1 Growing Importance of Distance Education in the World

At present, distance education is in the process of gaining more and more importance because of its structural relationship to many forms of online learning. As it is able to draw on 150 years of experience in a-synchronous teaching and learning outside the traditional classroom or lecture hall it can contribute substantially to the present pedagogical structure of online learning. The history of distance education has always been a history of its growing importance. This importance, though, differed in the four periods of its history described. It performed, for example, quite different functions in the periods of »pre-industrial distance education«, of »correspondence instruction« and in the period in which more than 40 »distance teaching universities (open universities)« were established in many countries all over the world which has led to the emergence of mega-universities. The single mode distance teaching universities improved the methods, the image and the general impact of distance teaching considerably. Presently the following indicators of the increase in importance can be seen: the rise and integration of online learning, the growing interest of experts, governments, the European Union, and in part of the public as well, the growing demand, and the growing significance of distance education research.

Introduction

"Telematic" applications to teaching and learning are quite often seen as technological processes, which are discussed in the framework of computer science, electrical engineering and communication studies. And even more often they are interpreted merely as means of delivering instructional programmes and of facilitating access to higher education. By analysing distance education, however, interesting and valuable pedagogical aspects and experiences can also be brought in and regained.

Sometimes the new information and communication media are praised for crossing the boundaries and restrictions of time, geographical distance and personal dependencies, this being considered to be a decisive and unparalleled innovation. However, viewed from a pedagogical point of view this means that their protagonists are trying to reinvent the wheel. We should be aware that the achievements mentioned were already attained in the middle of the 19th century, when the first correspondence schools started teaching. Since then we have had a tradition of a-synchronous teaching and learning outside the classroom or the lecture hall. And since then technical media and technologies have been employed in order to provide education to (very) large groups of learners distributed over a (very) large area.

Clearly, there is a structural relationship between distance education and online-learning. This must not be forgotten when we enter the digital era in learning and teaching. We should keep in mind the experiences gained in distance teaching during the last 150 years. This is very important, because practitioners and theorists of distance education have developed quite a number of approaches in order to overcome not only the geographical, but also the psychological, social and cultural distances between teachers and taught. And that is not all: there is a "pedagogical heritage" of distance education related to long experience. It is unwise to ignore or even to deny it.

Historical Perspectives

If we trace the history of distance education we become aware that there was a development from the first singular attempts in antiquity to the unexpected and surprising spread of this form of teaching and learning all over the world during the second part of the 19th century. This development has become quite dramatic during the last 25 years with the advent of open universities and is taking place with breathtaking speed at present with the establishment of virtual universities. Looking into the future we might even predict that this development will continue and become strengthened. In the long run it will expand even more and become an indispensable part of all higher education in most universities all over the world. Its relative cost-effectiveness alone will be critical in this process, especially in "developing" countries.

A Forerunner

The first experiments in distance education were singular and isolated ones. However, they were already of profound importance for the persons involved, because the content was religion and religious controversy, which was taken very seriously at that time. I am referring here to the Apostle Paul, who wrote his famous epistles in order to teach Christian communities in Asia Minor how to lead a life as Christians in an adverse environment. He used the technology of writing and transportation in order to do his missionary work without being compelled to travel. Clearly this was already a substitution of face-to-face preaching and teaching by mediated and a-synchronous preaching and teaching. And it was a technology-based, but still "pre-industrial" approach. At that time nobody could imagine the outstanding importance which would be attached to this very approach all over the world in the twentieth century and, it appears, even more so in the twenty-first century.

"Correspondence" Education

In the middle of the 19th century, the first general approach to distance education can be identified wherever industrialisation had changed the technological, vocational and social conditions of life. Educational systems of the period were not at all prepared for these structural changes. They could not adapt to the severe educational paradigm shift of these years. Thus, many new educational needs were not even identified, let alone taken care of. However, entrepreneurs at the beginning of the industrial revolution, mainly publishers, identified them. They decided that profits could be made by meeting the educational demands of these people and by exploiting the possibilities of mass production and mass distribution and the technologies of the post and railway system.

