Studien und Berichte der Arbeitsstelle Fernstudienforschung
der Carl von Ossietzky Universität Oldenburg

Band 4

Börje Holmberg

Distance Education in Essence

An overview of theory and practice in the early twenty-first century

2nd edition

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Series Editors' Foreword

The editors of *Studien und Berichte der Arbeitsstelle Fernstudienforschung der Carl von Ossietzky Universität Oldenburg* are pleased to acknowledge that Börje Holmberg has entrusted his latest work to the Oldenburg University series of publications on distance education research. With this step a fruitful cooperation begun in 1996 is further corroborated. At that time Börje Holmberg had joined a pioneering project concerned with online teaching and learning initiated by Ulrich Bernath and Eugene Rubin. As a member of their team he contributed to the development of the *Virtual Seminar for Professional Development in Distance Education*, which was successfully conducted in 1997 and 1998 with participants from all over the world. This course became the recommended first core course in the online *Master of Distance Education (MDE)* program, which is jointly offered by the University of Maryland University College and the Carl von Ossietzky University of Oldenburg. Over 500 MDE students have met Börje Holmberg in his capacity as a visiting expert in the first module of the course, the subject of which is *History and Principles of Distance Education.* One of the required readings of this course is Holmberg's comprehensive book *Theory and Practice of Distance Education.* The MDE students have the unique privilege to interact personally with him as their tutor in the online learning environment.

Börje Holmberg has identified mediated subject matter presentation and mediated student-tutor interaction as the two constituent elements of distance education and insists on an empathy approach to its practice. In the online seminars he himself consistently practices this approach by providing individual guidance and feedback while discussing each student's questions and opinions. For the seminar work his *Theory and*

Practice in Distance Education has proved an excellent basis providing essential parts of the subject matter presentation.

The present book is on the one hand a short, somewhat conversational presentation and updating of the most important concerns studied in depth in *Theory and Practice in Distance Education.* On the other hand it is a discussion of the status and trends of distance education at the beginning of the twenty-first century, which among other things includes a scrutiny of the relationship of technology to distance education.

What has led to the writing of *Distance Education in Essence* is both the author's commitment to lucidity, which is badly missing in many of today's confused references to distance education, and his wish to provide up-to-date information about its theory and practice. In his work he has been able to draw on his rich experiences as a scholar and tutor of distance students. It is a unique and eloquent expression of a successful process of advancing theory and practice. In *Distance Education in Essence* Börje Holmberg succinctly and readably sums up and evolves his distinguished life-long contributions to the field in the light of the electronic age.

The Editor of Open Learning deserves our gratitude for granting permission to reprint Börje Holmberg's *The Evolution of the Character and Practice of Distance Education* in the second part of this volume, which is the 1995 precursor on the essence of distance education, particularly as related to its historical background.

Christine Walti and Franziska Vondrlik provided editorial assistance to this second edition expanded by a subject index

The Editors

July, 2003

Preface

After many years of work in distance education I am somewhat puzzled to find that at the beginning of the twenty-first century there is on the one hand much talk about distance education, most of it favourable, on the other hand little understanding of its character, theory and practice. This booklet is meant to describe today's distance education, to elucidate the basic thinking behind it and to do so as briefly as possible.

Some work I have been doing since the end of the 1990s for a Master-of-Distance-Education programme of the universities of Maryland and Oldenburg has sharpened my awareness of the need for a succinct identification and explanation of the most important aspects of distance education as practised at the beginning of the new millennium. This to some extent lies behind the following ten short chapters. I owe the title of this book to one of initiators of this programme, my colleague Dr. Ulrich Bernath of the University of Oldenburg in Germany.

For my presentation I have drawn on much literature and research, that of others and my own. I constantly provide readers with full references to these sources and also in some cases refer to my personal experiences.

To elucidate the background and historical development of distance education an article on its evolution written by me and published in *Open Learning* in 1995 is added as an appendix. The permission of the publishers of that journal to reprint this paper is gratefully acknowledged.

Börje Holmberg

August 2001

1 Prolegomena

Preliminaries

Distance education is nothing new. In its early stages and long into the 20th century the practically only media available to it was print and the written word, and so it was adequately called correspondence education. As various other media began to be used this term was felt to be inadequate and was changed into distance education, officially so since the early 1980s. In 1982 the UNESCO-affiliated International Council for Correspondence Education changed its name into the International Council for Distance Education (now the International Council for Open and Distance Education).

From its inception distance education has been characterised by mediated subject-matter presentation and mediated interaction between students and tutors. These two characteristics are, in fact, the two constituent elements of distance education, the former representing one-way traffic from the supporting (teaching) organisation to the students, the latter two-way traffic between the two. Peer-group interaction between students is an important but fairly late addition.

Even if the earliest mentions of distance-education activities date from the end of the 18th century and the first half of the 19th century it was towards the end of the 19th century that it became firmly established. At that time several large correspondence schools were founded and distance-education methods were then first applied to university education. I refer to what I have written about these early stages of distance education in my book *Growth and structure of distance education* (1986).

Since then distance education has developed into a much applied and frequently praised mode of education with millions of students in various parts of the world. It has above all been applied to secondary and tertiary education as well as to occupational and professional training. The single-mode distance-teaching universities have attracted much attention, particularly the Open University in the UK. At the beginning of the third millennium the use of modern information and communication technology strongly influences the practice and perhaps even the reputation of distance education.

When in 1960 I published my first monograph on distance education very little had been written about it and the research into it so far done was largely limited to case studies and empirical comparative studies of distance vs. traditional education. This situation has gradually and strikingly changed. As late as the 1980s it was possible for individual scholars to follow and take the measure of practically everything written on the subject (cf. my international bibliography of 1990 and Delling's German bibliography of 1977 with additions). The situation at the beginning of the 21st century is very different. At a great many universities and other research organisations a wealth of theses, articles and research reports concerning distance education are continuously being published. New contributions to the study of distance education now appear practically every month. The periodicals wholly devoted to distance education bear witness to this. Among them can be mentioned *Open Learning* (UK), *Distance Education* (Australia), *The Journal of Distance Education/Revue de l'éducation à distance* (Canada), *The American Journal of Distance Education* (U.S.A.) and the *Indian Journal of Open Learning* (India). Regrettably the publication of *Epistolodidaktika,* the journal of the European Association of Distance Learning, founded in 1963, was discontinued at the end of 1998.

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. I have described it in some detail in my book *Theory and practice of distance education* (second, revised edition 1995 with some updating in a reprint of 2001).

In the present book, which can well be regarded as a mini-sequel to *Theory and practice,* facts of current interest about distance education, methods propagated and used, theoretical approaches, principles guiding today's practice and the latest developments will be looked into.

Conceptual questions

With the international growth of distance education varying interpretations of what it includes have been made known. The original situation, which still largely characterises it, is that individual adults with jobs, families and social commitments prefer this mode of study because it gives them a possibility to study in their spare time. They can usually draw on knowledge acquired in an informal way and on job experiences which are often relevant in their study. Many of them find it important to be able to begin and finish their study at any time, not to be bound by time-tables except as to possible examination periods or usually optional supplementary face-to-face sessions; these requirements are usually met by the organisations offering distance education although some keep to conventional terms of study and vacations and even impose pacing on their students.

Distance students study specially prepared, pre-produced courses and interact non-contiguously with tutors who comment on their work, which they usually present in the form of solutions of assignments attached to each course unit.

While this individual study probably still dominates in distance education world-wide there are a number of other applications. Thus regular university students sometimes take parts of their degree courses as distance students and thus integrate distance and face-to-face methods in their study. This integration occasionally goes so far as to indicate a kind of convergence of distance education with more conventional approaches (cf. Smith & Kelly, 1987; Tait & Mills, 1999). Also forms of distance learning under supervision for children and youngsters in school occur. So do special applications in staff development and personnel training (Holmberg, 1995, Chapter 8).

In all kinds of distance education some form of technology is used both for the presentation of the learning material (perhaps print only although recordings and other media may also be used for this purpose) and for the student-tutor interaction (writing and posting, use of electronic mail, telefax, telephone etc.). A special organisation is necessary to handle the development and distribution of learning materials, the tutorial and counselling activities required etc. The study is basically individual and not group or class based; however, modern technology makes also non-contiguous student-student interaction in classes and ad-hoc groups possible (by means of tele and/or computer conferencing), which many students find extremely helpful. Supplementary face-to-face elements, which occur quite frequently, can be similar in character.

Since a book of mine published in 1977 I have repeatedly described distance education as covering the various forms of organised teaching and learning that are not under the immediate supervision of tutors present with their students in lecture rooms or on the same premises but nevertheless benefit from the planning, guidance and teaching of a supporting organisation. The typical target group of this kind of education consists of adults studying beside work and family life. However,

distance-education methods are, as already indicated, being increasingly applied also to young students' regular study, particularly at the university level in that individual courses leading to specified credit points are studied in this way.

A comprehensive summarising definition of distance education has been provided by Desmond Keegan. He describes the following criteria as its characteristics:

- the quasi-permanent separation of teacher and learner throughout the length of the learning process (this distinguishes it from conventional face-to-face education);
- the influence of an educational organisation both in the planning and preparation of learning materials and in the provision of student-support services (this distinguishes it from private study and teach-yourself programmes);
- the use of technical media - print, audio, video or computer - to unite teacher and learner and carry the content of the course;
- the provision of two-way communication so that the student may benefit from or even initiate dialogue (this distinguishes it from other uses of technology in education); and
- the quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings for both didactic and socialisation purposes. (Keegan, 1990, p. 44)

To the last-mentioned characteristic should now be added the possibility of non-contiguous group work by means of modern technology. Keegan himself in a later contribution characterises distance education 'as either individual-based provision or group-based provision' (Keegan, 1998, p. 43).

What is particularly remarkable is that distance education brings about *one-to-one* relations, each student interacting personally with his/ her tutor. This *one-to-one* relation between learner and teacher is exceptional in education, probably elsewhere known practically only in traditional Oxford and Cambridge tutorials.

American usage sometimes differs from Keegan's interpretation. Thus, even the simple dissemination (by radio or TV, audio or video recordings) of lectures from one university to another has been called distance education and the mere use of technology in education is sometimes felt to be what constitutes distance education (cf. Olcott, 1997, p. 273; Steele, 1999).

In the interest of conceptual clarity some American writers use the term 'distributed learning' when technologies are blended with campus-based delivery whereas the term distance education is limited to the meaning analysed and presented by Keegan as quoted above. It seems as though there is some reluctance in North America to recognise as genuinely educational such approaches as play down the role of face-to-face contact between students and teachers (cf. Garrison, 1989). The extended classroom seems to be more in line with much American thinking than distance education as defined above and to pave the way for an interpretation of distance education as the 'technological extension of classroom teaching' (Peters, 1998, p. 144). To me distance education is a mode of education in its own right; it is, as Peters says, 'sui generis', (cf. Peters, 1996, and 1998, pp. 141 - 145; Holmberg, 1995, pp. 2 and 4 - 5; see further below).

Distance education is often described as open learning. Cf. Mary Thorpe who in 1987 maintained that just as correspondence education as a term had been overtaken by distance education the latter had, 'in the United

Kingdom at least', been overtaken by open learning. While the distinction between the two is, indeed, blurred in today's usage I submit that there is good reason to keep them apart and reserve open learning for forms of study which refrain from all avoidable restrictions as to access, study time and methods. The German FernUniversität is a full distance-teaching university, but is no more open as to access and periods of study than any other German university. I mention this to illuminate my inclination to distinguish between distance learning and open learning. It is important to recognise that distance education is eminently suitable for open learning, however.

The emergence of advanced technology in distance education has in many cases been coupled with forms of commercialisation. There is much talk about it as a not sufficiently exploited market, and many providers without any earlier background in education have succeeded in attracting considerable numbers of students for more or less immediately useful courses based on computer technology. When these providers are simply on-line businesses engaging individual subject specialists and technicians without any coherent school or university thinking behind them they are often criticised as degree mills without educational aspirations. Whether they should be regarded as providers of distance education is not self-evident. What they provide cannot be called distance education if their students do not interact with tutors but only with computer programmes. The product is then what Keegan calls a teach-yourself programme, not a distance-education course. On this acceptability question see further Chapter 3.

When in this book providers of distance education are mentioned they invariably represent schools or universities with special organisations created to support their students in truly educational endeavours, which, however, does not preclude individual students from purely instrumental

study. Some traditional university students study in order to acquire a degree rather than to educate their minds, and so do some distance students.

Some basic facts

Distance education is provided by a great number of official and private bodies. Among them should be mentioned the members of the American and European professional organisations active in the field, the European Association of Distance-Teaching Universities, the Distance Education and Training Council in the USA and the European Association of Distance Learning. Among other similar bodies could be mentioned the Australian and South Pacific External Studies Association and the Asian Association of Open Universities. There are also a great number of national associations.

