# HISTORY OF DISTANCE EDUCATION

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I. Introduction

At the beginning of this chapter we would like to give brief overview of distance education outline or milestones in its developing history,. Than we will give some details on historical developments period of distance education.

As discussed definition of the distance education in other chapter; it does not matter that whatever as is named, distance education not a new concept. It is widely used in all over the world today, in such countries as the The United States, Canada, Australia, Russia, India, most of African countries and like England, Germany, Turkey, Sweden, The Netherlands in Europe and Eastern European countries as Poland, Hungary and Romania etc., since nearly more than hundered years. Its mean isdistance education's roots virtually, goes back to nearly 150 years.

In this ontext, history of distance education can be dicuss generaly in five clear periods. This periods are can be listed as: * A period of before correspondence education. Some educational activities which are try to aiding for lack of education process before constructing and establishing correspondence education systems.

* Heavily applied correspondence education systems period. Correspondence education systems widely used printed materials by using postal system for delivery such books, newspapers, guide books or other printed medium for realising their aim.

* Instructional radio and television which is called one-way communicational period by broadcasting. In this period broadcasting radio and television used functionally beside of printed material for being audio and visualising of course materials.

* Than started two- way communicational audio and inteactive period. With two-way audio and video between teachers and students these emerging technologies, educators are able to include more interaction in educating at a distance.

* In delivery of distance education, the fifth period can be describe usin satelitte and future technologies which are integrating via computer and computer combining systems. Telecommunication technologies such as radio, television, video cassette, computer, satellite, and fiber-optics are aiding educators by development in communication and electronic industry.

Before Correspondence Education Period: The approaching to teaching used in early Christian church illustrate different educational and training

methods and some key concept of modern distance education. Christ taught face-to-face in small and large groups. Teacher and taught had to be peresent at the same time, which is now called synchronous communication. St. Paul, however, who had the challenge of instructing a dispersed community, developed a method of distance education.
He wrote letters to individual church groups and asked local church elders to read them to their community when it assembled for worship. the analogy with the tutors and study group of modern distance education is clear. Since each copy had to be hand-written and many church members were illiterate, there was little oppornunity for individuals study Paul's letters at home. Paul directed his approach to groups. It was a forerunner of the remote-classroom approach to distance education. From Paul's standpoint communication was asynchronous because he was not present when his letters were studied. However, for the church groups communication was synchronous because they listened together to reading of the letters (Daniel,1995, p. 6).

According to Dean (1994), the earliest models of distance learning were only pre-printed correspondence courses based system. Using this approach, there was no face to face or voice to voice interaction between teachers and students because basic telecommunication technologies such as television and radio were not yet invented. In the correspondence education system, only the postal service was available for educators to deliver their instruction to students who lived in other places.

Teachers sent their correspondence study materials to their students by mail. The students returned their answers to the teacher and waited their grades to be delivered by mail. Now telecommunication based distance education including real time interaction is a part of distance teaching and training at all levels, from primary school to university, for formal as well as non-formal education around the world.

Of course, early distance education applications were running in correspondence education form. Infact, the first correspondence style is started by appearing in newspapers, aiming to educate people.

While the term 'distance Education' is more than hundered years old, recently the field is reborn parallel to the new developments and innovations at technology. Substantially, rapid progress in technology changed the nature of distance education. Historical milestones of the distance education can be summarised as fallows:

In 1833, an advertisement in a Swedish Newspaper opened to study "Composition Through The Medium of Post". In 1971 an advertisement was found in Boston Gazette of March 20, 1728, Quoting the offer self-instructructional materials in shorhand (and possible correspondence education).

In 1977 it was quoted the following advertisement of 1833 (in Lunds Weckebland, Lund Sweden), which expilicitly refers to postal teaching:

**A card.**

**The undersigned respectfully inimates to those Ladies and gentlemens, in the adjanet Towns,who study Composition Through The Medium of Post that the address or the month of August, will be little Grey Friars Street, Lund. A. J. Mueller (From Holmberg, 1982, p. 47)**

The main goal of correspondence education was to provide equal educational opportunities for everyone in the country. It helped colleges, universities, and state departments of education to solve problems of equal education. Distance education began from its origins in correspondence education. Correspondence education programs were developed in Canada, New Zealand, Australia, China, and USA in places where people lived far away from each other.

Other variants of distance education began in Britain, in 1836 when the University of London added external examination application in its system. Main aim was to offer a credible examination service to people studying in small colleges. However, the porportion of candidates preparing themselves for the exams by private study grew steadly.

By the end of century over 60% of those graduating in Arts through the external examination system had studied with the (private) Correspondence College (Daniel, 1995, p. 7). After seven years later of 1833; in 1840 Englands newly established penny post allowed Isaac Pitman to offer shorthand instruction via correspondence. According to Glatter and Wedell's study on, 'Study by Correspondence' is indicated that, correspondence education started about 1840, when the orginal instruction was send to students in shorthand by post-card (Glatter and Wedell, 1971, p. 4). In 1843 this type of instruction was formalised by the foundation of the "Phonographic Correspondence Society".