At that time, many correspondence schools sprang up, in England, France and Germany as well as in other European countries. More were to be founded later on other continents. They became important because they offered tuition to those people who were neglected by the educational system, among them gifted persons who wanted to climb socially in order to improve their living conditions and the quality of their life. They gained importance as workers were challenged in many ways by new tasks and new methods when the artisan way of working became more and more industrialised. They started the commercial competition, which was to become an important feature of higher education in the digital age. And, with regard to the theory of distance education, they developed the

first and fundamental model of distance teaching, which could stand the test of practice as well as of time.

Two aspects of this particular form of distance education added immensely to its importance:

- Correspondence education was used in large, but sparsely populated countries like Argentina, Canada, Australia, and also in the former Soviet Union where it was quite often impossible to offer tuition to persons living in remote areas. They used correspondence education - quite often supported by radio and, in Australia, even by aircraft. In these countries the geographical distance is quite often "overlapped by historical, social and cultural distance" (Coicaud, 1997, p. 152).

- Distance education became even more important for those who lived far away from their home countries in colonies. British people, for instance, serving in one of the colonies of the British Empire quite often had no opportunity to attend a traditional university and had to prepare themselves privately to sit the external examinations of the University of London. They were assisted by the services of several correspondence colleges which relied on the technology of shipping and navigation in order to deliver the teaching material. These particular teaching and learning processes were truly a-synchronous due to the long times it took in order to reach, for instance, students in India and Australia. These activities represent another root of modern distance and open higher education. The same can be said about distance students in French colonies registered in the commercial "Ecole Universelle" in Paris.

Distance Teaching Universities

In the seventies, a new epoch of distance education began. It can be characterised by its additional use of two analogue electronic mass media - radio and television - and later also of video and audiocassettes as well as of study centres. This pedagogical shift cannot be overestimated. It increased the importance of distance education tremendously.

The new technologies were consistently used in an integrated way and not just occasionally. Public funding enabled these universities to develop high quality teaching material. Mass production of carefully developed, pre-prepared and pre-fabricated printed material was supplemented by the broadcasts of these powerful mass media. Autonomous single mode and degree granting distance teaching universities were established. Governments mostly founded them in order to implement their educational policy. In some countries these universities were even open to students with no regular university entrance qualifications. This new beginning and this new approach changed the entire scene of distance education. Its main new features were: considerable progress in establishing and opening higher education for larger groups of adult students, pedagogical experimentation, the increased application of educational technology, the introduction and support of open and life-long learning and the beginning of mass higher education.

The consequences of these achievements are invaluable: They made distance education even more relevant than ever before. Now this form of learning was not only recognised but also actively supported by governments. Its public image improved a great deal. Never before had distance education been so important as in the seventies and eighties.

How far its image had been improved and how attractive this concept had become can be illustrated by a telling example. Large electronic companies offer their appliances for various forms of teleconferencing to American universities by inviting them to enter the field of "distance education", using this term which up to then had not been familiar in this country at all for advertising purposes, (Duning, 1993, p. 209). The irony of this story is that the extension of classroom teaching by means of videoconferences differs extremely from distance education as defined and interpreted with the criteria and standards inherent in this particular form of learning.

Measuring these progressive developments of distance education against the lethargy of traditional universities with regard to university reform and pedagogical experimentation we cannot but concede that distance education has performed a revolution in higher education with many important consequences for the future (Peters, 1992).

Summary

So far we distinguished three periods in the history of distance education. In the first period, singular projects established and tested this method and paved the way towards online learning. The second period represents the era of mainly commercial, but later states correspondence education as well, and the third period stands for the era of distance education by open universities. In this last period that special way of teaching and learning has attracted worldwide attention and we have become witnesses to an unexpected break-through of this method in tertiary education.

In each of these periods distance education performed different tasks and in each of these periods distance education gained significance by expanding its services to more and more students in more and more circumstances in more and more countries and by becoming more effective and more efficient. The reason for its coming into being is clearly that there were those in need of education and no other way to acquire knowledge or to become educated was available. In other words: distance education became relevant because it enabled governments and schools to overcome educational emergency situations or to minimise their consequences. Today we are in an emergency situation again, in an emergency situation which is much more critical and far-reaching. Distance education will become instrumental and will help to overcome this situation again - a development which will add considerably to its importance.