In secondary education and occupational and professional training private organisations seem to dominate, whereas higher distance education is largely in the hands of state universities, at least in Europe.

Among old private distance-teaching organisations that are still active can be mentioned the American School in Chicago, founded in 1897, Hermods in Malmö, Sweden (1898), International Correspondence Schools (now Harcourt Learning Direct) in Scranton, Pennsylvania (1891) and NKS in Oslo, Norway (1914).

Universities using distance-education methods as their sole or chief procedure for delivery of courses, for interaction with students and for counselling attract considerable attention. Some of them have proved very successful both in teaching and research - an outstanding example is the UK Open University - and all fill important gaps in the public provision of higher education.

The oldest distance-teaching university is the University of South Africa (UNISA) which emerged as a development of the University of Good Hope, founded in 1873 as an examining body along the lines of the University of London. It was made a distance-teaching university in 1962 (Boucher, 1973).

Readers may find it useful to have a list of some well-known distance-teaching universities active at the beginning of the 21st century. Here is a list, but I wish to stress that it is not complete and cannot claim to be up-to-date as new distance teaching universities are continuously expected to be created:

AKAD Hochschulen für Berufstätige, Germany
Allama Iqbal Open University, Pakistan
Anadolu University, Turkey
Dr. B.R. Ambedkar Open University, Hyderabad, India
Athabasca University, Alberta, Canada
Central Radio and TV University, China (with several regional universities)
FernUniversität, Germany
Hanoi University of Technology - State Open University, Vietnam
The Hellenic Open University, Greece
Hong Kong Open University
Indira Gandhi National Open University, India
Korea National Open University, South Korea
Kota Open University, Rajasthan, India
Kyongi Open University, South Korea
Nalanda Open University, Bihar, India
Open Universiteit, Heerlen, The Netherlands
Private FernFachhochschule Darmstadt, Germany
The Bangladesh Open University
The National Open University of Taiwan
The Open University, United Kingdom (and of the United States)

The Open University of Israel
The Open University of Sri Lanka
The Open University of Tanzania
Ramkhamhaeng University, Thailand
Shanghai TV University
Sri Lanka Institute of Distance Education
Sukhotai Thammathirat Open University, Thailand
Télé-Université (part of the network of the University of Québec, Canada)
Unisur (Universidad Universitaria del Sur), Colombia
Universidad Estatal a Distancia, Costa Rica
Universidad Nacional Abierta, Venezuela
Universidad Nacional de Educación a Distancia, Spain
Universidade Aberta, Portugal
Universitas Terbuka, Indonesia
Universitat Oberta de Catalunya, Spain
University of Distance Education, Union of Myanmar, Burma
University of the Air, Japan
University of South Africa
Yashwantrao Chavan Maharashtra Open University, Nashik, India
Zimbabwe Open University.

Ten of these have over 100 000 active students each year in tertiary education. Daniel (1996), who refers to them as ‘mega-universities’, has analysed their particular characteristics.

Other very well-known providers of university distance education are, for example, the Open Learning Agency and the North Island College in British Columbia, Canada, the National Distance Education Centre in Ireland, the Open Polytechnic of New Zealand and the French Centre National d’Enseignement à Distance. The last-mentioned organisation in

2001 reports on the work of 120 000 distance education students at university level.

Distance education within dual-mode frameworks (dual mode referring to both conventional and distance-education modes of teaching and learning being applied within the universities or schools concerned) were first developed in Australia and are now quite common in Europe (the UK and Sweden, e. g.) and the USA. Departments for distance education at German traditional universities and German private distance-teaching universities have joined in creating an organisation, the Arbeitsgemeinschaft Fernstudium. Leading Australian dual-mode organisations are, for instance, Deakin University and Monash University in Victoria, the University of New England and Charles Sturt University in New South Wales, the Universities of Central and Southern Queensland and Murdoch University in Western Australia.

In Germany where traditionally education is a state concern and free of charge a couple of private distance-teaching universities have functioned since the 1990s. They are the AKAD Hochschulen für Berufstätige and the Private Fernfachhochschule Darmstadt. While the former make so extensive use of face-to-face teaching that it is questionable whether they should be referred to as single-mode or dual-mode universities, there can be no doubt that the latter is a single-mode one relying primarily on distance-education methods. The term ‘Fachhochschule’ means university of applied sciences (polytechnic). (On single-mode vs. dual-mode organisations, large-scale and small-scale distance education see further Chapter 6).

Facts about distance students and about scholarly studies of the student bodies are provided in my *Theory and practice of distance education* (1995). The number of distance students in the world is considerable as

evident already from the figures mentioned about the so-called mega universities above. Only in Europe we have to count with at least some three million distance students. A European commission census found some 2 600 000 fee-paying distance students in 1996 (Keegan, 1996, p.3).

Among fairly recent studies of relevance in this context should be mentioned those by Ommerborn & Schuemer (1999 and 2000) of two special target groups, on the one hand handicapped people, on the other hand prisoners. For both these categories non-contiguous study is as a rule the only option open.

In general terms it nowadays seems difficult to describe distance students as belonging to clearly definable target groups. Distance education is suitable for anyone capable of intellectual learning and prepared to work individually, from elementary stages to advanced degree studies; it above all attracts adults with jobs, families and social commitments. For reasons of socialisation conventional schools and universities are usually preferable for youngsters. There are highly appreciated applications of supervised distance education for children and youngsters, however (Holmberg, 1973; Tomlinson et al., 1985; Woodley, 1986). Naturally to some, for instance the groups investigated by Ommerborn & Schuemer as mentioned, distance education may not be the preferred choice but nevertheless an acceptable possibility.

2 Distance education as innovation

As evident from what was said above in Chapter 1 about single-mode vs. dual-mode universities the specific characteristics of distance education can be applied to different degrees. If it is regarded as an innovation some applications could (in Ross' terminology) be described as instances of extra-paradigmatic innovation, whereas others would be innovations within the accepted paradigm (Ross, 1976). The latter type of distance education is regarded simply as a substitute for education face to face and is usually characterised by classes and paced study programmes. Leslie (1979) describes a system of this kind which insists on 'fixed starting times for a course, a fixed schedule of assignments, a fixed duration of a course', students being treated 'as members of a class, although that class is distributed geographically' and having to 'submit assignments and write examinations on a schedule' (Leslie, 1979, p. 36).

Systems which allow and encourage students to make their own time-tables, study when their work and family situations allow, submit their assignments whenever it suits them, consult tutors (on the telephone, by e-mail etc.) when they feel a need for this support and register for examinations when they feel ready for them are examples of extra-paradigmatic innovations. In systems of this kind (e. g. Hermods or the Private Fernfachhochschule Darmstadt) students can begin, interrupt and complete the study as it suits them or as work, health and family conditions allow. This type of distance education paradoxically on the one hand serves mass education, on the other hand is based on wholly individual learning (which does not prevent optional seminars being offered). This is part of the background of Peters' description of distance education as *sui generis* and well accords with his much-discussed view

of distance education as an industrialised form of teaching and learning (Peters, 1973).

Technology plays an important part in the view of distance education as innovative. Unfortunately references to and discussions of distance education in this context are often characterised more by technology euphoria than by insight into the potential, theory and practice of this kind of education. The background is, of course, that it can today benefit from the remarkable capacity created by information technology towards the end of the last century to store, retrieve and communicate data. Technology as such is not what distance educators are primarily concerned with, but its possible contributions to non-contiguous education cannot but be a top-priority matter for at least two reasons. One is that individual use or manipulation of computers and telecommunication facilities offer until recently unreachable sources of information and little known procedures for computation and communication. The second one is that the use of technology seems to exert favourable influence on young students' motivation to learn (cf. Wallace, 2000).

Distance education has always benefited from the products of technology, print being the most important of them. Even at a very early stage audio presentations occurred (Hermods used wax cylinders for this purpose at the very beginning of the 20th century) and video presentations have long been common including audio and video interaction. It is the use of computers, however, which has changed the media situation in a revolutionary way.

No distance-education organisation can limit itself to producing and disseminating learning packages; to bring about educational interaction with human teachers, tutors and counsellors is a *sine qua non.* The mediated presentation of learning matter, i.e. one-way traffic from the

supporting organisation to the students, and the mediated interaction between the two, i.e. two-way traffic, are, as mentioned in the very first paragraph of this book, the two constituent elements of distance education. In both an empathy approach is applicable. On this see further below under *Methodology* (Chapter 5).

Computers can be and are to a great extent used to serve both these constituent elements.

In fact, modern information and communication technology has opened so many new possibilities and caused so dramatic changes in the practice of distance education that some scholars have referred to these changes as a paradigm shift. This will be discussed below under the heading *The technology debate* (Chapter 3).

The presentation of subject matter can occur on the World Wide Web, primarily as an outcome of search for information, facts and arguments. It makes little sense to read texts from the screen, however, if printed texts are available as the latter are easier to read and survey. Browsing is facilitated by printed texts. Search on the WWW is particularly useful for tracing sources of information and for extracting ephemeral or very short texts, whereas the use of the Internet or restricted Intranet systems lend themselves to supplementing printed texts and other sources. The desirability of using the net for supplementing printed course materials is often great when a new course is beginning to be used and students are found to have unforeseen difficulties with certain parts of it. Students may ask a question on the net, which causes both fellow students and tutors to comment. This use of the net, which I have personal favourable experience of, means that it serves both the presentation of subject matter and the other constituent element of distance education, viz. student-tutor and student-student interaction. For the last-mentioned

functions ordinary electronic mail, referred to below as e-mail, telefax communication and computer conferencing are important media.

There is a danger that under the influence of technology euphoria computer technology is used also where it has little or nothing to contribute. ‘The temptation is to use the computer screen as a blackboard that transmits everything, even information that could be more efficiently delivered in paper format’ (Burge, 1995, p.159).

For the element of interaction a-synchronous computer seminars have proved to be excellent as they cater for non-contiguous group interaction. So does teleconferencing. However, computer conferencing suits most adult students better than teleconferencing as audio and video conferencing makes it necessary for students to observe scheduled seminar times, which many job and family situations do not allow. Computer seminars can, on the other hand, well be a-synchronous, that is allow students to make their contributions at any time that suits them within a defined period. An agreed week may be reserved for such a seminar implying that students can join in at any time, day or night, from, say, Monday morning at 8 a.m. until Saturday evening at 10 p.m. and that the seminar leader’s summary will be on the net from a given day in the following week. I have very favourable personal experiences also of this type of computer conferencing in distance education. On practice of this kind see Bernath & Rubin (1999 and 2001) and Fritsch (1997).

In many cases face-to-face sessions (seminars, consultations, lectures, exercises) supplement distance education, usually as optional elements. If a really liberal study system is applied the teaching organisation cannot foresee when individual students will be ready for specific events of this kind. Invitations will then have to be issued to students who have

completed the parts of the course which are the prerequisites for each seminar. In actual practice this causes no difficulty.

On various applications of information and communication technology to distance education see Bates (1995). Both more general and more specific discussions about media in distance education are further to be found in Chapters 5 (Media for subject-matter presentation) and 6 (Media for student-tutor and student-student communication) of my book *Theory and practice of distance education* (1995), which was written before the computer had radically changed the media situation, however. The use of computers for student-tutor interaction, for counselling purposes and in the administration of distance education are nevertheless briefly looked into in Chapters 6 and 7 of that book.

When students are on line they can communicate with the supporting organisation not only on matters immediately concerning their learning but also on administrative questions (the availability and distribution of course materials, supplementary support, periods for any face-to-face sessions and examinations, financial matters etc.). Various systems facilitating this type of contact and also making student-student communication constantly possible are in use.

There are a great number of further applications of information and communication technology in distance education. Simulation of work processes is one example. See further Rekkedal (1999) and Weidenfeld (1999), e. g.

3 The technology debate

The relation of technology to distance education has - little surprisingly - caused much debate. This discussion largely centres around the various applications of the possibilities opened by the use of the computer.

Whereas computer conferences are usually seen as technological innovations improving distance teaching and learning there are thinkers who go much further. Garrison even claims that computer conferencing is far more than a technique. ‘Computer conferencing has the potential to radically reshape learning at a distance’ (Garrison, 1997, p. 9). The same author extols audio and video conferencing (Garrison, 1989 and 1993), apparently because these media tend to make distance education more similar to classroom teaching and learning (which to the present writer implies no praise). In Peters (1998) there is an interesting discussion about an assumed Europe-North America controversy behind the two kinds of estimate:

> While North Americans see distance education mainly as a technological-organizational enabling of access to traditional university teaching with the help of the latest technical media, Europeans are interested above all in the pedagogical processing and optimizing of teaching with the help of technical media, whereby they deliberately remove themselves from traditional forms of academic teaching. (Peters, 1998, p. 144)

In an earlier discussion about tele-conferencing Bates similarly states that the ‘the North American (…) assumption is that the traditional form of group, face-to-face instruction is the preferred and most effective form of higher education, at least, and that the closer distance education can directly imitate this, the more effective distance education will be’

whereas ‘Europeans (...) have designed and developed forms of distance education that place emphasis on the need for flexible learning opportunities that enable independence on the part of the learners, and have tried to develop forms of teaching that are deliberately quite different from the traditional ”face-to-face” approach of classroom learning’ (Bates, 1995, p. 167).