Distance education in the form of correspondence study was established by Charles Toussaint and Gustav Langenscheidt to teach language in 1856, Berlin, Germany. Later on this correspondence studies are verified for many field. Correspondence study crossed the Atlantic in 1873, with founding by Anna Tickner to encourge study at home. Between 1883-1891, academic degree were authorized by the State of New York, through the Chautauqua School of Liberal Arts to students who completed the curriculum of the required summer school and correspondence courses.

According to Glatter and Wedell (1971), Commercial Ventures such as University Correspondence College, Wolsey Hall, Chambers, Clough's Foulks Lynch and Skerry's were delivering instruction to their students during this period in England. Most of these colleges were located near postal offices to

quickly deliver their instruction to students. Correspondence education at the university level was soon established. On the European continent, the offering of courses through the mail was an established practice by 1856 (MacKenzie, Christensen and Rigby, 1968, p. 24). In this instruction, a French teacher and a German writer opened a school for teaching language by correspondence. It was closed during World War II. According to MacKenzie, Christensen, and Rigby (1968), the Society to Encourage Studies at Home opened the first correspondence study program in 1873 in the USA. The Correspondence University was established in Ithaca, New York in 1883 (MacKenzie, Christensen, and Rigby, 1968, p. 26).

By 1880, there was a growing desire among thousands of adults for further pursuit studies at the college level but geography, age, or occupational factors frequently separated them from college communities (Mackenzie and Christensen, 1971 p. 39). For this reason, teachers and officers of the boards of education in England began to think about the founding of Correspondence University. Such programs were being more systematically organized by 1890. In 1891, the correspondence depart ment of The Colliery Engineer decided to offer some correspondence instruction in arithmetic, mine ventilation, geology of coal, methods of mining, mining legislation, and mine surveying and mapping in England (see Mackenzie and Christensen, 1971). Baylor University in Texas opened a correspondence program in 1897 at about the same time as the state normal school at Willimantic, Connecticut, began a correspondence ope ration (MacKenzie, Christensen, and Rigby, 1968, p. 29).

Correspondence Education: In the late 1800's, at the University of Chicago, the first major correspondence program in the United States was established in which the teacher and learner were at different locations. The early efforts of educators like William Rainey Harper in 1890-92 to established alternatives were laughed at Columbia University Correspondence Department. And during 20 years many institutions feel to scanning to their system for to reconstructing. Correspondence study, which was designed to provide educational opportunities for those who were not among the elite and who looked down on as inferior education (McIsaac and Gunawardena, p. 5).

Correspondence studies became an integral to some colleges, universities and correspondence institutions(such as Wosley Hall, Chambers, Clough's Foulks Lynch and Skerry's College, University Correspondence College) and some universities (Illinois Wesleyan, University 1877, correspondence University 1883, University of Winsconsin, 1885, University of Columbia, 1890-92 and Extention Department of the University of Chicago, 1892).

Correspondence education in developed countries is more than hundered years old and had its origin in private concern like mentioned above. University Correspondence College in Cambridge, 1887, establihed by Dr. W.

Briggs Wolsey Hall College in Oxford, 1894 and Metropolitan college in London, 1910 which are provided correspondence tuition to the enrolled students. In other countries like Germany, Scandinavia, France and USA correspondence courses started in industrialised cities to help private students.

In Sweden, Hans Hermod opened a small private school in Melmö where he taught languages and commercial subjects in 1890. Dahllöf (1988) indicate that the importance of the Hermods' movement in the name of secondary education in his article which is presented in Oslo as follows: Under such condition it is do wonder that such a pioneer institutions in Malmö expended heavily in 1940s and 1950s, when the social demand for post-compulsory education was rapidly growing but not yet met by the public school system.

During this period a limited number of private and/or state supported correspondence institutes played a very strategic role in the provision of secondary education both for youth and adults in sparsely populated areas and for adults in the work-force all over the country (Dahllöf, 1988, p. 16). The first printed Correspondence Lesson in Sweden tiled as "Book Keeping by Single and Double Entry" got printed in December 1898.

In Wisconsin, seven other universities founded correspondence programs between 1906 and 1910. The University of California at Berkely opened a correspondence education program in 1913. In Baltimore, the home Instruction Department was founded by the state government of Maryland in 1905.

By 1909, 115 children had enrolled in correspondence education (MacKenzie and Christensen, 1971, p. 37). As a further example, by 1910 International Correspondence Schools claimed a total of 184, 000 enrollments (Glatter and Wedell, 1971, p, 4). This number steadily increased up to 1950.