It must be emphasised that the growing importance of distance education can be related to the technologies used in each period: writing, printing and transportation by means of railways, cars, aircraft, transmission by "old media" such as radio and television as well as by "new media", especially the computer.

Growing Interest

Not only has distance education become a necessary and in many circles even an attractive and popular form of learning and teaching. One of the consequences of the third - and so far most important - period of distance education was a definite increase of the number of people who wanted to learn more about the new form of teaching and learning. Distance education became a subject, which was now dealt with by educational researchers and even discussed in newspapers and journals. But there is also another impressive indicator of this new interest: the growing number of practitioners and

experts attending the world conferences of the International Council for Correspondence Education. In 1965 a relatively small group attended the ICCE Conference. Only 80 participants convened, and these were mainly Australians, Americans, Canadians and, for the first time, three or four Japanese. These conferences took place at an interval of four years. In the seventies and eighties, however, this group of participants became larger and larger. At the 20th World Conference of ICDE in Düsseldorf/Germany in 2001 more than 1200 experts from 85 countries had registered. It is already discernible that new groups of experts will attend these important world conferences. Conventions now take place biannually.

Growing Demand

There is also another indicator of the increasing importance of distance education during the third period: a great and still growing demand for this particular form of education. Governments, commercial enterprises, universities, churches, and supra-national concerns became eager to introduce and implement it in order to provide for it.

The greatest demand, and this is most impressive, comes from learners. They are rushing to enrol in distance teaching institutions, especially distance teaching universities, all over the world. A remarkable number of these distance-teaching universities have several hundred thousand students on their rolls. This is an extraordinary and surprising development. Anadolu Üniversitesi in Turkey caters for 577 000 students, the Radio and Television University in China for more than 500 000 students. Keegan (1994, p. 8) claims there are in fact 850 000 Chinese students. Terbuka in Indonesia caters for 353 000, Indira Gandhi National Open University for 500 000, Sukkothai Thammatirat Open University in Thailand for 216 000 and Korea National Open University for 210 000 students. All of these are single mode universities. The advance of these "mega-universities" (Daniel, 1998) is surely the most important phenomenon in the current development of higher education. It should be recognised and taken into account especially when we try to figure out what the "university of the future" may look like.

Expansion and Growth

If we analyse the third period in the development of distance education, which is characterised by the emergence of single mode multiple mass media distance teaching universities, we cannot but be impressed by the fact that so many of these universities were established one after another in the seventies, eighties, and even nineties. In 1994 Börje Holmberg (1994, p. 20) listed 28 of these universities and six organisations, which do similar work. Seven years later he referred to forty of such distance teaching universities (2001, p. 17). Their number may even be considerably higher as he included only internationally well-known distance teaching universities. They are to be found in 26 countries all over the world, as many governments used this new type of a university in order to solve some of their most urgent educational and training needs. How crucial these needs have been and still are can be seen from the development of those mega-universities mentioned above. But even if these distance-teaching universities cater for less than 200 000 students they are still quite often the biggest universities in their countries and sometimes attract more students than all other universities together. This applies to the Open University in the United Kingdom, CNDE in France, Payame Noor University in Iran, the University of South Africa, Universidad National de Education a

Distancia in Spain, Universidade Abierta in Portugal, the FernUniversität in Germany, and the University of the Air in Japan. It also refers to similar distance teaching universities in Venezuela, Costa Rica, Colombia, Sri Lanka, Israel, Taiwan, and Pakistan. All of them are larger than traditional universities with regard to the number of students.

It is very interesting to see that these distance-teaching universities differ from one other considerably, even though all of them are technology-based and more or less influenced by the model of the British Open University. Obviously, different socio-economic conditions, a different cultural heritage, different academic traditions and learning cultures, as well as different ideas about the role of universities and higher education in society, have lead to special versions of distance teaching universities with specific pedagogical structures as well. The fear that the "mechanisation" of education could level down academic forms of teaching and learning seems to be groundless. The following typical structures of distance teaching institutions can be identified as being most characteristic or even paradigmatic:

Distance teaching universities	Typical media structures
University of South Africa	**Correspondence university:** Printed course material, study guides, tutorial letters
Open University (United Kingdom)	**Distance teaching university:** Open access. Pre-prepared course material, course team approach, radio and television broadcasts. Counselling and tutoring in study centres
FernUniversität (Germany)	**Research-based distance teaching university:** Pre-prepared course material, video- and audio cassettes, TV broadcasts, tutoring in study centres, seminars
Central Radio and Television University (China)	**Mass media based distance-teaching university:** TV- and radio-lectures, several compulsory classes per week. Supplementary printed material
National University Teleconference Network (USA)	**Video-based extension of face-to-face teaching in a college by a consortium of universities:** Video-based distance teaching together with textbooks and instructors. Interactive videoconferencing
Project North (Ontario, Canada)	**A teleconferencing-based co-operative distance teaching organisation:** audio conferencing, audiographic conferencing, videoconferencing and computer conferencing for extended college tuition

Note: The medium underlined indicates the basic and prevailing form of learning and teaching.

These different types of distance teaching institutions have developed a wealth of theoretical and practical pedagogical experiences, which can be used when designing the university of the future. This feature adds to their importance as well.

Special mention must be made of the distance teaching universities in East Asia and the Pacific. Their progress was first documented by two comprehensive volumes edited by Kato (1992, 1993). They co-operate in many ways and have developed vigorously during

the last fifteen years. I want to point out two examples only. Recently, the Korean National Open University has invited distance-teaching experts from Vietnam, Malaysia, Indonesia, New Zealand, Nepal, Mongolia, Hong Kong, Pakistan and China to take part in a workshop on Teacher Training at a Distance, an activity which is of paramount importance in all these countries (KNOU, 1997). There is also an Asian Association of Open Universities which holds annual conferences, the 12th of which took place in Hong Kong in 1998 and the 15th in New Delhi in 2002.

Most traditional universities have not yet noticed that all these distance teaching universities are in the process of slowly changing higher education in at least four ways:

- Firstly, higher education for adult (and working) students is increasingly becoming a reality,

- secondly, professional continuing education can be further developed and expanded, without interrupting working processes,

- thirdly, substantially more students than before can be admitted to universities, and

- fourthly, higher education is becoming more cost-effective.

The importance of their impact on the future development of higher education cannot be overrated.

How are traditional universities reacting to the growing influence of this new type of distance education? Throughout the seventies and eighties they ignored it but since the mid-nineties a growing number of conventional universities and colleges became interested in it not only because of the advent of WWW and the Internet and the possibility of online learning, but also because of structural changes which force them to adapt to new societal developments and to meet new challenges.

Indeed, many find it reasonable not only to develop electronic forms of tele-learning, but also to offer courses for distance learning as well and even to establish divisions for distance education within the institutional framework of a dual mode university. In the long run, most traditional universities will complement their methods of teaching and learning by including techniques of distance education. In order to do this in a professional way, several or even a great number of universities will co-operate and form special consortia. This second development is gaining more and more importance. There will be a huge expansion of part-time courses provided by conventional universities, especially for continuing education purposes.

Apart from these two important developments - the establishment of a great number of single mode and the increasing number of dual mode universities - we should not overlook a third one: many other shorter-term distance education projects have taken place, being run both by non-governmental agencies and by commercial enterprises. Agencies and associations have been founded especially for supporting distance learning in many ways. Bernadette Robinson (1994, p. 1) refers to the fact that there were 832 institutions in 102 countries offering 28 377 courses at a distance in 1994. She explains: "However, it is clear that distance education is being used for a very wide range of subjects and audiences in a variety of contexts (formal and non formal, high and low technology, in third world and more developed countries alike)." If we analyse the situation in Europe we can see that there were 2 727 772 enrolments in distance teaching systems, four fifths of them in distance training in 1994 (Keegan, 1994, p. 7).

In the United States there were as many as 5 000 000 enrolments in technical and vocational courses from proprietary providers in the same year (Moore, 1995).

Another indicator of the big step forward distance education could make in the third period is the emergence and growth of distance education research. In 1965, there were practically no researchers in this field, with the exception of two Americans: Charles A. Wedemeyer, the liberal protagonist of independent learning, and Gayle B. Childs, the persistent documentalist of a large number of empirical studies in which professors tried to prove again and again that correspondence study could be as successful as face-to-face instruction, an impossible approach if judged with the methodological insights we have today. Apart from those beginnings distance education was an unknown territory of educational research.