Bates and Peters seem to be right in their descriptions of typically European and American attitudes. When studying contributions made to the discussion of media and methods readers should be aware of the differences indicated. See further Peters (1998, p. 141) and his reference to Rubin’s discussion of the ‘extended classroom’.

The use of the Internet is often described as representing ‘virtual’ communication. There is also much talk of ‘virtual’ universities, ‘virtual’ seminars etc. This is neologism of doubtful value as ‘virtual’ in non-technical English means ‘not really exact or true’. A virtual promise is not an explicit, real promise, and if a statement is described as virtually accurate it is not absolutely accurate. A seminar arranged as a computer conference is real and university teaching on the net is also real, so why should they be called ‘virtual seminar’ and ‘virtual university’? Regrettably it is now no doubt too late to eliminate the use of the word *virtual* in the technical sense indicated. This linguistic usage is an outcome of a change of meaning initiated at the end of the twentieth century.

There is at the beginning of the 21st century on the one hand a discussion of the appropriateness of various types of technology, particularly computer technology, in higher education from the points of effectiveness, a view of academic status and social acceptability, on the other hand a philosophical-educational futuristic argumentation of interest.

The background of the acceptability discussion is, *inter alia*, the fact that - as already mentioned - not only established universities and schools offer internet courses but also publishing houses and other companies more concerned with money making and technology than with education. When these call themselves universities the academic world is challenged. That on the other hand the University of Phoenix, which is a large-scale provider of internet courses, is a stock exchange company, illuminates and complicates the situation. This is by no means seen as an internal academic matter, but has been given much attention in the press, above all in the English-speaking world, particularly North America, but also elsewhere. Thus the Frankfurter Allgemeine Zeitung in Germany in March 2000 printed an elucidating commentary on the present American debate (Mejias, 2000), and about the same time the feelings of uncertainty and academic repudiation of distance-education courses on the net were reflected in a journal for university professors in Sweden (Björck, 2000).

Organisations providing computerised educational services and using the web are sometimes, particularly in North America, referred to as distance-education schools or universities whether what they offer meets the criteria of distance education as listed above or not. What they provide seems often (as a rule?) to be little more than lectures and tests on the screen and interaction with computer programmes, i.e. something that can be described as a modernised version of the now discarded programmed learning of the 1950s, around which a large industry has been built up for the sale of various learning and testing materials (which according to Schulmeister (2000) encourage cribbing rather than education). If that is the situation in the first decade of the twenty-first century when more than 160 ‘virtual universities’ are active (Schulmeister 2000), it may well change for the better. We should be aware that as late

as around 1950 the now highly regarded regular distance education was supposed - not always unjustly - to be in the hands of shysters. At the present time the so-called virtual universities cannot indiscriminately be counted as distance-teaching universities, however.

What is further queried is if a company or an institution of any other kind which functions like this, which has no permanent academic staff (what the Americans call faculty), and which in no way takes responsibility for the academic freedom of the academics can be called a university of school. The ownership of learning materials developed is also an important issue. If the responsible academic is the owner, can he/she bring it with him or her when moving to another institution? If the institution is the owner, can it use the material without the participation or consent of its creator? In such a context what remains of the university as a cohesive academic unity and of its dignity and recognition?

A series of educational objections to so-called virtual universities have been articulated by the President of the University of San Diego, who claims that what they neglect are things like proper ‘breadth and depth of learning from courses sequenced logically into a curriculum’ and that also missing are ‘guided discussions that prompt students to reflect on the values and ethical implications of issues and ideas’ (Alice B. Hayes as quoted by Schulmeister, 1999, p. 76).

The questions and reservations thus brought to the fore are concerned with the dangers of promoting degree mills. These dangers can be great, small or non-existent depending on the policies of individual states and authorities in recognising and awarding charters to would-be universities. The representatives of distance education discussed in Chapter 1 do *not* belong to the so-called virtual teaching institutions criticised. However,

they do to varying degrees apply modern information technology to their teaching.

The internal educational debate pays much attention to the possibly revolutionary impact of computer technology on the very character of education. Some scholars in this context contrast what they call the learning spaces of pre-computer education with those of types of education relying on the use of computers. Applying both, the Fern-Universität in Germany officially calls its technology-based approach the 'Education and Knowledge Space: Virtual University' (Hoyer, 1999, p. 214). The German term is 'Lernraum Virtuelle Universität'.

Otto Peters in a paper of 1999 makes extensive use of this metaphorical application of the word 'space' (Raum) comparing the real learning spaces (the presence of human beings and real objects, the relations of which to one another 'provide the space with a content structure' and distances with possibly restrictive influence, etc.) with what is called virtual learning spaces with their indefiniteness, unlimitedness and emptiness of the space offered 'behind the screen of the monitor' (op. cit. p. 9). Peters claims that computer, multimedia and network technologies make a number of new learning and teaching activities possible 'in the virtual space', thus in the presentation of subject matter, in obtaining information, in the areas of communication, collaboration, documentation, word processing, multimedia, simulation and virtual reality. In a conference documentation (Shanghai TV University, 2000, p. 8) Peters illuminates virtual reality as follows: '…students can communicate interactively with three-dimensional objects and persons …. and even move in these spaces and observe. Through this immersion in virtual space the attention of the students can be drawn to given points, intensified and shielded from diversions from the real world'. (This quotation closely follows Peters' German text of 1999, pp. 22 - 24. See further Peters, 2002, Chapter 6.)

The possibilities of simulation are thus stressed. For a down-to-earth description of a ‘learning space virtual university’ see Hoyer (1999).

In the eyes of several scholars, Peters among them, the ‘virtual’ learning spaces represent something radically new. To others, like myself, they are - with two exceptions - more of new sophisticated possibilities to improve the presentation of subject matter and the interaction between students and tutors and also between individual students and groups of students, i.e. the two constant constituent elements of distance education.

The two exceptions are the search on the web and the simulation possibilities, both revolutionary innovations.

Something that is allegedly new in the age of information technology is that, rather than encouraging students to assimilate facts and ‘wisdom’ presented, today’s distance education causes students to search for relevant information and argumentation, to consider and apply what has been found. There are two objections to this. One is that search on the web far from always leads to relevant knowledge. The amassing of only vaguely cohesive facts is an outcome that is not unknown. The other objection is that the problem-oriented learning caused by searching for and evaluating information had been propagated and practised in distance education long before the introduction of modern information technology. Monika Weingartz made a careful study of this at the end of the 1970s. She identified two approaches to teaching and learning, one based on a view of knowledge as something ‘ready-made’, i. e. already known and described, the other problem oriented. She showed after a careful analysis of distance-education courses developed in various parts of the world that some of them, which started out from problems rather than from already established knowledge, caused students to trace, collate and draw conclusions from what they had found whereas others simply caused

students to assimilate what was taught (Weingartz, 1980, 1981). There is no reason to assume that a study of today's web-based courses would lead to results radically different from Weingartz'. Some courses are good and succeed in developing students' critical capacity, others fail to do this. I submit that this is a question of quality, attainable now and also before modern information technology influenced distance education. See further below on Lehner's (and Elton's) research under *Methodology* (Chapter 5).

Even hypertext approaches allowing non-sequential presentation of learning matter and encouraging students to find their own way through the material were and can still be applied without the help of information technology (cf. Schnotz, 1994) even though this technology facilitates the free navigation inherent in these approaches. On hypertext/ hypermedia see Chapter 5. The use of encyclopaedias and dictionaries are the most commonly occurring type of non-sequential reading.

For a book published in 1986 I used the motto *Plus ça change, plus c'est la même chose*. Even now after many both far-reaching and superficial changes in the appearance of distance education I feel tempted to retain this motto. While the valuable contribution of technology in facilitating and speeding up individual search and communication must be unreservedly recognised, the basic requirements and procedures of distance education, subject-matter presentation, interaction and student support remain the same as they were a hundred years ago. Text, e. g., does not change its character by being delivered by a computer.

4 The theory of distance education

On our way from the elucidation of the fundamental character of distance education and the students it serves to its further concerns it appears useful to pay some attention to the theoretical considerations on which it is based. There are different views of what is to be included in the theory concept, however.

The character and potential of a distance-education theory

If by theory we simply mean the systematic ordering of ideas about the phenomena of a field of inquiry (Gage, 1963, p. 102) much of what has been said above belongs to a presentation of a theory of distance education. We must look further into our subject, however, particularly if an understanding of the thinking and principles underlying these phenomena is meant. Examples of theoretical approaches to distance education aiming at understanding of this kind are Otto Peters' view of industrialisation as its basic characteristic, Michael Moore's (and Farhad Saba's) theory of transactional distance elucidating the roles of autonomy, dialogue and structure, Desmond Keegan's description of its main task as re-integrating the teaching acts (regarded as divided by the very nature of distance education) and mine of empathy as the optimal condition for the effective presentation of learning matter and helpful student-tutor interaction. These approaches are described in Peters (1973), Moore (1993), Moore & Kearsley (1996), Saba (1989), Keegan (1993b), Holmberg (1990c and 1995; in the last-mentioned work they are all looked into at some length), Holmberg (1997) and elsewhere. To what extent they also have explanatory power in Popper's sense (see below) is worth considering. They have all been much discussed (see Keegan, 1993a).

To the theoretical concerns belong considerations about the influence distance education can exert on society apart from the spreading of knowledge and making students aware of academic issues. Sumner (2000) summarises many of these concerns in contrasting its possibilities to serve either 'the system' or what, following Habermas' 'Lebenswelt' concept, she calls the lifeworld, i.e. the idea of a consensus of understanding brought about by communicative action. The latter is said to empower students to work together to solve community problems that threaten 'the basis of the lifeworld itself', whereas the former may 'serve the system, supporting multinational corporations, the military or administration, or simply maintaining the convenient isolation of distance students' (p. 282). This approach is well in line with other so-called progressive thinking presented by distance educators (cf. Evans & Nation (1993), Harris (1987) and Carr & Kemmis (1983), the last-mentioned one commented on by me in *Open Campus* 13).

However, theory may also be - and usually is - seen as providing for methodological application. A theory of this kind should generate testable hypotheses and thus make prediction possible, i.e. stating that if A, B or C is done this will cause D to happen. (Cf. Boyd, 1993, p. 239): 'Obviously, without some predictive power an educational theory is useless for designing distance education. Less obviously, even to criticize existing distance education projects we need a theory with causal relationships, otherwise the bad outcomes that we see, or foresee, might merely be due to chance, not to the features of the system…' Examples of predictive theories applicable to distance education are Perraton's of 1981, mine of 1982 and 1985, and Boyd's of 1993.

Predictive theories are no doubt desirable. Nevertheless strict epistemological thinkers have reservations. To Karl Popper, the great rationalist

philosopher, the aim of the theoretician is to find explanatory theories. While he recognises the value of testing theories, which to him means trying to find out whether they cannot be shown to be false, he insists that 'the theorist's interest in explanation - that is in discovering explanatory theories -'is irreducible to the practical technological interest in the deduction of predictions' (Popper, 1980, p. 61).

Whether understanding, prediction or explanation is aimed at it is usually found practicable to express the assumptions made as logico-deductive hypotheses: If A, then B, the more (less) A, the more (less) B. Testing such hypotheses in Popper's spirit means finding out if they can be proved to be false; if not, they are accepted *ad hoc,* i.e. until better hypotheses have been found. However, few distance-education theories generating testable hypotheses have been presented and even fewer have *de facto* been tested in the sense that they have been subjected to falsification attempts. In 1970 Kurt Graff developed a decision model for distance education, but resignedly submitted that the great problems are 'beyond calculation' (Graff, 1970, p. 54).