In France, Ecole Universelle Correspondence established in Paris,1907.And In 1939, France Centre National d'Enseignement par Correspondence started in Paris, for to educate people who are lost education opportunity for the reason World War I. Also, National Centre for Correspondence teaching to look after the education of children who got displaced due to war. This institution is existing even now and looks after the education of handicapped children and children in hospital who cannot get to school

"Tietomies" is Finnish word. Its meaning is "Man of Knowledge" which is the first correspondence institution of Finland, established in 1947. Nowadays the institute functions as part of Rastor Institute. there are two quite clear distinguishable periods in the training activitity of Tietomies. Typical for the first, the so-called 'Period of free-form study' (1946-1956), was vagueness of tnaining goals and fragmentation of study programs. During the second, the so-called 'period of goal-directed study' (1956 to the present), clear goals were

set for training and it was directed primarily at work supervisors and company officials (Tuomisto, 1987, p.18).

Beginning in 1914, Norway established its first correspondence education. In 1962, there were 142,801 students enrolled. In 1947 The Netherlands founded their correspondence education in some levels, in 1960, this program had 420,072 students and offered 1486 correspondence courses, In 1953 Malaysia, with, 14,000 students were enrolled in this program in 1968.

The correspondence system in Canada and Australia was started due to the "Tyranny of Distance". In 1914, Australia founded a correspondence education system because the country is huge and people live far from each other. Institutions in these countries catered to the educational needs of learners in sparsely populated rural and bush areas.

Correspondence institutions gradually realised that teaching by correspondence alone would be a poor substitute for formal education. Therefore, some contact sessions were made a part of correspondence education.

Distance education began to enrich the secondary school curriculum in the 1920's. In Europe, there was a steady expansion of distance without radical changes in structure, but with gradually more sophisticated methods and media employed (audio recordings, laboratory kids). On those years in the United States, advances in electronic communications technology help to determine to dominant medium of distance education.

In the 1920's at least, 176 radio stations were constructed at the educational institutions although most were gone by the end of the decade. After a World War II, radio and television became an integral part of correspondence education especially in the developed countries. Dealing with this improvments, Malhotra (1985), emphasises that whatever be the compulsions for the emergence correspondence education in India or abroad, the fact remains that it has now come to stay and has become an important sub-system of the overall educational system in almost all countries. (Malhotra, 1985, p. 3)

In early 1930's experimental television teaching programs were produced at the University Iowa, Prude University, and Kansas State College. In France, correspondence education was adopted by Ministry of Education -as opposed to voluntary and commercial institution in the other parts of Europe- (Young and et. al, 1980, p. 15).

In 1950's college credit courses were offered via broadcast television. Satellite technology, developed in 1960's and made cost-effective in 1980's enable the rapid spread of institutional television.

After 1960, the correspondence education began to diffuse around the world. For example, The Ministry of Education of Denmark made decision on beginning to the correspondence education after 1960. During 1967-68,

correspondence courses were available from various department of all ten provincial governments, from thirteen universities, from four institutions of technology, and a number of private schools and associations in Canada. The past 80 years in Turkey have witnessed dramatic changes. The country, since 1920, has changed its alphabet to the Roman one and established the importance of secularism (the complete separation of religion and politics) in the running of the government. In the 1970's Turkey began to search for new ways to develop its own educational strategy in order to expand the opportunities for its citizens. It was believed, and enacted into law, that education should be the main responsibility of the government. Many feel that the concept of educational eqality become more meaningful in those years. Correspondence education was opened in 1970 in Turkey. The correspondence education was changed its name in 1982. It is called "The Open Education Faculty" established by Anadolu University in the name of Turkish Distance Education Program. Now it is according to J. Daniels study (see Daniel, 1995 and 1996); one of the sixth mega-universities in the world (Demiray, 1997, p. 14).

Between 1940-1980, a lot of countries such as China, Mongolia, in 1963 Japan, Malaysia, India, and others founded their correspondence education program in all levels in education. In 1964 Zambia and in 1978 Nigeria established their correspondence institutions. Between 1940-1980, a lot of countries such as China, Mongolia, Japan, Malaysia, India, and others founded their correspondence education program in all levels in education. There are some other examples around the world. First, In 1964, Zambian Government founded secondary correspondence education. Second, Nigeria established correspondence education in 1978. This program began to deliver its instruction by mail to students. Last example is that India established an Open school to deliver secondary distance education nationally; in 1989 this became the National Open School (sse for detail to the International Encyclopedia of Education, 1993). So, correspondence education are still emerged in some countries in where telecommunication technologies are not available for regular life and educational system

## II. One-Way Communication Period

### Broadcast Instructional Radio and Television

The industrial revolution occurred during 1800's and the revolution of telecommunication technology emerged after 1950 have been influenced correspondence education. Correspondence educators began to think about using telecommunication technologies beside printed materiels such as radio and television in their program to deliver their instruction from the main campus to students. During this process, the name of correspondence education was changed and then called distance education. All international countries

began to develop their correspondenceprograms and to use telecommunication technologies in their distance education programs. Besides postal services, they first used radio in the distance education to deliver their instruction to students.