But look at distance education research now! What a difference! Today, there is a host of researchers working in many countries all over the world developing theories and conducting empirical studies. They can rely on a large body of disciplinary and inter-disciplinary distance education research on all levels of sophistication. It consists mainly of projects reports about distance education in many countries, detailed and differentiated development and evaluation research, quite often carried out by experts working in major institutes of educational technology, sociological and psychological studies and there is also a growing amount of pure research. Meanwhile, there are at least four internationally recognised professional journals carrying research reports exclusively on distance and open learning. In addition there are 14 additional journals of regional importance, five of them in India alone (cf. Panda et al., 1996, p. 216).

The present state of the art of distance education research is documented in the comprehensive "Handbook of Distance Education", edited by Michael Moore and William Anderson (2003). This impressive book is the benchmark for the profession and will influence further theoretical and empirical approaches to distance education and online learning.

The newest trends in this kind of research can be recognised by browsing in the CD-ROM reports of the 18th, 19th and 20th World Conferences of the International Council for Open and Distance Education which took place at Penn State University, Vienna and Düsseldorf. They carry a host of reports about new projects and developments in distance education. The main trends documented there are the changing technological environment of distance education and the educational paradigm shift affecting it. The unparalleled upsurge of other publications and the rapid growth of the number of seminars, workshops, and symposiums dealing with current problems of distance education are also ample proof of the growing importance of distance education in the world.

The Impact of Digital Information and Communication

A pedagogical revolution is currently taking place in distance education: the increasing use of digitised learning environments and the net. This means that we have entered the fourth period of the development of distance education which will differ from the third period in marked ways and become a new era of distance education. Theorists and practitioners now have to face the swift, unforeseen, unexpected and unbelievable achievements of information and communication technologies. Using them means that education will also take place in a hitherto unknown territory: virtual learning space.

This requires the design of new formats of learning and teaching and causes powerful and far-reaching structural changes of the learning-teaching process. It is because of these changes that the importance of distance education is now once again increasing in great measure. We must recognise that distance education and online learning provide for the means to cope with new societal requirements, with the necessity to deal with new educational goals and new groups of students.

This can be explained by analysing the present conditions of higher education. Driven by a number of societal, economic and technological forces, educational processes are changing rapidly and dramatically. The most striking ones are the emergence of the adult student working for a living, open learning, the increase of the number of students, new classes of students, including able but underserved and neglected students, the changing functions, contents and pedagogic structure of higher education, commercialism, globalisation and competition with other providers of intellectual power. The result of these changes will be learning and teaching which will differ from traditional formats. It must be open, learner-centred, outcome-based, interactive, participatory, flexible with regard to curriculum, learning strategies and delivery and not bound closely to institutions of higher learning because it can also take place in homes and workplaces.

In a situation like this it is more than fortunate that instructional designers can base their work on distance education in its fourth, digitised and net-based, version. At the same time they can also fall back on long experience with many forms of distributed, a-synchronous learning which has been developed and tested in its three previous periods. All of them offer a rich fund of pedagogical strategies in both theory and practice. In addition, as distance education makes progress in employing the new information and communication media and adopts its methods to the new possibilities of the digitised learning environment, its importance is growing at an unbelievable rate and will soon be beyond the bounds of our comprehension.

Think of what the various forms of teleconferencing can mean to the isolated learner in distance education! Imagine what the shift from expository teaching and receptive learning behaviour to autonomous learning with the help of databases, hypertexts and hypermedia may mean in such a context. What progress this leads to, if distance students can have all information available at the tips of their fingers and can access relevant courses from other universities; when they can browse and navigate in hypertext databases in order to find individual paths for their learning; when they may meet other students in a virtual cafe for chat sessions; when they may ask fellow students living in another town to help them to overcome a difficulty in solving a problem. And finally, how different will distance education be when the distance teaching universities have changed into virtual universities offering practically all the services of real campuses. Even if we try to remain sceptical and realistic about these already discernible future developments, we have to admit that distance education at its best will then be possible.