Others are less pessimistic. Thus Hilary Perraton, although finding it 'naive to seek a single theory of distance education' and limiting the scope of possible theoretical statements to 'the teaching system' (Perraton, 1987, p. 11), in 1981 introduced a theory generating fourteen hypotheses or statements (cf. my *Theory and practice,* pp. 172 - 173), and in 1993 Boyd presented a falsifiable 'prescriptive theory for use by developers of, and researchers into, distance education supported by quasi-intelligent multi-modal computer-communications or "cyberspace"' (Boyd, 1993, p. 252). Simonsen, Schlosser, & Hanson (1999) discuss well-known approaches to distance-education theory and present an 'equivalency theory', said to be 'uniquely American' and 'based on core values held almost sacred in American education, such as the use of regular classroom teachers to

facilitate the teaching and learning process, local control, small class size, rapport between teacher and learner and personalized learning' (Simonsen, Schlosser, & Hanson, 1999, p. 73). The last-mentioned approach should be seen in relation to the quotations from Bates and Peters in Chapter 1 and 3 on differences between European and North American approaches to distance education.

The theory attempts that have been developed have, on the whole, met with a good deal of reservation or rejection, which, however, has not caused any recommendations about how better to develop and test theories relevant to distance education. A well-considered study of the problems arising from theorising on distance education has been carried out by Greville Rumble (1992), however.

As one who has again and again grappled with theory attempts and is prepared to face the negative reactions to be foreseen I suggest a comprehensive theory including a characterisation of distance education, an understanding of its underlying thinking, principles and tradition, a predictive part based on these prerequisites and an explanatory approach. It is from the conclusions of this theory that the methodology of practical work is derived. The following wording draws on *Theory and practice* (1995), an article in *Open Learning* of 1997 and other writings of mine.

The theory suggested

1. Distance education implies non-contiguous teaching and learning as students and teachers need not, and for the most part do not, meet face to face. In principle it is instrumental to individual study, but can be adapted to group learning. Distance education is well suited to the conditions of adults with jobs and social commitments who cannot - or do not want to - take part in classroom activities or keep to a prescribed time-table. It aims at benefiting from the expected maturity

of these students, usually assumes a certain amount of student independence and aims at promoting it further. If the full potential of distance education is exploited students are indeed independent of decisions made by others as to place and time of study (cf. Chapter 2 on extra-paradigmatic innovation and Chapter 7 below on independent learning).

2. Distance education includes teaching and learning in the form of (a) mediated presentation of subject matter (one-way traffic) and (b) mediated interaction between students and tutors (two-way traffic). This interaction implies a one-to-one relation between the individual student and his/her tutor. Learning is expected to ensue from the teaching thus provided through these applications of mediated one-way and two-way traffic. Distance education may also - and with the advent of computer technology usually does - include interaction between individual students, in groups and individually.

3. Distance education relies on technical media both for subject-matter presentation and for interaction. Its provision entails some kind of supporting organisation (usually a school or university) responsible for teaching, student support and logistics. Within this organisation subject specialists, educational designers, tutors, counsellors and administrative staff cooperate. The adequate term ‘supporting organisation’ for institutions providing distance education emanates from Delling (1966), who originally referred to responsible correspondence schools as ‘helfende Organisationen’.

4. Central to the learning and teaching in distance education are personal relations between the parties involved, study pleasure, and empathy between students and those representing the supporting organisation. Expressions of and actions testifying to empathy are instigators of

motivation promotion and retention; they are thus likely to pave the way for success.

Feelings of empathy and belonging promoting students' motivation to learn and influencing the learning favourably can be developed in the learning process independently of any face-to-face contact with tutors. They are conveyed by students being engaged in decision making; by lucid, problem-oriented, conversation-like presentations of learning matter that may be anchored in existing knowledge; by friendly non-contiguous interaction between on the one hand students, on the other hand tutors, counsellors and other staff in the supporting organisation; and by liberal organisational-administrative structures and procedures.

Underpinning the theory

The four parts of the theory are related to the notions expressed in the following five statements:

1. The historical and social background of distance education is adult learning adapted to the conditions of people who because of work and family life cannot give first priority to their learning, find it difficult and/or disagreeable to take part in classes and follow time plans unrelated to their private circumstances, or even wish to keep their study entirely private as a confidential matter between them and the distance-teaching organisation.

   Early studies illuminating this situation are, for example, Flinck (1980), Glatter & Wedell (1971), and Wedemeyer (1981). Cf. also my *Theory and practice* (1995, pp. 12 – 14). It should be mentioned that special applications of distance education adapted to children and school-age youngsters also occur. See *Theory and practice,* Chapter 8.

The particular relations between student independence and distance education have been investigated by, among others, Michael Moore (1976 and 1993) and Farhab Saba (1989). See below Chapter 7 and *Theory and practice* (1995, pp.165 - 172). Insights articulated by constructivist thinkers are relevant in this context. Cf. Boud (1990, p. 6): 'Knowledge does not exist independently of those who possess it...It always fits into the existing framework of understanding of the learner and is shaped by this framework…Learning for meaning and tight teacher control sit uneasily together'.

2. Distance education does not simply mean producing learning materials and possible facilities for interaction with a computer programme, but also necessarily includes communication between human beings.

3. The very fact that students and teachers either do not meet at all or meet only occasionally in the distance-education situation leads to media being required both for the presentation of subject matter and for the communication. This applied a hundred years ago and earlier and still applies. Modern information and communication technology has increased the impact of media and provides new possibilities for improving distance education (cf. Chapters 3 and 5).

4. To co-ordinate course development, student-tutor and any student-student interaction, counselling and administration, a school, university or other set-up is required. It is essential that this functions as a truly supporting organisation applying the empathy approach according to part 4 of the theory (see further Chapter 6 below).

5. Empathy is taken to be the recommended guiding principle for distance education. This is more than a vague desideratum as it influences all activities involved, course development, counselling, student-tutor interaction, administration etc. It is not difficult to see how this

guiding principle can be applied in all contacts between students and tutors, counsellors etc., whereas its application to the development of learning materials in print, on the net, in recordings etc. is less easily perceived. In 1960 I introduced a concept meant to identify this. Unfortunately I called it 'guided didactic conversation'. However, I operationalised the concept, developed a formal theory about its effects and had this theory empirically tested twenty years later (Holmberg, Schuemer, & Obermeier, 1982; Holmberg, 1983, 1999). The gist of this theory, which I now call a theory of teaching-learning conversations (the word didactic being very misleading as to many speakers of English it implies an authoritarian approach and student subordination, the opposite of what I have in mind), is that if a course consistently represents a communication process that is felt to have the character of a conversation, then the students will be more motivated and more successful than if it has an impersonal textbook character. Similar theories have been developed by Thomas & Harri-Augstein (1977), Pask (1976), Forsythe (1986), and Rowntree (1986). See my *Theory and practice* (1995, pp. 45 - 55.)

Hypotheses generated

In the theory presentation I gave in *Theory and practice* (1995), which is in principle identical with the one worded above but also includes references to behaviourist techniques and cognitivist thinking based on Ausubel (1968) and Marton & Säljö (1976), I listed ten hypotheses on learning, fourteen on teaching (in Rogers´ sense interpreted as facilitation of learning) and seven on organisation and administration generated by my theory. They are - or can easily be translated into - *if…then* or *the…the* statements: If circumstances identified occur (the more they occur), then (the more)

learning will be promoted (teaching or administration respectively will facilitate learning).

Examples of statements expressing hypotheses immediately relevant to the above theory presentation are:

(1) Warmth in human relations bearing on the study situation is conducive to emotional involvement.

(2) Emotional involvement in the study promotes deep learning and goal attainment.

(3) Prerequisites for emotional involvement can be brought about by a conversational style of presentation.

(4) Consultation facilities (in writing, on the telephone, by e-mail etc.) constantly open to students for questions and exchanges of opinion with tutors and fellow-students accord with and facilitate learning.

(5) Frequent, friendly and helpful mediated interaction between on the one hand students, on the other hand tutors, counsellors and administrators is conducive to learning.

(6) Large-scale distance education with courses developed for hundreds or thousands of students by subject specialists and educational designers and with the student-support work divided among a large team of tutors is compatible with individual learning and the empathy approach.

Statement 5 based on part 4 of the theory in its turn leads to the hypotheses already tested in connection with my study of the conversational approach (Holmberg, Schuemer, & Obermeier, 1982; Holmberg, 1983). They were:

The stronger the conversational characteristics, the stronger the students' feelings of personal relations between them and the supporting organisation.

The stronger the students' feelings that the supporting organisation is interested in making the learning matter relevant to them, the greater their personal involvement.

The stronger the students' feelings of personal relations with the supporting organisation and of being personally involved with the learning matter, the stronger the motivation and the more effective the learning.

The more independent and scholarly experienced the students, the less relevant the conversational characteristics for motivation and success.

The first three of these four hypotheses were subjected to empirical testing, *inter alia* rigorous falsification attempts in Popper's spirit by means of comparisons of experimental and control groups of students. While no consistent, statistically significant corroboration emerged, the tendency in three different studies favoured these hypotheses. The students who took part in these studies stated that they felt personally involved by the conversational presentations, their attitudes were favourable to them, and those who belonged to the experimental group, i. e. those who studied courses characterised by the conversational approach, did marginally better than those belonging to the control group.

The fourth hypothesis, the one on the relative irrelevance of the conversational approach to advanced students, has been queried by Mitchell (1992), who insists that the conversational style is relevant in 'all aspects of education' (Mitchell, 1992, p. 130).

Peters, on the other hand, is critical of the conversational style, apparently as he fears that students may be overprotected by being made to eschew complicated scholarly texts (Peters, 1998, pp. 20 - 23). It is my contention,

however, that in academic study the conversational approach should be applied to texts guiding students' reading of original scientific books and articles, not to rewriting them (cf. Holmberg, 1999).

Inferences

Whether my presentation above deserves to be called a theory is, to judge from comments made on earlier theorising attempts, not self-evident. However, I submit that

- it has internal consistency as a logical system, and claim with some confidence that it
- establishes functional relationships between the teaching and the outcomes of learning and that it
- generates specific hypotheses and predictions which are expressed in such a way that research data capable of possibly refuting (falsifying) the theory can be collected.

Whatever value it may have or not have I feel entitled to call it a theory as the requirements that it thus meets corresponds to those usually expected of an educational theory.

I also claim that empathy as an instigator of predictions also gives it a basis for understanding. It could, of course, be argued that empathy plays a similar role in all kinds of education. The decisive point here, however, is that the fact that distance education relies on mediated presentation of subject matter and mediated interaction with tutors and fellow-students and, on the whole, functions without face-to-face contacts, makes it necessary for empathy to be explicitly made evident, whereas in face-to-face situations a smile between two persons or the tone of a comment may be enough for empathy to be shown. I thus claim that regarding empathy as a typical basis of successful distance education contributes to an understanding of its character.

I further claim that my theory to some extent even meets the Popperian requirement of explanation. It has some explanatory power as it implies a consistent view of effective learning and teaching in distance education identifying a general approach on which various procedures can be based.

What above all characterises the theory and its hypotheses is their stress on individual relevance, human warmth, emotional involvement, personal approaches, ease of communication, frequent and undelayed interaction. The insistence on personal relevance causes attention to students fitting new subject matter and new problem solutions into their existing cognitive structures. The warmth and emotional involvement lead to emphasis on the development of *rapport* between students and representatives of the school, university or other body responsible for the teaching. That this body is regarded and described as a supporting organisation is in tune with the empathy approach.

The theory approach thus developed and tested is based on a conviction of mine, first expressed in a monograph of 1960, that conversation-like interaction between distance students and their supporting organisation promotes motivation, learning pleasure and study results.

To be worth its salt an educational theory must indicate accessible paths to useful practice. Apart from what has already been said the exposition of distance-education methods, media, and administration in the following chapters will illuminate the practical application of the theoretical discussion above.

5 Methodology

General observations on teaching and learning in distance education

The first basic characteristic of distance-education methodology is, as indicated, that teaching, i.e. support of learning, is provided non-contiguously and is thus dependent on media of some kind (print, writing, recordings, tele and computer activities etc.). The second is that, as already stressed, it consists of two constituent elements, on the one hand the presentation of subject matter, which is primarily a kind of one-way traffic, on the other hand interaction between students and the supporting organisation (university, school) with its tutors, counsellors and administrators, and nowadays often also student-student interaction, i.e. two kinds of two-way traffic.

General educational theories have influenced distance education throughout its history. Bååth's classical study of different schools of thinking and their degrees of compatibility with distance education bears witness to this (Bååth, 1979). The behaviourists have taught distance educators the possible value of defining learning objectives in operational terms to the extent that their application is 'tempered with an understanding of its inherent deficiencies' (Macdonald-Ross, 1973, p. 47). The use of Bloom's and similar taxonomies of learning levels has left its mark on distance-education methodology and so has cognitivism, particularly through Ausubel's advance organisers and his plea for meaningful learning anchoring new learning matter in already existing cognitive structures. These theoretical approaches are dealt with in relation to distance education in my book *Theory and practice of distance education* (1995, pp. 32 - 44 and 56 - 67).