Radio in Distance Education Wireless radio was invented in 1895. After that the first patent for radio obtained by Marconi in 1896 and then the first translantic message was send to other place in December, 1901. Until 1910, radio broadcaster did not have any regulations or rules for their services in USA. For this reason, the Radio Act passed by Congress on August 13, 1912 was the first act regarding interstate communication by radio including issuance and registration of licenses (Buckland and Dye, 1991, p. 4). St. Joseph's College in Philadelphia in 1912 received the first the license. After the first license, other schools began to apply for radio license. The National University Extension Association was organized in 1916 at the University of Wisconsin (MacKenzie and Christensen, 1971, p. 53). This correspondence program delivered its instruction by radio in 1916. A lot of correspondence students received their class from radio and postal services. In the mid-1920, British department of education began to provide schools with radio based instruction to support education in Britain. 10,000 schools were using radio programs broadcast by the BBC to support classroom teachers (Kenworthy, 1991, p. 12). After 1925, the use of radio in distance education started to diffuse around the world but the diffusion of use of radio in education around the world took many years because the development of radio technology was very slow in its first years.

The reason for using radio in education was that the capacity of formal schools was not enough to accept all applications. People also separately lived in small villages and towns. Government did not have money to found formal school in the each village and town. The educators thought that radio could be used in education to teach.

As early as the mid-1920s radio was used to support distance education in schools in Britain (McGreal, 1991, p. 12). By the late thirties, 10, 000 schools were using radio programs broadcast by the BBC to support classroom teachers. In 1929, China began to use radio in their education system to support education. In 1930, radio was used in school classroom in USA. There was no voice to voice communication between students and teachers. It was a one-way broadcasting system. Students only were listening some instructions from the radio. Turkey, Canada, Mongolia, India, Africa, Columbia and others followed this technological development in their education system. For example, Canada started using radio in the correspondence education in 1930. During the 1930, Australia also began to use radio in their distance education programs (see Kenworth, 1991).

In the 1947, Columbian government started to use radio in their education. In the 1949, Indian government decided to use radio to support

education and deliver their instruction to students who could not go to school. In Japan, the Nippon Hoso Kyokai (NHK) started broadcasting radio programs specifically for high school correspondence education students on a local basis in 1951 (MacKenzie and Christensen, 1971, p. 327). Turkish Government began to use radio in the distance education program in 1973. Turkish Correspondence program transferred their instruction to students by radio. Therefore, Radio had been used in distance education for a long time (Demiray, 1990). It, combined with correspondence instruction, provided students with teachers' voice in some cases in which teachers were not readily available and the students needed to hear to learn something. Besides radio, television also used, are still using and will use in the distance education.

The first experiment with television began in 1874 when Paul Nipkow invented a mechanical system for transmitting views by direct wire (Buckland and Dye, 1991, p. 11). Viladamir Zworykin got first patent for television. At the same year, President Warren Harding was on the television screen. People stayed in Philadelphia saw the president's picture who was in Washington in USA. Federal government in USA helped to develop television broadcasting. Furthermore, American Congress made decision on a regulate television broadcasting. During the depression, all educational television closed and reduced their budgets (see Buckland and Dye, 1991).

After the depression, educational televisions were in production in USA. For example, between 1932 and 1934, the State University of Iowa, and Kansas State College produced some educational programs. In 1938, the National Broadcasting Company did a presentation on using television in college classroom. On the other hand, some distance educators believed that television was not ready for distance education because the cost effective, quality and technical limitations. After 1940's, educators and television engineers did a lot of research on television and education. It was getting better everyday. During the World War II, the development of television was continued in the world.On June 1, 1944, John W. Studebaker requested two channels for education from FCC. In 1945, FCC gave a permission to establish educational television. After that, colleges and universities were involved in educational televisions. For example, University of Michigan started educational broadcasting services in 1950 in USA.

New York University and CBS produced some educational programs in 1957. A lot of distance education programs in the world began to use television to support their distance education programs. In today's USA, commercial and public television stations produced educational programs for distance education. 29 million students are able to receive these programs at their home or schools. Some programs are transmitted by cable system to schools and homes. The learning channel is available to 20,000 schools and 17 million

households throughout the United States and offers courses in many school subjects.

