Development and Management System (TDMS)*

This is one of the major strategies for the implementation of Primary Education Reform in the country. Through this, government hopes to train more primary school teachers and school managers, on-the-job, using distance education. In so doing, government hopes to achieve its aims of improving the quality and quantity of teachers and school managers (Odaet and Higwira, 1994, Makau April 2001:4). Also, TDMS hopes to improve the quality of teaching and learning materials, and to involve the community in

school support and management. Some of the NITEP modules were used, but TDMS eventually developed a lot of its own materials.

Today, TDMS is spreading country wide to become a national programme. It wound up its activities as a project having trained a number of teachers and headteachers.

e) Diploma in Primary Education

The External Diploma in Primary Education was launched in April 1999 at the then Institute of Teacher Education (ITEK), now Kyambogo University. This programme was launched so as to upgrade Grade III teachers to Diploma level using distance education. The general aims of the programme are:

- Increase intake in Primary Education up-grading courses to meet urgent national needs of the teachers in Primary school.
- Provide opportunity to eligible and interested teachers who can not pursue full-time courses in the colleges/institutions or Universities
- Develop a more flexible mode of education that caters for a variety of needs, changing circumstances and learning requirements of the teachers.
- To develop manpower for Universal Primary Education (Kyambogo University Records 2002).

Students enrolling for this Diploma are expected to take a minimum of three years and a maximum of five years to complete the course. The study package in the programme includes print based study modules especially developed in a distance education mode, compulsory residential sessions and student group meetings.

f) Health Manpower Development Centre: Distance Teaching Unit

The Health Manpower Development Centre was set up in 1982 as the Ministry of Health's Centre for Continuing Education, but in 1987 it changed to its present name. The Centre's main task is to provide continuing education to all those who are involved in health and health-related work. The Centre set up a Distance Teaching Unit in 1985. To run its initial programmes, the unit borrowed and adapted materials from Kenya. Today, the unit has produced a number of its own courses and materials and has also set up a

number of branches in the North, East, and West of the country. The Centre is receiving its financial support from the Canadian International Development Agency (CIDA), and has had a cumulative enrolment of more than 5,500 since it was launched (Distance Teaching Unit 1998). To run these programmes, the Centre uses study materials, radio programmes and face-to-face sessions.

This programme has proved quite popular with the health workers although the completion rate is only 11%. This is mainly because the Ministry of Health does not recognize the certificate issued (Bbuye 1999). Those completing the courses do not get any promotion or increment in salary as a result of completing the training. To many of these medical staff, there is therefore no motivation to complete the courses.

g) World Links for Development [WorLD]

This is a global collaborative learning programme sponsored by the World Bank Institute. The goals of this programme are:

- Improve and expand educational opportunities and horizons for secondary school teachers and students around the world.
- Narrow the information gap between students in developing and industrialized countries.
- Build bridges among the leaders of tomorrow.

This programme therefore links schools in developing countries with partner schools in Australia, Canada, Europe, Japan and the United States. A total of 14 countries in Africa and Latin America are involved in this network (Kakinda 2001).

Uganda was the first pilot country for the WorLD. It was started in July 1996 with only three schools. Now there are a total of 32 schools (15 of these are rural schools) participating with over 30,000 students and 1920 teachers (Kakinda 2001). WorLD helps deliver teaching aids for schools, educational resources and references and access to knowledge and information through access to the Internet. To ensure students and teachers benefit fully from services available, WorLD Uganda has run a number of seminars and workshops for both students and teachers. It should however be noted that, although WorLD Uganda has grown from the initial 3 schools to now 32, it is still being run as a project.

h) The African Virtual University Project (AVU)

This also started as a pilot project initiated by the World Bank. Unlike most virtual universities, the AVU is a satellite based distance education programme transmitting video based courses (Baranshamaje 1996, AVU 2003). It is currently operational in 31 campuses in 17 countries in Africa. In Uganda, three institutions initially participated and these are Makerere University, Uganda Martyrs University, Nkozi and Uganda Polytechnic Kyambogo.

The mission of the AVU is to use the power of information technology to increase access to educational resources in Sub-Saharan Africa. It is particularly committed to increasing enrolment levels for scientists, technicians, engineers and business managers.