My theory of distance education as outlined in Chapter 4 above is practicable and testable in this methodological environment. It could be seen as to some extent serving what is called instructional design, which is itself a far from uncontroversial concept (cf. Richey, 1988; Barrow, 1986; Benkoe de Rotache, 1987). Instructional design is a concept understood as scholarly inquiry and verification of observations used to guide practice by validated recommendations for the structuring of teaching. There is little doubt that this can be useful although differences between students and learning situations make generalisable, detailed recommendations both extremely difficult and uncertain. Barrow (1986, p. 75) refers to 'our relative ignorance about cause and effect, and the likelihood that … there are many good ways to kill a fox'. Nevertheless search for guiding principles of instructional design seems to be worth while. Thus Jung (2000, p. 229), reporting on the Korea National Open University, does not hesitate in stating that 'it is instructional design, not technology, that is at the centre of quality distance education'.

Today's variety of instructional design is strongly influenced by the school of thinking that goes under the name of constructivism. The main contribution of this thinking seems to be raising the awareness that each learner constructs his/her knowledge by individual interaction with subject matter and that thus different students learn different things from the same course. In its extreme form constructivism represents rejection of all 'objectivism' (Jonassen, 1991) and a belief that all knowledge is constructed socially (which would imply that even knowledge of anatomy guiding surgery, for example, could have no objective foundation). For criticism of this extreme interpretation see Holmberg (1998).

The rejection of belief in objective reality is, of course, a stand well known in philosophy and literature. Cf. Somerset Maugham's novel *The narrow corner*, published in 1932:

> The world consists of me and my thoughts and my feelings; and everything else is mere fancy. Life is a dream in which I create the objects that come before me. Everything knowable, every object of experience, is an idea in my mind, and without my mind it does not exist. (This, quoted from the Penguin edition (1963), is said by Maugham's a-moral character Dr. Saunders).

In a study of practical applications of constructivist approaches to distance education Johansson (1999) has identified a series of criteria required for making constructivist learning milieus possible, among them activating students, contextualising theoretical content with experience, learning in the form of social experience, multiple perspectives of the learning content and metacognitive considerations (Johansson, 1999, pp. 123 - 124).

There can be little doubt that, interpreted and applied sensibly, constructivism 'can provide bases for unique and exciting distance learning environments. These environments should emerge from authentic tasks, engage the learners in meaningful, problem-based thinking, and require negotiation of meaning and reflection on what has been learned' (Jonassen et al., 1995, p. 21). Weidenfeld (1999, p. 237) argues that constructivist approaches favour experimentation and discovery learning.

It is in my view very important that learning should be regarded as something more than acquisition of factual knowledge and that therefore teaching, which following Rogers I describe as facilitation of learning, cannot mean simple transfer of knowledge. Learning includes such things as the capacity to abstract meaning from presentations of various kinds, to select what is relevant in a mass of information, to separate what is essential from what is less important, to relate concepts and arguments to others, to analyse concepts and to combine them in a meaningful way. This corresponds to what Marton and his school call deep learning

(Marton & Säljö, 1976). Cf. the desired generative effect advocated by Forsythe (1986) and quoted in the discussion of media choice below.

It is my contention that to serve learning in this sense the conversational approaches inherent in my theory (and in Sparkes' and Forsythe's recommendations, on which see below) are of decisive importance. They contribute to reasoning by argument, to directing students' attention to what is important and engaging them intellectually and often emotionally. What must not be neglected in any endeavour to favour deep learning is the type of examination, if any, that follows on the completion of study. If examinations can be passed simply as a consequence of learning a number of facts, then only surface learning is encouraged. To cater for deep learning as described examination tasks must require students to explain, combine and draw conclusions. The latter type of examination paves the way for students' active participation in the conversational illuminations of subject matter. (See further Morgan, Dingsdag, & Saenger, 1998).

Presentation of learning matter - one-way traffic

Choice of medium/media for subject-matter presentation

The media options open to today's distance educators for presentation of learning matter are considerable. Apart from print, audio and video recordings, films, radio, TV, and the simple presentation of texts on the net, data files with possibilities for animation of graphics and independent sound files offer new possibilities which are often attractive from the points of view of accessibility and effectiveness. There is a wealth of literature on modern information technology and its media. (See Bates, 1995, for example.) What medium or media are selected in individual cases depends on the specific needs and circumstances of the situation.

‘There is no cookbook of recipes for media selection that can be applied automatically in every educational system’ (Schramm, 1977, p. 263).

However, it is very important that no medium used should be of such a character that it stifles students’ imagination or isolates students from conversation, which TV has been assumed to do in some cases. This would be what Forsythe (1986) calls a degenerative effect. She warns against ‘feedback information in closed loops’ (ibid. p. 24), which indicates reservations against so-called programmed learning and some types of computer technology. The importance of media facilitating conversation along the lines of my theory as described above is also stressed by Sparkes, who points to the effectiveness of TV in the affective domain but describes text as ‘the natural channel for teaching complex ideas’ (Neil, 1981, p. 113).

The distance-education course

There are basically two kinds of distance-education courses, the self-contained ones and those which are based on generally available handbooks and literature, recordings and/or computer programmes of various kinds. The former have proved particularly useful at elementary levels (courses in foreign languages, accountancy, e.g.) and in subjects with indisputably correct solutions of problems and little room for varying interpretations (mathematics and computer science may be seen as examples).

At the university level students should in many cases be made aware of different approaches, conflicting theories, needs of both analyses and syntheses. In these cases it is usually better to cause students to go to the sources, acquaint themselves with the origins of the contentious issues and try to reach conclusions of their own. These sources may be available in conventional libraries, on the net or in readers specially

prepared for the distance students. The distance-education courses will then consist of guides to the study of the presentations in question, clarifying and explaining, but preferably more asking for students' own understanding than providing 'correct' answers. Courses of this kind are usually referred to as study guides or commentary courses. (See Ljoså, 1975, du Plessis, 1987, and Holmberg, 1995, p. 71 ff).

Distance-education courses are almost invariably based on text. Text is, in fact, 'basic to all education' and 'the interactions students have with their texts are just as important as the interactions they have with people' (Juler, 1990, p. 28). In distance education this interaction with texts can - and in my view - should represent a kind of simulated communication while the real communication is brought about by various types of mediated interaction between students and tutors and students between them.

When I discuss text as the basis of learning I include not only print but all other forms of text reproduction for reading, thus also text presented on the computer screen. As already indicated I am very sceptical of text presentations on the net as they invariably lead to students making their own print-outs, which is time-consuming, causes costs for the students and often results in texts of lower quality than that of those printed. However, in individual teaching-learning situations it has proved useful to use the net for expanding and commenting on printed texts (and for correcting misprints and other errors) as well as for presenting short extracts from writings of relevance in specific situations. In this way texts can constantly be updated and experiences of students' difficulties can lead to explanatory additions and references.

For the development of instructional texts both the general theoretical considerations referred to and my theory of distance education are highly

relevant. A conversational presentation causes considerable redundancy, but is easier and - as a rule - less time-consuming to read than short handbook-type texts. It facilitates learning by pointing out difficulties, clarifying difficult points and making students aware of contexts, thus, e.g., in wordings like this: ‘Once you have read through section x, refresh your memory of what was said in section y on the calculation of x, compare the two issues while making sure that you also see the differences. If you don’t, check …’. Students may then be asked to solve an exercise which should be followed not only by a model solution but also by detailed explanations of why one particular solution is correct or why specified alternative solutions are possible or unacceptable.

This approach means making students see contexts, consider options and generally think about the subject matter rather than merely assimilate facts, conditions and arguments reported on in the texts read.

A finding reported on by Mary Thorpe of the UK Open University throws light on this. Asked what they thought about questions inserted in instructional texts some students were negative or hesitant and one of them articulated what evidently not a few thought:

‘Sometimes I feel they get in the way. They make me think. I don’t want to think, I just want to get on.’ (Thorpe, 1986, p. 39).

This is an easily understandable reaction on the part of students feeling the pressure of study requirements combined with those of their jobs and family life. By proper examinations students can be shown that the best way to get on is to think, not only to assimilate facts.

The readability of texts is evidently something of a problem not only at elementary levels but even, for instance, among graduates from American liberal arts colleges. A number of empirical studies have caused recommendations on how to write instructional texts. It has been suggested that

short sentences, the use of the active rather than the passive voice, the replacement of abstract nouns by verbs and frequent use of pronouns facilitate reading (cf. Miller, 1951; Langer et al., 1974, Taylor, 1977; Rowntree, 1986, and my discussion in *Theory and practice of distance education,* 1995, pp. 88 - 96, of the contributions these and other scholars have made).

It is sometimes found desirable that students studying printed courses should be given the opportunity to work really independently. This implies a free choice of learning objectives and possibilities to select items of learning matter as they seem interesting and relevant to the individual student. It is, in fact, possible, though seldom practised, to let students on their own select learning objectives in that they are given a choice between related course units, each provided with a detailed description of the objectives it meets, which makes this choice possible. Ljoså & Sandvold (1983) describe such a procedure. So-called contract learning goes far in this respect: on the basis of suggestions made by students individual curricula leading to degrees are agreed. On this see further Coughlan, 1980; Worth, 1982, and Weingartz, 1991.

There are also methods for allowing students to study in a non-linear way, i.e. finding their own way through subject matter. Hypermedia and hypertext systems, which let students browse and navigate freely in learning material, printed and/or on the net, are of great interest to anyone anxious to pave the way for independent learning and are to a limited extent being used, but have in many cases caused difficulties in that students, particularly those with faulty prior knowledge, have been hindered rather than helped by the non-sequential learning. The term hypermedia refers to the possible use of other elements than text (audio and video).

Bélisle (1999, p. 59) describes hypermedia systems as characterised by 'leur non-linéarité, leur interactivité, leur interconnexion et leur hétérogénéité'. What is indeed typical of hypertext is the explicit character of its interconnections. 'The interconnections are defined by the author (or even by the user) in the form of links between words or phrases or chunks of the document. They are made navigable by defining these chunks as "buttons", such that when the user interrogates that button (e.g. by clicking on it with a mouse) the connected word or phrase or chunk appears' (Laurillard, 1993, p. 268). Cf. the brief discussion of non-sequential learning above in Chapter 3. A more general presentation of the hypertext/ hypermedia issue occurs in Jonassen & Mandl (1996).

Hypertext/media may in future become valuable instruments for independent distance learning, but so far few wholly favourable experiences seem to have been made. It is the difficulties inherent in navigating in masses of information that cause negative or ambivalent views of their practicability. However, navigators helping students to master the situation have been developed. See Bélisle (1999) as already referred to.

Supplementary face-to-face sessions

In the cases when face-to-face sessions are offered these can to some extent be seen as bringing about knowledge-matter presentation, but usually their main role is creating possibilities for interaction with tutors and fellow students. It is important to realise that in distance education any face-to-face activity has to function as a supplement of the non-contiguous work. Doubling what is taught at a distance by providing a kind of parallel presentation orally has often been found to be confusing, whereas brush-up courses before examinations are usually regarded as useful.

Interaction - two-way traffic

To bring about distance education the presentation of learning matter, simulated communication brought about by interaction with texts and computer-programmed exercises are by no means enough. Interaction between human beings remains the other constituent element of distance education. It is possible to regard this as 'a technological system of interpersonal relations' and to see knowledge as a product of the contact between student and teacher. 'Meaning is given by mediation in dialogue' (Galliani, 2000, p. 46).

Choice of medium/media for interaction

The media used to bring about interaction between students and tutors and between individual students and groups of students are above all the written word communicated by the post, by telefax or by computer and the spoken word, usually communicated by oral recordings and telephone. Drawings and other illustrations, models, sometimes mobile, can be included.

Telephone conversations have proved to be very helpful when students consult their tutors and when tutors wish to supplement written explanations by oral dialogue. Voice mail and the exchange of audio recordings also occur. Satellite communication is practised in some countries. Thus, e.g., at the Open University of Israel satellite communication including two-way audio and one-way video is of common occurrence. See further Keegan (1995).

While it is difficult or even impossible for large groups of distance students to take part in classes or other face-to-face activities - this because of their job and family conditions, geographical situation, health and other personal circumstances - many, perhaps most distance students like to join such sessions. It gives them opportunities to listen to explanations

given orally by tutors, to discuss problems face to face with tutors and fellow-students. Some, but by no means all distance students, find this more personal and effective than interacting with tutors and other students non-contiguously, i.e. in writing, on the net and on the telephone although computer conferencing, synchronous ('real-time') and a-synchronous, attracts many students. (See below 'Student-student interaction'.) Several of the distance-teaching universities run special study centres in which face-to-face sessions and other possibilities for student-tutor and student-student interaction are provided. (On study centres in the age of information and communication technology see Mills (1996).)