In 1961, television first was used in university level for correspondence students in Japan. Many correspondence education programs produced a lot of distance programs. In USSR, many broadcasts on television are organized for students in correspondence education. The Russian Universities produced their programs which cover all instruction of correspondence education.In Czechoslovakia, television is used in distance education system. In Hungary, educators also began to deliver their instruction by television in 1952. In 1966, French ministry of education made decision about delivering the instruction by television to students. First French experiment on television occurred during the five weeks of the 1966' summer vacation. 39,000 were enrolled this program and received instruction by mail system. During 1968, American and British colleges and universities cooperated with open-circuit television stations-both commercial and educational to produce instructional programs (MacKenzie, Christensen and Rigby, 1968). Frequently students in USA and UK were offered textbooks and sometimes a full course of instruction by correspondence to accompany the television sessions. Some universities had offered college credit to students participating at home in such programs. However, an important potential for televised instruction lied in closed-circuit television during the 1968.

After 1970 or 1975, the use of television in distance education was diffused around the world. For example, Turkish distance education department began to use television in order to deliver their instruction to students in 1982.

Second example is Canada. Canada began to use television to support their distance education in 1980. Distance education students are still receiving the instruction from television. In 1985, about 200 television programs were made and more than 27 hours of television were broadcast each week in USA (Moore, 1986, p. 5). Universities delivered their instruction by television. A lot of distance education students watched their courses on television. Spain, Israel, Germany, Canada, Pakistan, Venezuela, Costa Rica, and Thailand, Netherlands, and Sri Lanka also used television in their distance education programs to support distance education. Open University in Australia, the Radio Television University in China and The Open University Britain also used and are still using television because using television can enhance the quality of the distance education program (see Holmberg, 1990). In China a nationwide educational program via satellite was established in 1986 (see The International Encyclopedia of Education, 1993, p. 1565). The satellite TV Education Network has more than 400 relay stations, and 30,000 receiving stations. One channel broadcasts 17 hours a day, with 11 hours given to teacher

training. So, television has been used in distance education to increase the quality of its instruction around the world for many years.

It can be said that established at that time radio and television were already widespread and set up as national institutes in a number of countries, the open universities were an influential factor in the development of distance education programs (see The International Encyclopedia of Education, 1991, p. 1558).

Today, distance education is widely provided with the radio and television instruction to support distance education. On the other hand, new telecommunication technologies such as computer satellite, fiber-optics, and other begin to enter into the distance education programs. Now, television and computer are used together to deliver the distance education's instruction. There are some software available such as cu-se-me. Thus, the structure of distance education is changing each day. After having experiences on one way radio and television broadcasting in distance education, instructional designers began to look at new instructional model which can offer two-way interaction between teacher and students.

## III. Two-Way Audio and Video Interactive System

When evaluated developments between 1960 and 1990 of the distance education accelerated as a result of both technological and political developments. Two innovations were of note, the use of telecommunications to link remote classroom and enrichment of correspondence education by the integration of other media.

Developments in this period (1960-1990) can be summarize in distance education, first, telecommunication with remote classroom. The arrival of effective audio teleconferencing technology allowed an instructrator to offer a course at numerous sites simultaneously. The University of Winconsin implemented such a system in the 1970s. Soon afterwords satellites could transmit video signals to remote classroom network. Since then this form of distance educationhas developed steadly, especially in the United States. A good axample is the National Technological University, a consortium of engineering schools which offers graduate-level courses by satellite across the USA and internationally.

Second is the diversification of media fo correspondence tution. policies of widening access to tertiary education, combined with the ability of public television and radio broadcasting network for this development was the Uk open University. helped by strong political support, the UKOU’s founders created an instution that quickly earned a high reputation for quality and effectiveness (Daniel, 1995, p. 7).

Since beginning 1990's developments in new desktop computers has allowed its users to combine text, graphic, video, audio
and virtual reality to easily communicate in the name of teaching/learning an educating themself.

At the same time wider bandwith and integrated Service Digital Networks (ISDN) has provided for networking of computers, and using them for live video confenrencing, collaborative computing, and holding forums, and chat (which is given a place in the other chapter) session. (See Feasibility, 1997, p. 1-3).

Especially after invention of the radio and broadcasting technologies and recorddings narrowcasts by cable, satellite, ITFS, fiber tranmission, interactive telecommunication by computer, audio, video or teleconfereces changed correspondence education systems' structure dealing with the parallel to the developments of tcommunication and electronic technology in the name of distance education in education field. The institutions are reached their target learners in a shorter time, chaper and to the larger groups who are distrubuted in all over country, even, peoples who are living out of country borders.

On those years institutions are desined their instruction materials with radio and televison programs as being audio and visual supporting components in their running. These media came to include not only radio and television broadcasting, but audio and video recordings, and teleconferencing through computer recordings, narrowcasts by cable or wire, from satellite, ITFS, fiber tranmission, interactive telecommunication by computer, audio and video or teleconfereces, modems, telephone, and microwave systems (Moore, 1990, p. xiv).Instructional television (ITV) was a much-touted distance learning model 1960s; although ITV fell far short of early expectations, today' telecourses and educational programs reach many learners in diverse settings (U.S. Congress, 1989, p. 25).