The AVU launched its programmes in October 1997 and has since then offered basic computer literacy courses, foundation courses in the sciences, remedial instruction and seminars. It had hoped to launch fully-fledged degree courses in Computer Science, Computer Engineering and Electrical Engineering. The curricula for these were developed by teams of academics including many African lecturers from universities in Africa (five of them from Makerere University). However, the focus has now changed and only the Computer Science degree is initially being offered.

The study package for the AVU programmes includes.

- Video based lessons. At the launch of the project, most of the courses originated from universities in Canada, USA and Europe. However, plans are underway to make these courses computer based and eventually to have them originating from Africa.
- Live interactive sessions (two-way audio and one-way video) and tutorial support by local academics
- Assignments and tests, and practicals at sites where applicable.

(Aguti 2000:261)

The AVU also has access to a wide selection of library resources including 1,000 journals on-line most of them full text. These can be accessed at any of the AVU campuses. Besides, the AVU also now has a website that incorporates e-mail, chat rooms, bulletin boards, file sharing and transfer. To date, 45,000 free e-mail accounts

have been given out. Also, since launching the programmes, the AVU has had 23,000 students register for various courses and 2,500 professionals participate in the different seminars and workshops so far run (AVU 2003).

The AVU has now become a non-profit making organisation with its headquarters in Nairobi.

i) External Degree Programme of Makerere University

Makerere University was established in 1922 as a technical school. In 1949 it became a University College linked to University of London; then in 1963 it became a constituent college of the University of East Africa. Makerere finally achieved its full university status in 1970. It has since grown and today has 9 faculties and 11 schools/faculties (Ministry of Public Service, 1994).

Since 1991, Makerere University has run the External Degree Programme (EDP) while continuing with internal programmes, both day and evening. The EDP started with only 245 registered students but today has nearly 6,500 students registered on the Bachelor of Commerce, Bachelor of Education and Bachelor of Science. The three programmes being run under this scheme. The EDP shall be discussed in greater detail in Chapter 3.

j) Other DE Programmes

Apart from those briefly outlined above, various ministries and NGOs have in the past run radio and television broadcasts. The Ministry of Education has, since 1963, supplemented classroom teaching for schools and colleges. Today the Ministry is working at reviving this service and strengthening the unit. This is particularly important since other distance education programmes in the country would benefit from a strengthened broadcasting unit.

The Ministry of Information and Broadcasting has also run broadcasts for various target groups; and is seeking to strengthen and improve its activities. This is particularly crucial since the White Paper sees this Ministry as central in the development of distance education in the country. For instance, the White Paper states:

> Distance Education through radio, television, and correspondence courses should be strengthened. For this purpose, the Ministry of Information and Broadcasting should set up separate radio and television channels for educational programmes (Republic of Uganda, 1992:184).

2.7.4 Management and organisation of Distance Education In Uganda

The DE programmes that have so far been discussed in this section have each had different management and organisational structures. But two major strands emerge and these are the dual mode Institutions and projects

a) Dual mode institutions

Dual mode institutions are those that run both internal and external programmes. From the discussions earlier, these include Makerere University with its External Degree Programme and Kyambogo University with its Diploma in Primary Education and perhaps later the Grade III Teacher's Certificate and the Headteachers' Management Training Course. The latter two being programmes that were initially run under TDMS but are being Institutionalised under Kyambogo University.

In both Universities, the programmes are being run under the Departments of Distance Education. In each case, this Department is a service Department collaborating with other University Departments. The Departments of Distance Education are responsible for the management and administration of the programme while the collaborating faculties are responsible for the teaching functions. In Makerere University for instance, the Department of Distance Education is responsible for:

- Keeping and maintaining student records
- Receiving and dispatching assignments for marking and eventual distribution of marked assignments to students.
- In consultation with the teaching faculties identify and train tutors, writers, editors and reviewers of the study materials.
- Production, publication, revision and distribution of study materials developed

However, although this arrangement seems quite plain and clear, it has created some problems.

First, the demarcation between administrative and academic functions is not that obvious. The case of the (B.Com External) best illustrates this. There has been no clear agreement between the Department of Distance Education and Makerere University Business School (MUBS) over what constitutes administrative and what constitutes academic functions. For example, is receiving and keeping assignment records an

administrative or academic function?

Also, distance education requires specialized skills and management which is not often found in Universities running internal programmes. Introducing DE therefore brings in new demands creating tensions and pressures. Once again, the External Degree Programme (EDP) of Makerere University best illustrates this tension.