The practice of student-tutor interaction

The traditional form of student-tutor interaction is based on assignments given in pre-produced learning materials, answered/solved by students who submit their solutions to the supporting organisation where a tutor reads, corrects and comments on them, after which they are returned to the students. The work done by the tutors implies checking on students' results, but this is only a minor concern. Basically commenting on students' assignments is a teaching task. Tutors correct misunderstandings, direct students' attention to profitable approaches, suggest ways to overcome difficulties, explain in detail why something is wrong or correct, acceptable or not acceptable, and invite students to react to the comments given. In the old correspondence schools as well as in modern distance-teaching organisations like the open universities this commenting has been developed into extremely valuable student support.

If, as regrettably sometimes occurs, students' assignments are merely ticked off and awarded marks, unique opportunities to teach at a distance are lost, students are deprived of support and the quality of the educational activity provided is low. When the full potential of interaction by means of

assignments is used, on the other hand, students are given valuable help. There is then a real one-to-one relation between each student and his/her tutor which facilitates the exchange of questions and answers, views and arguments.

There is much evidence of students' appreciation of this interaction between students and tutors (Beijer, 1972; Kelly, 1982; Thorpe, 1986 and 1988 etc.). It has proved impossible so far to find general principles for the desirable frequency of interaction opportunities, however. A careful empirical study by Bååth in 1980 showed that higher submission frequency correlated with 'more positive attitudes' to the interaction (Bååth, 1980, p. 151), but no consistent differences as to course completion or results were found. A replication study carried out by Rudolf Schuemer and myself two decades later proved no more conclusive (Holmberg & Schuemer, 1989). Future research may fill this gap.

The tutoring given at a distance is very often connected with the weakness that students have to wait too long for the comments of their tutors. Before the age of the computer this delay was usually excused as a necessary consequence of the use of the postal system. Today when assignments can be - and very often are - sent by e-mail or fax there is no such excuse. It is the availability of tutors that is decisive for quick and full commenting on students' assignments. To make the tutoring system function properly distance education organisations, schools and universities, have to provide constant tutorial service with tutors always available per subject, per course, per student with stand-ins for tutors out of function because of holidays, illness or other causes.

There is convincing research evidence to show that motivation suffers if students have to wait for their tutors' comments for more than a week.

Completion rates have also been shown to correlate with turn-round time (Rekkedal, 1983).

The expectations that students (with experiences of actual distance-education practice) have at the turn of the century are illuminated by Stevenson (2000), who reports from an inter-European study that, *inter alia*, most students expected contact about once a month and extensive feedback on their assignments (p. 124). Gaskell & Simpson (2000) have studied the expectations that Open University tutors have about students' wishes and compared these expectations with the wishes actually expressed by students themselves. They report in table form as follows:

Priority	**Students want tutors who...**	**Tutors think students want them to...**
1	Know the subject well	Give quality feedback on assignments
2	Be friendly and approachable	Be friendly and approachable
3	Run very good tutorials	Run very good tutorials
4	Give quality feedback on assignments	Know the subject well
5	Develop study skills	Mark promptly
6	Be easy to get hold of	Be easy to get hold of
7	Mark promptly	Understand problems
8	Understand problems	Develop study skills
9	Help with time management	Explain grades
10	Explain grades	Help with time management

Gaskell & Simpson (2000, p. 121)

In all these activities the empathy approach, discussed above in the theory chapter, remains important. Friendly and really helpful interaction between students and tutors should characterise the communication. Students should be regarded and treated as partners, not as clients.

There are indications that contacts with one tutor-counsellor rather than with several representatives of the supporting organisations contribute to the feelings of belonging and also to effectiveness (Rekkedal, 1985). This tutor-counsellor represents the whole of the teaching-supporting organisation and gets to know each of his/her students well, which is in many cases important. 'Lack of insight into the students' total situation and the total teaching system may be an obstacle to giving maximum support' (Rekkedal, 1985, p. 9).

Student-student interaction

Before the introduction of information and communication technology it was hardly possible for distance students actively to cooperate with one another unless they met in person, i.e. if they took part in face-to-face sessions. E-mail, the chat function on the net and computer conferencing have changed this radically: today distance students frequently keep in touch with other students, discuss problems and also interact socially. (On this see Chapter 2 above, *Distance education as innovation*.) This means that distance education relies on mediated subject-matter presentation, mediated student-tutor interaction *and* mediated student-student interaction.

Computer conferencing is flexible and can occur at fixed times so that students have immediate contact with one another. This synchronous, 'real-time' interaction is preferred by many, but is not always possible or practical as it compels participants to reserve certain days and hours for the interaction. These time constraints can be avoided by a-synchronous interaction, which makes it possible for students to take part in discussions at times that suit them, in the night, for instance. Instead of organising a two-hour seminar at a time when all students must participate the supporting organisation can invite students to make their contributions

and acquaint themselves with the contributions of other students at any time within a week or other period deemed suitable. This is a procedure well adapted to the conditions of working adults. As an academic I have personally very favourable experiences of such a-synchronous seminars in university distance education.

An interesting finding was made when a training of distance educators by means of text readings and a series of a-synchronous computer seminars was evaluated. Fritsch (1997) could identify what he calls witness learning showing that also students who make no contribution of their own benefit from following a computer seminar, which confirms an assumption of Laurillard's about the value of 'eavesdropping'. This should be compared with a more sophisticated study of the 'vicarious learner' by Lee et al. (1997). On the a-synchronous seminar referred to see further Bernath & Rubin (1999).

Counselling

A special type of interaction between students and their supporting organisation concerns counselling. For adults studying on their own, without meeting either tutors, administrators representing the university or school that is their supporting organisation or fellow students, mediated counselling is usually of prime importance both before the beginning of the study and during it. The counselling cannot be limited to information and advice about study paths and course offer, but must take the individual student's background, conditions, needs and possibilities into consideration. David Sewart, the director of the student-support of the British Open University, underlines that the counsellor 'must be close enough to the student to have a thorough knowledge of the student's domestic, work and study circumstances' (Sewart, 1984, p. 11). Counselling is a tricky task which is, however, competently handled in a number

of distance-teaching organisations. (See Tait, 1995; Thornton & Mitchell, 1978; Kirkwood, 1989; Mills & Tait, 1986, and Phillips, Scott, & Fage, 1998, e.g.)

In some academic circles the suitability of un-asked for intervention when students seem to get into difficulty or are not heard from has been queried. In some university systems students are regarded as so wholly autonomous that even offers of help in these situations are seen as encroaching on their integrity. If a student stops submitting assignments this is then interpreted as a decision on mature consideration to discontinue the study. Anyone who knows something about the conditions of adult study beside work and family commitments realises that this is an unrealistic conclusion. Failure to submit assignments or in other ways continue study usually means something entirely different: illness in the family, marriage problems, overburdening because of overtime work, much travel on duty or other claims typical of adult life. Reminders with offers of support have proved very effective in - as far as the study is concerned - helping students over problems of this kind (cf. Rekkedal, 1972, and Simpson, 1977).

For a more detailed discussion of the role of interaction see Chapter 6 of my book *Theory and practice of distance education* (1995).

6 Organisation

Demands on distance-education providers

Distance-education work as described differs radically from that in other types of education. The organisation found practical in traditional schools and universities is only to a very limited extent suitable for distance-education organisations. Among the functions that are special to distance education are

- the development and production of course materials
- the provision of a telematic network including a user-friendly system for computer conferencing and electronic mail, facilities for a 'chat' function etc.
- warehousing
- the distribution of course materials to students
- the handling of assignments submitted by students, commented on by tutors and to be returned to students (by post, e-mail or fax)
- counselling in writing and on the telephone; mediated information on study arrangements, examination periods etc.; invitations to face-to-face sessions if any
- registration of data from assignments and other communications with students.

This means, among other things,

- that combinations of research and editing offices are established,
- that facilities for the organisation and distribution of non-contiguous tutoring tasks are built up,
- that academic staff, editors, instructional designers and media specialists are brought together in a way facilitating their co-operation,

- that arrangements are made for unimpeded co-operation between external course writers and internal staff,
- that organised co-operation between course developers and tutors commenting on students' work is brought about and constant staff development occurs so that counsellors, tutors and other personnel mutually support one another.

To the functions listed could be added a number of other specific tasks, for instance intervention on the part of the teaching organisation to help students over difficult passages in course materials and in set texts and constant study support. While this kind of service may or may not be provided by traditional universities and schools, they are usually a must in distance education. Subject-matter presentations, student-tutor interaction, the use made of facilities for student-student interaction and the administration of the educational process must be evaluated, at least for the purpose of acquiring information useful for revisions and general continuous improvement of the work.

The administration of course development

Most distance courses are no doubt developed by a subject specialist co-operating with an editor, the latter of whom functions also as an advisor, an instructional designer and a media specialist. A great number of successful courses have been created by co-operation of this kind. However, since the founding of the Open University in the UK in 1970 the creation of so-called course teams has been considered a most important and effective procedure to make sure that high-quality course materials are produced. Lord Perry, the first vice-chancellor of this university, illuminates the background as follows:

> To produce the drafts of the various 'course materials' that would enable an adult, working in isolation, to reach a predetermined standard of performance in a given area of study, called for the combined skills of a number of groups of people. First we had to have not just one university teacher, with his thoughts and ideas about the objectives, contents and methods of presentation of the course, but several, because our courses were to be multi-disciplinary as well as multimedia in nature. This, in turn, meant that each teacher would have different and inevitably conflicting thoughts and ideas which would somehow have to be reconciled with each other to lead to an agreed final version. Second, since the university teachers that we could recruit would mostly be unfamiliar with the special problems both of educating adults and of teaching at a distance, we would need the advice of other experts, in particular educational technologists and television and radio producers, in order to determine the method of presentation of the course. (Perry, 1976, p. 77)

These considerations led to the institutionalisation of the course team at the Open University. Perry regards this as a very important innovation: 'The concept of the course team is, I believe, the most important single contribution of the Open University to teaching practice at the tertiary level' (ibid. p. 91). The co-operation of several specialists has without any doubt resulted in course materials of very high quality.

However, the course-team approach, which invariably causes tough scrutiny of drafts written by colleagues and hot discussions, has not been adopted without serious criticism and discussion. In 1979 Michael Drake, a professor at the Open University, published an article entitled 'The curse of the course team', in which he criticised the course team on several points, stating *inter alia*, that 'it places more emphasis on content

than on teaching' (p. 52) and that the 'course team format gives the articulate, the domineering and the thick-skinned an influence out of all proportion to their numbers or their merit' (ibid.). This contribution gave rise to strong objections. Thus Andrew Blowers, dean of the Open-University faculty of social sciences, rejected the idea that ' the model of a corporate, co-operative approach to teaching and learning would be supplanted by the more individualistic, authoritarian approach adopted in traditional university teaching' (1979, p. 56) and claimed that the course team 'is a flexible instrument for change and provides the creativity and community on which our whole enterprise depends' (p. 57). Considering the question more than twenty years after this discussion there can be little doubt that the course team has proved its worth. It is clearly context-dependent, however (cf. Chung, 1997).

This does not mean that the course team is accepted without reservations. There is a danger that the product of co-operative work gets an impersonal character. The ways of address that I propagate for distance-education courses (*I suggest that you should now …*) may not always be felt to be a natural outcome of this co-operation, but can, of course, well be if an editor is entrusted with the task of wording a course text in this way. Monika Weingartz in a thought-provoking study of 1990, regrettably available in German only, provides data and arguments which may make us query whether the course-team model may risk impeding personal approaches and contribute to knowledge being presented more as a finished, 'ready-made' product than as a complex of problems under development. On the dichotomy problem learning vs. ready-made systems identified by her see Weingartz (1981) and Holmberg (1995, p. 35).

Whether course teams of the Open-University type are relied on for the development of learning materials or less sophisticated procedures are applied, any distance-education organisation, school or university

must make arrangements for co-operation between subject specialists and distance educators. A step-by-step co-operation has proved more successful than complete drafts being delivered for revising. A survey of course-development procedures used in distance-teaching organisation was presented by Kevin Smith in 1980 and commented on by me in 1995 (pp. 136 - 138).

The organisation of communication

Student-tutor interaction

Only in extremely small operations is it possible to leave the organisation of the interaction to individual tutors. Normally there must be staff who keep lists of tutors available for each subject taught, who see to it that the right tutors receive the assignments of his/her students, who register dates for the arrival of each student assignment and its return, marks given and notes about supplementary measures to support students etc. That this is necessary in really big organisations, in which a million assignments per year or more, are handled, is evident, but even small organisations with less than a thousand students have to build up organisational units for this work. It is an administrative concern, but cannot be left to administrators only.