In 1962 decision that the University of South Africa would become a distance teaching university brought about a fundamental change in the way distance education was practiced in much of the world.

The Open University in the United Kindom at 1971 being a distance education/teaching university, it was offering full degree programs, sophisticated corses, and the innovative use of media. After this radical changing in educatidon, many countries started to the distance education method; like China, Costa Rica, Iran, Japan, Malaysia, Nigeria, Poland, Spain, Sri Lanka, Taiwan, Thailand and the others.

This period of distance education is based on two-way audio and video conference system between students and teachers. It may be called "audio-conferencing" and "videoconferencing".

In these both systems, satellite and fiber-optics are used to deliver the instruction among distance students groups to create two-way communication system. In the audioconferencing, teachers and students can contact voice to voice and ask some questions each other. Also the application of voice-based teleconferencing technology has gained increasing prominence in modern distance education, especially as a compliment to traditional print and postal-based methods (Perrin and Perrin, 1991, p. J-1). Audioconference systems, which consist of loud-speaker telephones interconnected by a conference bridge, enable multiple locations to be in simulations communication with each other, creating a virtual classroom. During 1980s, it was popular in the distance education. Many examples about using the audioconferencing can be found around the world.

Interactive videoconferencing for distance classroom instruction allows students to be perceived as persons rather than a student ID number, as the instructor can call on them by name and make eye contact (Dean, 1994, p. 3).

With the development of telecommunication technologies such as satellite, television, fiber-optics, and other, video conferencing began to became a major vehicle for distance education programs in 1990 around the world. Teacher can give immediate feedback on the students' questions. There is a two-way face to face interaction in this model like traditional face to face model in the videoconferencing system. The quality of video conferencing is getting better everyday in the international distance education programs.

There are many examples about using two-way communication system in the distance education around the world. The movement from the use of postal services to the use of audio and video conference system in the distance education programs can be seen around the world between 1980-1995. With the invention of satellite and fiber optics around the 1957, the teleconference system began to diffuse fast in the distance education programs around the world.

During the 1980's, the University of Wisconsin, which has a state-wide audio-teleconferencing network, enabling professors at one side to deliver lectures to multiple classroom sites around the state, and facilitating two-way communication between professor and students. Empire State College in NY in USA, North East London Polytechnic, and Murdoc University in Western Australia occurred teleconference courses each other during 1985 (see Holmberg, 1990). During the same year, Oklahoma State University and 10 public schools designed and implemented one-way video and two-way audio class to their students. 100 students took

German course from this system. At the same year, Utah Board of Education audio conference system to offer Spanish courses to 500 students. In this system, students always contacted with the instructor through a tool free phone number. TI-IN, the largest private venture delivering k-12 instruction via

satellite began broadcasting in September 1985 (Batey, 1986, p. 1986). The region 29 Educational Service Center in San Antonio Texas provided the broadcast facility (and up link), selected the certified high school teachers, and developed the lesson plans. All courses delivered in two-way audio instruction system. This project is also a distance education example. In September 1986, eight school districts in Eastern Washington began receiving Spanish, Precalculus, Advanced English, or Japanese beamed from a broadcasting studio an the Eastern Washington University campus (Batey, 1986, p. 10). 200 students took these courses in one-way video and two-way audio instruction system.

Other example is The National Technological University in USA. This university offered master's courses in engineering, computer science, and business management to 300 master students across the USA in 1990-1991 (see The International Encyclopedia of Education, 1991). These students and teachers were teleconferencing each other by satellite and fiber-optic system with the remote teacher. The students learned information in two-way interactive system. In October, 1991, the first fiber optic cable for the Iowa Communications Network (ICN) was placed in Iowa soil (Ivanovic, 1995, p. 6). The ICN is a statewide fiber optic network system which can transfer video, audio, and data signals. All schools in Iowa in USA have been connected each other. Students from different high schools enroll in one class. Same teacher teach students who are in the different schools at the same time. It may be said that it is one of the best telecommunication-based distance education system around the world.

During 1992, The University Brunei Darussalam in Brunie installed videoconference system in cooperation with Mitsubishi. This university sometimes delivers its distance education instruction to students by videoconference system. Another example is Indra Gandhi National Open University in India. This university established the audioconference system in 1993. The five state open universities and the 16 regional centers have been connected each other. This university sometimes delivers their instruction by audioconference system. During the same year, The University of Kebangsaan in Malaysia installed their own audioconference system. This system is also connected with New Zealand and Canada. This University also transfers its instruction to its students live accross the Malaysia by audioconference system.