As a fee-paying programme, the EDP contributes a certain percentage of its income to the Central Administration of the University. However, the contributions made are calculated on the basis of whether a programme is a day programme or an evening programme. No special arrangement was made for the EDP taking into its uniqueness. As a result, the Department has been dissatisfied with the way this is being handled whilst the Central Administration seems baffled by the Department's position. Clearly this is lack of clear understanding and appreciation of the uniqueness of DE programmes.

b) Projects

As already indicated, most of the programmes discussed in this chapter have been run as projects with external funding. This is beneficial particularly for the launching of the programmes since funding is attracted. However, sustainability of these programmes often becomes a challenge. For example, in TDMS for phases I – III the bulk of its funding was from external sources (Makau April 2001:21). The question being asked now is, how can government sustain TDMS programmes with the inadequate contributions it was making?

The AVU is another example. In all the three institutions in Uganda that participated in the project phase, the level of activities has dropped because of, among other things, lack of adequate funding. It is perhaps therefore wise while initiating any distance education projects to plan for the sustainability of the programmes.

2.7.5 Major features of Distance Education programmes in Uganda

Looking at all these programmes mentioned here, there are a number of common characteristics that emerge. Some of these are:

- Largely government funded or donor funded with the exception of Makerere University EDP and the Kyambogo University Diploma in Primary Education. In other words, the private sector is not yet heavily involved and yet if these programmes are

to integrate other media, and to find alternative funding, the private sector must be brought in.

- Most of them are for retraining and upgrading especially teachers. This has gone a long way particularly to meet the demand for teachers, however, with the current expansion of the school system particularly the primary school, and the changes in the job market requirements, DE must get involved in other fields as well.
- Print is still the main medium but some programmes have integrated Information Communication Technologies (ICTs). There are a number of challenges to this but ICTs have certainly generated a lot of interest.
- A few like the AVU and World Links are using other technologies but these are project based and largely donor funded. These programmes have demonstrated that it is possible to utilize ICTs in the provision of education in Africa. The rest of the other programmes unfortunately have done little to integrate ICTs. This is an area of need.
- All the programmes use face-to-face sessions as one of the major components of the learning package.

These characteristics are a pointer to some of the challenges that distance education programmes face in Uganda.

2.7.6 Challenges

It is evident that by all accounts, distance education has a great potential in Uganda and yet it has not developed as fast in spite of having come on the scene as early as 1967. Also, in spite of the high interest in ICTs and the enormous potential this offers, these technologies have also not been well exploited. It would therefore be critical to identify the bottlenecks to development and growth of distance education and the integration of ICTs in it. There cannot be one answer to this question. In fact it may be a combination of factors some of which are:

- Lack of faith in the ability of distance education to do anything else other than upgrade teachers.
- Sustainability.
- Poor social service and technological infrastructure in the country.
- The need for comprehensive planning for the implementation of distance education programmes.

This is discussed further in Chapter 3 Section 3.6.6.

2.8 SUMMARY

This chapter focused on conceptualising and contextualising distance education. To do so, the different designations that have been used were discussed and from this discussion, it is evident that the choice of which designation to use may be due to regional, geographical or institutional preferences. The chapter has also traced the growth of distance education over the years which has been largely because of its potential to meet the increased demand for education, increase access to education, cope with the changing nature of the university student, meet urgent need for teachers, be a more cost efficient alternative and exploit the advantages provided by technology. However, in spite of this growth, distance education has been criticised because of high drop out rates associated with it, its failure sometimes to promote deeper learning and the acquisition of critical thing skills, and its elitist nature.

In addition, this chapter specifically discussed the role pf ICTs in distance education, the advantages and disadvantages of various ICTs; and some theories underpinning distance education. The implications of these theories on teacher education were then discussed.

Lastly the chapter concerned itself with the contextualization of distance education in Uganda. Demand for education in Uganda is growing and this is not adequately met. Neither places available nor funds spent on education are sufficient. A number of initiatives are therefore currently being undertaken to try to meet this growing demand. Some of these initiatives involve the use of distance education that has great potential in the country. In addition, some of these like the African Virtual University, World Links for Development, and Acacia integrate ICTs. Other distance education programmes also like the Teacher Development Management System (TDMS), Kyambogo University Diploma in Primary Education Programme and the Makerere University External Degree Programme use print as the major medium with hardly any integration of ICTs in their programmes. None of these initiatives are large scale, but there is clear recognition by both the government and the public that distance education can contribute greatly in meeting the growing needs of education in the country.