European Initiatives and Programmes[1]

In order to underscore the growing importance of distance education in its digital era we should take a look at relevant activities of the European Community. It was certainly a benchmark in the development of distance education when the Member States expressed their resolution "to further the development of dis tance education" in such an important document as the Treaty of Maastricht (paragraph 126). Furthermore, the Memorandum of the Commission of the European Community (1991) "Open and Distance Learning in the European Community" shows that the planning experts there had become aware of the extraordinary potential of distance and open learning. In their assessment, this potential arises from its freedom of time, place and pace, its extensive flexibility, which makes it readily adaptable to the needs of the learners, and its appeal to the working population, as it can be geared to the requirements of their jobs.

The Commission also identified those areas of education and training in which distance education can play a particularly significant role. These included: extending opportunities of access and participation in education and training at all levels, extending learning opportunities to students living in less favoured regions and remote areas, continuing education, supporting reform and innovation in education and training; and creating a greater cohesion of the European education and training systems

In order to support such legal and programmatic achievements and to put them into practice, the European Commission has allocated several hundred million Ecu/Euro since the late eighties to evaluating the potential of technological and pedagogical developments for education and training at a distance and to supporting concrete projects. Although the Commission published a Memorandum on Open Distance Learning (ODL) already in 1991 there has not yet been a programme related to Open Distance Learning only, but fortunately all the appropriate programmes for education and training, research and development increasingly comprise at least one or more strands or action lines for that purpose. The most important ones are DELTA, COMETT, TEMPUS, TELE-MATICS, LEONARDO, SOCRATES, Joint Call Educational Multimedia, the Information Society Action Plan (e-research, e-education, e-learning). In relation to these funding programmes a number of trans-European associations have been created which also help developing distance teaching, such as EADTU (European Association of Distance Education Universities), EuroPACE 2000 (Trans European Network of Universities, Enterprises and Organisations with an interest in the field of distance and continuing education and training) and EDEN (European Distance Education Network).

In addition, the Commission has provided, and still is providing, funds for studies and reports on Open Distance and Educational Technology topics. We should take note here of the support offered by the PHARE and TACIS programmes for the development and implementation of distance education courses and infrastructure in Central and Eastern Europe.

Clearly, the European Community uses distance and open learning mainly in order to strengthen the economy of Member States and to facilitate co-operation between them in education and training. The development of language skills is another important

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[1] This section is based on information provided by Friedhelm Nickolmann

objective which is a necessary prerequisite for international co-operation. Thus, distance education has become an instrument for helping to implement European policies, in particular the "European dimension" in education and training at all levels and in all areas.

All theses activities are certainly additional evidence of the growing importance of distance education.

The process of gaining more and more importance, however, must not be seen primarily from an European perspective. It is a global phenomenon. I have not mentioned South America, although distance education has developed there at a good pace as well. South Africa should be referred to as well, as the new government there is attempting to redress the past inequalities of the educational system by adopting an open learning approach and distance education throughout the education and training system (SAIDE, 1995). Finally, Australia should also be mentioned because of its model of dual mode universities. The Federal government here has repeatedly taken measures to improve distance education at tertiary level. It tried to achieve this at first by centralisation, then by decentralisation (Jakupec, 1993). Lately there have been recommendations that they export distance education courses to India in order to improve the financial situation of Australian universities by making additional profit.

Conclusion

Apart from single and isolated historical approaches there were three significant periods of distance education, each of them important in their special functions within the then prevailing systems of education. Each period topped the previous one by its unforeseeable and unexpected practicability and success.

(1) Correspondence instruction, which accompanied the industrialisation of labour, filling gaps and compensating for deficiencies in the educational system, especially in vocational training, and paving the first alternative (a second) course towards university entrance qualifications.

(2) Distance education in the seventies, eighties and nineties, which helped universities in industrialised and in developing countries to channel a growing number of secondary school leavers through higher education. Not only did it extend the capacity of universities, but it also developed new forms of the combination of work and study, introduced regular university studies into adult education and inspired and brought about important pedagogical innovations.

(3) Digitised distance education, which enables us to react to and cope with the major societal changes mentioned. This represents the greatest challenge ahead of us. Distance education will now assume the highest degree of importance as it can contribute substantially through its approaches, techniques, strategies and achievements to the development of the university of the future. A "re-engineering" (Collis, 1996, p. 17) is on the agenda.

Distance education is now at a premium as it helps us in the difficult process of breaking with tradition and designing something new, with more relevance to the post-industrial knowledge society.