The Commonwealth Of Learning had established the first overseas videoconferencing link from North America to the institutions involved. Among the many videoconferencing sessions conducted at COL'S headquarters facilities were a series of events organized with the University of British Columbia faculty of music linking UBC and Vancouver-area professional experts with their counterparts in Australia (Perrins, 1991, p, J-4). Canada and Australia also established teleconference system together for distance

education program. According to Dean (1994), approximately 15 students participated in a Spring 1993 hotel purchasing course using interactive video between the University of Nevada-Reno and the University of Nevada, Las Vegas. This course was thought by Dr. Leslie and Dr. Marsha.

During the class, the students positively answered all teachers's questions because they had a face-to-face interactions with their teachers. In Kenya, University of Nairobi installed a audio conference system for their distance education programs in 1994. Both the main and Kikuyu campuses as well as six extra-mural study center have been connected. This system improved the efficiency of distance education program which had been using a combination of correspondence and visiting lecturers. Therefore, some other examples can be found in the other distance education programs. The use of audioconference and videoconference in distance education to deliver its instruction to the students have been diffusing very fast around the international distance education programs for ten years. The other telecommunication technology such as computer began to influence distance education program.

Future Technologies: Integrating Satelitte via Computer and to Its Combining Systems Computer Combination system After 1990s, computers were gradually beginning to play a greater role in distance education programs in developed countries' (USA, UK, Canada, Australia, and others) distance education programs. Today, computer-aided instruction is common in distance education. Students without access to computers at home can often make use of those provided in the study centers. It may be said that computer networks offer many opportunities for distance education.

Computers have already been used in conjunction with programmed instruction in distance education. It can be used as a tutor or personal instructor because the capacity of computer to store information is too high. It has a big potential to be used in the distance education programs around the world to deliver its instruction to the students. The computer can also be used for learning games. Distance education programs design some computer programs and then send to the students to get experiences about the topic.

In August 1981, IBM introduced its first Personal Computer (PC) (see Buckland and Dye, 1991). After that year, other companies started to produce their PC computers in the market. It is getting cheaper every each day. Distance education programs are affected by the computers and started to use it in their programs because it offers new opportunities for students involvement and participation in instruction. There are some examples around the world.

Computer conferencing was recently used by second graders in Illinois to "talk" with a children's book author in 1988 (Moore, 1989). USA and Japan implemented a computer based distance education programs during the 1980's. In this programs, students in Hawaii had combined audio and computer-based

massaging to bring in guest speakers and communicate with other students in Massachusetts, Japan, and other locations (Moore, 1989, p. 4).

The other example is Open University in UK. This university has been used computer networking as part of a course which also uses printed texts, television broadcasts, and audio cassette. The network linked 1,500 remote students each year with their local tutors and their central academic staff, and computer conferencing was used for discussion of course topics, and to generate assignments and practical work for the course (The International Encyclopedia of Education, 1991 p. 576). The university of Phoenix, in Arizona, in USA uses computer networking for the delivery of postgraduate business courses, requiring students to work in small groups, but remote from the central site.

Between 1989 and April 1990, the Technical Education Research Centers in Cambridge, Massachusetts in cooperation with the National Geographic Society implemented computer-based distance education among 600 schools from Canada and USA (see McConagy, 1991, p. 801-802).

According to Perrins (1994), at the end of September 1993, COL staff installed a ground station in British Columbia, to serve both COL headquarters and the University of Northers British Columbia (Prince George, Canada). In 1994, COL began testing such a system in locations in the Caribbean, using COL as an Internet "hub" site to provide the educational community in countries such as St. Lucia with access to inexpensive e-mail. Other telecomputer project was done in Las Vegas in USA. This pilot study was performed in the Spring of 1994 at the University of Nevada.

The students took their courses in the telecomputer based classroom. Another model of using computer in distance education is computer mediated communication system (CMC). Computer mediated communication and telecomputer communication are similar, except for real time, audio/visual conferencing (see Dean, 1994 p. j-4). CMC increases the interactive communication between students and teacher because the student can mail their questions electronically to the instructor at any time. And then the instructor can send their answer to the students by internet system. It occures in a few second.

After 1982, Computer-Mediated Communication System (CMCS) was implemented around the world. COSY (COnferencing SYstem) at the University of Guelp, Ontario, where a course an 'Adult education: principles and practice' was first offered in 1984 to a group of graduate students in the School of Extension Education; EIES (Electronic Information and Exchange System) developed at the New Jersey Institute of Technology, which is used by, for example, the New School for Social Research in Manhattan to provide on-line courses for credit through its 'Connected Education' project; and PARTICIPATE at the New York Institute of Technology, where a range of

distance education versions of on-campus courses in the Independent Study Program are now being offered to students (Rumble, 1986, p. 197).