Academically responsible staff have to find competent tutors for each subject and divide and co-ordinate the work when more than one tutor teaches the same course, which is almost invariably the case. Monitoring the work of tutors is further necessary in the interest of students, who all have the right to be properly taught at a distance, to receive full and helpful comments on their work without unnecessary delay etc. While some subject specialists are keen on this kind of work and manage it well, others do not and must then be given support and advice to reach an acceptable standard or even be replaced.

Arrangements must also be made to facilitate spontaneous contact between students and tutors on the net and telephone etc.

Student-student interaction

While in conventional education contact between individual students is a matter for the students themselves, distance-education organisations must provide practical opportunities for this type of contact. This includes asking individual students' permission to disclose their names and postal and/or e-mail addresses and telephone numbers to other students (which is not always given) and making computer chats available.

Distribution of learning materials

In a truly liberal system which makes no attempt to pace the students but allows them to work entirely individually it makes little sense to distribute course materials on fixed dates, for instance once a month. Instead sending all of the material before the study begins or in smaller batches based on the speed of individual students' work have proved recommendable. The former is a rational procedure, which has, however, caused some problems as has the distribution following a predecided plan. In both cases students have complained that they have been intimidated by the mountain of course material piled up in front of them (cf. Bartels & Fritsch, 1976).

A practical solution is to send a reasonable amount of material at the outset of the study and then together with each assignment commented on send a course unit roughly corresponding in size to the one finished by the assignment submitted. Experience shows that office routines for this can easily be developed - and could be so even before the use of computer administration (Öster, 1965).

Customer-protection legislation in some cases prevents procedures of this kind which are rational from the points of view of study but possibly putting students in a financially unfavourable position by making them pay for tuition not received because of drop out before a course has been completed. A serious argument against the continuous individual dispatch of course materials is also high postage costs (to be compared with the costs for sending batches of material at fixed intervals) and, in some developing countries, the time and inconvenience caused by consignments having to be fetched.

Single-mode and dual-mode distance-teaching organisations

The above presentation has discussed the organisation and administration of distance education from the points of view of specialised distance-education providers like the open universities and the private distance-education schools. In many parts of the world, however, distance education is offered also by traditional universities which have distance education as a sideline activity beside their regular teaching. This occurs in Europe, America, Australia and New Zealand and also elsewhere. It is in Australia that the 'philosophy' of this dual-mode approach was developed (Sheath, 1972; Smith, 1984).

The single-mode organisations like the open universities and the successors of the American and European correspondence schools can also be described as large-scale bodies, whereas the dual-mode universities represent a small-scale model. The former develop and run courses for hundreds and thousands of students. The course development is, as discussed above, often carried out by special so-called course teams, while a group of tutors, who may or may not have taken part in the course development, comment on students' work and generally guide their study. In the small-scale organisations on the other hand individual teachers

usually develop courses for their own students only, perhaps less than 50 altogether. In the latter cases the course writer is, as a rule, identical with the tutor, guides the study and usually also teaches face to face during residential periods, which are sometimes but far from always optional. The Australian University of New England in Armidale, New South Wales, is often regarded as the prototype of the small-scale, dual-mode type (Smith, 1979 and 1984). See further Bates (1995) and Holmberg (1995, pp. 7, 141 - 142).

Typologies of distance education

Apart from the single-mode and the dual-mode distance-teaching organisations it is possible to identify other types, such as service organisations working on behalf of universities or other bodies awarding degrees or certificates and networks of various kinds; Norsk Fjernundervisning in Norway and the Mauritius College of the Air (Jenkins 1997) can be mentioned as examples of the last mentioned type.

While these three types of distance-education organisation can well be seen as covering actual practice some further attempts have been made from various viewpoints to develop typologies of distance education. Keegan (2000) pays attention to on the one hand distance education for groups of students, on the other hand individual students, and identifies four models of distance-education organisations, viz. publicly owned and run providers, distance-teaching universities, traditional universities offering distance education, and private bodies doing this. Peters (1998, pp. 157 - 214) lists and discusses eight distance-education models ‘specific to institutions’. Schuemer (1988) made an interesting classification based on purely educational, as opposed to organisational, criteria. Other classifications have also been made.

7 Expectations and outcomes

For a long time the forms of distance education known as correspondence study, home study and external study were widely regarded with scepticism. At the beginning of the twentieth century they were often seen as something pathetic, as modest and largely ineffectual attempts to overcome underprivileged people's lack of early schooling. Among educationists little was expected of these unconventional forms of study. While this is no longer so in Europe, where distance education, largely thanks to the public distance-teaching universities, has much prestige, there still seems to be prejudice against it in the USA.

Views and validated evaluations of distance education

Those practising distance education a hundred to fifty years ago - then almost exclusively based on the printed and written word and occasional audio recordings – were convinced that distance education could be made effective - and some of them saw to it that this was done. Naturally there was much interest in studies comparing the effectiveness of distance education with that of traditional face-to-face teaching and learning, and a number of such studies were carried out, regrettably only rarely with the acumen required of proper scholarly examinations. One of the scholars who did meet the requirements of sound educational and statistical study was Gayle B. Childs of the University of Nebraska. He could show that correspondence education as practised in the USA in the middle of the twentieth century was by no means inferior to traditional education in imparting knowledge and skills. In 1965 he wrote: 'One thing of which we may be certain is that correspondence study does an excellent job of subject matter instruction' (p. 80). Similar conclusions were drawn in Sweden, for instance, where correspondence education

had by then acquired so much prestige that the largest correspondence school, Hermods, had in 1958 been given official status as an examining body for university entrance and other examinations. (On Childs' and other early effectiveness studies see Childs (1965 and 1971) and Granholm (1971).)

Thus long before information technology had begun influencing media use and methodology distance education had proved its effectiveness in what, following Bloom (1956), we call the cognitive domain and also, to some extent, in the psychomotor domain (drawing, typing, shorthand writing, manipulating machinery). Much later its potential also in the affective domain was illuminated (Sparkes, 1982).

The negative prejudices related to distance education were long-lived, however, not only in the United States, and were aired in Europe as late as the 1980s. With the advent of information and communication technology there was, to judge from press publicity, a radical change in the opposite direction, at least initially. A kind of technology euphoria was widely spread in the 1990s and education based on the use of computers became both popular and highly respected (cf. Chapter 3 above on the technology debate). This contributed to drawing attention to favourable experiences made by distance students and former distance students, to the extensive methodological development work that had been carried out and to the inclusion of distance-education research in respected academic milieus. This mode of education thus became a well-established approach with prestige.

At the beginning of the twenty-first century thus fewer voices querying the effectiveness of distance education are heard and evaluation reports support the positive conclusions drawn from what is generally said and written. As early as 1994 Bartels showed that 38.7% of the

FernUniversität graduates in business administration had, only five years after they had attained their degrees, been promoted into top management positions and high-scale salaries. Woodley (1995), who pays considerable attention also to outcomes other than those concerned with careers, reports that around three out of four Open-University graduates declare that they have gained ‘great’ or ‘enormous’ benefit from their study.

The great distance-education providers regularly carry out careful evaluation studies which invariably testify to the effectiveness of distance education. We are thus on safe ground when we state that distance education has proved to be an excellent form of study for many students. A number of success stories characterise the work in the field.

However, the evaluation reports also almost invariably show that high drop-out figures are typical of distance education. ‘When non-starters (i.e. students who have registered for the course but who have not sent in one single assignment for correction and comment) are included among non-completers, dropout rates round 50 per cent are not unusual’ (Bååth, 1984, p. 32). Even higher dropout figures are far from rare. There is, in fact, a dropout problem in most distance education. This has been carefully studied by, apart from Bååth, several other researchers, among them, Cookson (1990), Schuemer & Ströhlein (1991), Peters, (1992), and Morgan & Tam (1999).

The backgrounds of success and failure

Naturally the awareness of this problem has caused distance educators not only to search for the causes of discontinuation but also to try to find remedies. Studies on the influence of domestic environments, social conditions, age etc. have been carried out without, as Sewart (1983, p. 168) puts it, pointing to any ‘quantifiable term …standing … out as a

salient feature. It is motivation above all else which, despite physical and general social and environmental problems, brings success'. Attempts to develop models for the study and reduction of student drop out have been made. A critical investigation of these was carried out by Woodley, de Lange, & Tanewski (2001).

On the basis of my many years of experience I dare claim that the most favourable factor paving the way for motivated students' success and preventing dropout is empathy between the learning and teaching parties, availability of immediate support and advice when difficulties crop up, ease in consulting tutors and other subject specialists and general feelings of rapport. Thus, again, I refer to my theory of distance education as set out in Chapter 4.

Much has been written on evaluation principles, procedures and experiences. I refer to Chapter 10 of my book *Theory and practice of distance education* (1995), in which several authoritative studies are referred to. It is no doubt correct to state that by now we have a pretty good grasp of the potentials and outcomes of distance education.

Costs

A very special type of evaluation concerns its costs and cost-effectiveness. It is possible to run distance education in a very economical way, working with large numbers of students per course, thus benefiting from economies of scale, and limiting the media offers to, for example, the written word and e-mail. However, it is extremely difficult to lay down general principles for how to judge the benefit of each component included in the distance education provided in relation to its cost. We must presumably accept that we can go no further than stating that distance education can, under some circumstances, be more cost-effective than traditional education, but that, on the other hand, no generalisable conclusion can be drawn

as distance education occurs in many different forms, using merely one medium or in other cases several media, one approach or several approaches etc. (On the issue of costs see Dhanarajan et al., 1994, and Hülsmann, 2000.)

Independent learning

The relation of student independence to distance education

From the very beginning it has been claimed that distance education is a type of study particularly suitable for the independent learner and also promoting student independence. There is no denying that distance learning requires a certain amount of independence. Learners studying on their own without any teacher or other person present to organise periods of learning and bring learning matter to the their attention have to possess a capacity which can be described as independence in carrying through learning tasks. These tasks may, however, be prescribed more or less in detail by the distance-education course. If, as is usually the case, much of the decision making as to when and how the study is carried out is left to the individual students we have reason to talk about self-regulated learning. The type of independence that is thus described as self-regulation characterises most distance education.

If by independence we merely mean self-regulation and define this as the capacity individually to carry through study tasks set, we are, of course entitled to claiming a special relation between distance education and independent learning. However, another type of independent learning requires each student to judge learning material and other sources in relation to the aims of the study, to select relevant matter, compare items and arguments, analyse and synthesise. Paul (1990, p. 32) refers to ‘open-ness to new ideas and to rethinking current beliefs..., attitudes (self-motivation) and the development of new skills, problem conceptualisation,

critical and lateral thinking, research and library skills'. The relations of distance education to this type of independence is by no means clear, however.

Nevertheless there are many distance-education courses catering for this type of far-reaching independence, some of them by making problems rather than what we know about their solutions the starting-point (as shown by Weingartz, 1980, e. g.). They may represent what is called genetic learning, exemplified in Lehner (1979, pp. 76-77) by a presentation of gravitation starting out from the questions asked by Aristotle and Galileo instead of from present knowledge. Weingartz' study shows that, while being by no means representative of most distance education, this kind of independence is catered for internationally in a number of courses offered.

Almost complete independence occurs in so-called contract learning, which expects students themselves to suggest the objectives of the course programme they have in mind, to develop a full plan for their study, usually a plan for a complete unique degree including the types of examination foreseen (written or viva-voce, project, thesis etc.), to submit this plan to the supporting organisation (university) for modifications and possible additions and then to carry through the study on the basis of the literature, distance-education courses and other relevant learning material identified in the plan agreed on in a learning contract. The Empire State College of the State University of New York and East London University in the UK are well-known providers of this type of degree study (Coughlan, 1980; Worth, 1982, and Weingartz, 1991).

Only this third type of independent learning should be described as really autonomous. I regret having been too generous in my use of the

term autonomous learning in earlier publications. For an excellent analysis of the autonomy concept see Peters (1998, pp. 46 - 54).

Moore, well known for his early study of student independence (1976, 1983), which in distance education he regards as based on the degrees of dialogue and structure characterising a course or programme, has identified what he calls transactional distance to describe the mental rather than the spatial distance between the teaching and learning parties in distance education (1993). Reducing this mental distance is naturally an essential task. Saba (1989) has studied this further and expanded Moore's concept of transactional distance, which can be minimised by telecommunication maximising dialogue. The empathy approach outlined in Chapter 4 is highly relevant here.

A study of practice in a great number of distance-education organisations in various parts of the world has clearly shown that independence as practised must be regarded from two different viewpoints. Distance-education programmes have been shown either to expect or to promote students' independence, a view analysed and identified by Lehner and Weingartz (Bückmann et al., 1985; Lehner & Weingartz, 1985; Lehner, 1991 and 2000).

It seems remarkable and worth mentioning that some writers see no relation between distance education and students' independence (Willén, 1981; Garrison & Shale, 1990).