Other example is Turkish experience in computer-mediated communication system. In 1992, a computer-mediated distance education was implemented between Turkish Open University and American universities the University of New Mexico, the University of Oklahoma, Florida State University, Arizona State University, and the University of Wyoming in Turkey (see McIsaac, 1993). American and Turkish students took some courses from this system. The achievement of students was too high as expected by educators. Hence, there are some computer based distance education examples in the world. The use of computer combination system in distance education have been disseminate in the national and international distance education programs. In addition, the hardware and software such as se-yu-se-me and others for computer-based distance education have been developed very fast because there is a huge market for this system around the world.

The Future Technology in Distance education Telecommunication technologies such as satellite, computer, television, fiber-optics, and others have been developing very fast and incredibly and will offer big opportunities such as face to face for distace education programs for distance educators. In a widely-circulated report on instructional technology, the Carnegie Commission on Higher Education predicted that by the year 2000 at least 80 percent of off-campus instruction conducted by colleges and universities would be delivered by emerging information technologies (Buckland and Dye, 1991, p. 63). These technologies are used a tool to reach teachers and help students to improve their learning.

Many distance educators agree with that two-way communication system is a necessary element of long-distance education. This system will must be widely used in the distance education programs in the future. the telecommunication technology such as satellite will be ready to help them to design this system in the distance education system because they have a capability to do that for educators. Satellite technology is the fastest growing for distance education around the world. With this technology, educators will may create direct point-to-point (school-to-school) communication. For example, "Direct Broadcast Satellites" (DBS) will be more helpful in the future. DBS is a system that allows people to receive programming through a satellite dish (Grant, 1994, p, 78). No, not the 10-foot diameter satellite dishes people have seen littering the countryside, but 18-inch dish that mounts unobtrusively to the outside of their home, apartment, or in their backyard. This receiving dish is then converted by cable to a converter box near the TV. With this technology, students will be able to teleconference with their teachers and their partners at their home or their offices.

Another example is "Personal Communication Services" (PCS). PCS will be a network of wireless services similar to current cellular telephone systems (Grant, 1994, p. 362). Like cellular, PCS will utilize microcells to cover each service area. However, the microcells that make up the PCS system will be much smaller than those of cellular system. PCS is also more flexible than cellular phones, providing for data transmission between computers and pagers. People with this system will be able to see each other on the telephone. The PCS will aid distance educators to design face to face class facilities. The distance education students will be able to take their courses at their home, office or coffee-house because they can communicate anywhere with the PCS.

Third example is "Satellite-Based Distance Education". One advantage of satellite-based distance education is the fact that it can cover wide geographical areas. Schools that cannot afford to provide facilities or produce programming for other distance learning systems can join statewide or multi-state satellite networks for delivery of effective programming (Grant, 1994, p. 294). The future of satellite-based distance education is promising. With digital compression leading the way to a new revolution in satellite use, the outlook for programming network is promising. With this telecommunication technology, distance education programs will be able to deliver their instruction from their main centers to other countries. It is called "Global Distance Education". Distance educators will design more effective and efficient global distance education programs in the future.

Other example is Computer technology in distance education. In the future, Computer conferencing system will be more useful in the distance education programs. The hardware and software of computer technology will be very complex which can help distance educators to design some teleconferencing facilities in the program. The personal computers will be provided with a more complex camera, speaker and telephone line. This combination can create a computer conference in the classroom, homes, and offices. Students who are in the different schools located in the other countries or states will be taking course form the same teacher. The teacher will be able to watch ten or more students group on the computer screen. They will also talk to face-to face each other in the classroom. These kinds of applications can be found around the world because it has already existed in a few distance education programs.

The last example is "Virtual Learning Environments". Distance learning is changing educational boundaries, traditionally defined by location and by institution (Buckland and Dye, 1991, p. 70). In the pooling of students and teachers, distance learning efforts reconfigure the "classroom." In the future of distance education there will no the physical space, classrooms, physical classmates, and physical teachers.

It is called "virtual reality". It promises to revolutionize disciplines as diverse as the fine arts, medicine, computer imaging, architectural design, education, and robotics. With this system, people will take a trip in some museums or other places.

## IV. Conclusion

Between 1975 and 1995, the distance education programs have been diffusing fast around the world to offer an equal education for every one and increase the education level in international countries such as Turkey, India, Spain, Israel, Pakistan, Germany, China, Thailand, and others. In the future, the level of education will be very important for being a developed nation in the world. Today, more than ten million students are in distance education programs and more than two million students received their high school diploma, B.A., M.A. or M.S. degrees form the open universities and open high schools around the world. This author believes that during 2000, the number of students and schools will continue to increasing in the world.

In the today and future, it is easy to use many telecommunication technologies for distance education delivery system. Especially in the future, there will be an unlimited technological potential to use for distance educators. These authors suggests that in today and future's distance education programs, distance educators should not never forget "humanity" in their programs because if they do not pay attention it, their distance education programs will be fail.

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