Attitudes to the independence issue exert practical influence on the execution of distance education, on guidance and control. They decide if and to what extent students are given the possibility to pace their study on their own, cf. Daniel & Marquis (1979) and Coldeway (1986) discussed in my *Theory and practice* (1995, pp. 168 - 169). These attitudes also influence what, if any, intervention by the supporting organisation in

students' learning is accepted. There is a school of thinking that considers even encouraging letters and telephone calls caused by students' inactivity as encroaching on their independence and integrity and interprets drop out as the result of the independent student's mature decision to discontinue the study. This is in my view absurd as it means that the particular situation of individual adult distance students is disregarded; if distance students are not heard from, submit no assignments or questions this is seldom the result of a conscious decision to finish or interrupt study but rather an outcome of the pressure of conditions unrelated to the study (cf. what is said about this under 'Counselling' in Chapter 5 above). There is much evidence to show that encouraging telephone calls and other types of contact from the supporting organisation offering advice and support (Rekkedal, 1972, e. g.) exert highly positive influence on students' motivation to continue their study or start again.

The independence issue in distance education has engaged several scholars. Relevant contributions of interest, apart from those mentioned above, are, e. g., Weingartz (1990), Elton (1988), and Boud (1988).

Self-regulation in practice

Let us first consider the more modest requirements of the type of independence described above as self-regulation. The extra-paradigmatic innovation mentioned in Chapter 2 above facilitates self-regulation. If - as in some highly successful distance-teaching organisations - students can register for study at any time, work at their own pace, submit their assignments for correction and comment at any time of the year and register for examinations when they feel ready for them, then much is done to bring about self-regulated learning. It is a remarkable - and in my view regrettable - fact that most open universities do not avail themselves

of this possibility for students' self-regulation but insist on semesters and fixed vacation times.

Why universities created for adults should follow the conventions of traditional universities in this respect is not easy to understand. Some people have better opportunities for study during 'normal' vacation times than in traditional term time. Conditions in business and industry, where many distance students work, by no means always coincide with what is desirable from the points of view of the academic calendar, nor do family conditions, births or illnesses.

When there are no fixed periods for either study or vacations, the distance-teaching organisations have to provide service on all weekdays apart from recognised national or church holidays, which is sometimes said to be impossible. That it should be so is a myth, however. Two of the organisations in which I have had leading positions allow - and encourage - their students to avail themselves of the opportunities for counselling and tutoring at any time of the year. It is up to the individual student to decide when (or even if) he/she makes breaks in the study for holidays.

The question whether or not some kind of pacing should be prescribed by the supporting organisation is contentious. Personally I favour a liberal approach causing each student to make his/her own time plan at the beginning of the study and informing the supporting organisation of this plan. When the student deviates from the plan in the sense that he/she works more slowly than planned it will be part of the student support given by the university or school to remind him/her of this. The outcome will be either more intense study or the development of a more realistic time plan than the one the student had not been able to follow. This plan may foresee periods of highly concentrated study, for instance during normal vacation time, to compensate for comparatively few study

hours per day or week at other periods. On this issue see further my *Theory and practice of distance education* (1995, pp. 165 - 172).

Further-reaching independence

As already indicated (Chapter 5) it is possible to give students the right and possibility to decide on their own learning objectives not only in contract learning but also in the study of occasional subject-matter areas. They may build up individual courses by combining selected course units. This is possible only if each course unit is provided with detailed statements of objectives which can be used as bases for the selection (cf. Ljoså & Sandvold, 1983).

Whether a distance-education course caters for and encourages students' independence by making them analyse and synthesise, compare and draw conclusions, is a function of the presentation and interaction methods applied. The conversational style recommended above as a consequence of the empathy approach is highly suitable for guiding students in their use of various sources and their considerations of the problems inherent in their study. So are, of course, personal one-to-one interactions with tutors and peer-group discussions, nowadays easily brought about by e-mail and computer conferencing.

Contract learning as described above goes very far in relying on the independence of students. It can be combined with distance education, but need not necessarily be based on distance-education courses. Weingartz (1991) illuminates it in relation to distance education.

8 Distance education and society

When in the nineteenth century distance education was organised in the form of correspondence study there was a clearly understood social objective, that of making education and the acquisition of intellectual competencies available also to the underprivileged, those who for reasons of poverty or subordinate positions had not had the opportunity to get the kind of schooling required of those wanting to go in for higher education or for making careers in trade or industry. Thus general education and occupational/professional training became the main purposes of study. Distance education was, in fact, extremely successful as a ‘second-chance’ educational possibility and paved the way for academic success and careers of various kinds for gifted and hardworking people with no possibility to benefit from traditional study paths. Thus distance education contributed to upward social mobility and to enriching society with qualified people emanating from social groups earlier underrepresented among leading categories. In 1973 Gaddén could show that a great number of leaders in Swedish industry, banking, university and trade unions had had all or most of their pre-university education as students of Hermods, a very large non-profit making distance education provider.

The situation has changed in the developed world by the widening of publicly provided education, but there can be no doubt that distance education in many cases still provides a second chance for learning and that there is considerable need for this function. However, other social concerns have also come to the fore, such as questions concerning the role of distance education in preserving societal status quo or promoting change.

Towards the end of the twentieth century several social scientists thus began looking into distance education from other viewpoints than the methodological ones which had mainly occupied the distance educators themselves. The student bodies of particularly the large distance-teaching universities were studied, and so were the institutional concerns of these universities and their relations to trends in society. Many came to the conclusion expressed by John Field (1994, p. 9) that 'commercial, technological and cultural trends combine with one another to reinforce the appeal of distance open learning to a consumer market which currently shows every sign of growth without limit'.

If at the outset distance education represented 'marginal systems for marginalised sections of the population' (Tait, 1994, p. 26) it is now a widely recognised and respected mode applied by people of practically all categories. At the university where I have made my latest experiences of distance education most students hold highly responsible jobs and many already have a degree behind them before they enrol. They certainly do not represent an underprivileged group but are in most cases well established people who study with a view to getting into the front line of new developments.

It has been argued that research has largely neglected the external forces influencing and being influenced by distance education (thus Campion & Guiton, 1991, e. g.) and that emphasis on internal, methodological problems is not enough. Questions concerning power and control, societal pressures etc. also attracted the attention of several scholars in the 1990s, thus, e. g., Tait (1994), who equates critical approaches to distance education with 'the end of innocence', Edwards (1991), Harris (1987), Raggat (1993), and Faith (1988). When in these contexts the adjective 'critical' appears it usually refers to criticism of society and social conditions or the role of distance education in society, not, as expected

by many educationists, criticism of teaching and learning methods or of empirical research. From discussions of the application of ‘Fordism’ and ‘Post-Fordism’ to distance education and the use of this mode of education not only in open societies but also in dictatorships it is evident that distance education - like any mode of education - can serve various ideological and other purposes. It may, as Sumner (2000) claims, serve the established system or a supposedly better society - or it may wholly disregard this issue. The only ideological tendency that can be considered inherent in distance education is, because of its as a rule individual and private character, individualism.

A safe-guard against anti-pluralistic indoctrination is available in the form of promotion of students’ independence, which in turn can benefit from the conversational approaches as discussed above. Distance education as such neither favours nor counters social developments, as it is open to contents of various kinds. It has great potential for discussions, openness as to views and arguments, for pluralistic approaches and unprejudiced learning, however. It is up to the distance educators to avail themselves of these possibilities by presenting in as unbiased a way as possible alternative approaches and interpretations, inspiring search and discussion free from dogmatic shackles and generally paving the way for reflection.

9 Research on distance education

The great number of references to scholarly studies and empirical examinations given in the preceding chapters have already made it clear that much research has been carried out on distance education. Attempts have been made to survey the research situation and provide overviews of what has been done. Otto Peters published such a survey in 1997 (in German). I have tried to summarise in a useful way the research carried out until the middle of the 1990s, thus, for example, in Holmberg, 1990 and 1996. Also my book *Theory and practice of distance education* of 1995 reports comprehensively on the research data on which it is based.

The themes reported on in these publications have concentrated on target-groups and environmental studies, students' learning conditions, development of learning materials, interaction, organisation and administration, economics, applications of various types of and approaches to distance education, evaluation and theory attempts, and to an increasing degree 'exogenous' factors related to distance education in society (cf. Campion & Guiton, 1991). What out of the research findings thus available has seemed to me to be of great relevance at the beginning of the 21st century has been briefly discussed in the first eight chapters of this book, which, however, does not mean that I claim to have given full and adequate information on the research reports referred to. I have made a selection of contributions which are important from my point of view. For further information I refer my readers to the original articles, reports and books listed.

There is, in fact, evidence of so much distance-education research of an acceptable standard that the field can well be described as a discipline of its own. On this issue see a discussion in the *Journal of Distance*

Education I, (1) (1986) and *IV*, (1) (1989) as well as chapter 11 of Holmberg (1995). Nevertheless we have to acknowledge that there are evident weaknesses in some fields.

In quickly developing areas more or less new to distance education it is thus hardly possible to present a cohesive picture of relevant research. This would seem to apply to the use of information and communication technology. In the research surveys mentioned above little attention is paid to the role of technology in distance education. In the first decade of the 21st century there is, of course, much literature on it, the lasting relevance of which is very difficult to judge. Apart from the sources looked into in the previous chapters references should be made to a consecutive series of articles on this concern in *The American Journal of Distance Education* and, further, for example to Cookson (2000) containing a list of internet-related issues facing higher education and Eisenstadt & Vincent (1998) elucidating artificial intelligence technologies,

Although computer technology and its applications develop at very high speed and new techniques can thus be foreseen it is tempting to regard the present status in this area as representing at least an excellent and influential intermediary position. What I have in mind are the possibilities to search the world-wide web for information and literature, to use the net on the one hand for additions to and corrections of printed learning material, on the other hand for interaction with individual students by e-mail and with groups of students by computer conferencing. As shown above in Chapter 2 a-synchronous computer seminars have particularly great potentials for adult distance students. Future research in this area will no doubt bring about new approaches and possibly even better solutions.

An old extremely important concern in which we have too little validated knowledge is students' learning as influenced by distance education. We

simply know too little of how students really learn. Marland et al. (1990 and 1992) made small-scale interview studies of the mental processes which mediate or come between the teaching and the learning outcomes, such as strategy planning, hypothesising, elaborating and generating. They reported on interesting findings from the small groups that their studies necessarily had to be limited to. I wish to plead for more interest in studies of this kind (as I did at the EDEN research workshop in Prague in March 2000; Wagner & Szücs, 2000, p. 3). It would seem to be possible to continue along the lines indicated by developing a series of questions aiming at finding out how students really learn and by inspiring colleagues all over the world to carry out interviews on the basis of these and report on the outcomes to a group of scholars prepared to collate the replies given. Much work would be required for such a study including strict guidelines for the interviewing, transcription of the interviews, schemes for coding replies and the coding itself by independent coders, constant international co-operation etc. In my view a study of this kind – or any other study contributing real knowledge about students' learning – would be worth much demanding work.

Although we are no doubt entitled to claim that distance-education research has by now reached an acceptable level much remains to be done. My references to information technology and students' learning are simply examples of personal choices made on the basis of much thinking and many years of work in distance education. A great number of other research needs could well be added.

10 Summing up

The very gist of the above presentation can, if summarised in just a few sentences, be described as follows:

Distance education means learning without learners and teachers meeting face to face or only meeting occasionally to supplement the teaching and learning that takes place non-contiguously. It can be and usually is wholly individual, students meeting other students either not at all or only occasionally at supplementary face-to-face sessions and each student working at his/her own pace.

Distance education has two constituent elements, on the one hand presentation of learning matter, i.e. in principle one-way traffic, on the other hand interaction between learners and teachers and sometimes in the form of peer-group interaction, i.e. learners interacting with one another.

Special methods and media have been developed both for the subject-matter presentation and for the interaction; modern information and communication technology contributes to the effectiveness of distance education.

There are special organisations set up to develop, apply and administer distance education. It is their task to co-ordinate and carry out effective support of the distance learners. They can adequately be called supporting organisations.

Distance education from its beginning in the 19th century had and still retains an innovatory character; striking outcomes of this are on the one hand an almost unparalleled one-to-one relation between individual learners and individual teachers, on the other hand the possibilities it offers for individual and self-paced learning.

Distance education is above all a mode of learning applied by adults with jobs, families and other social commitments; its adaptability to the conditions of adult life and to self-regulated learning constitute the background for this. However, also children and youngsters are distance learners, above all in scarcely inhabited areas or where grammar schools have not a sufficient number of academically duly qualified teachers.

Millions of learners in various parts of the world use the teaching-learning facilities provided by distance-teaching organisations, among them more than thirty established distance-teaching universities, some of which have more than 100 000 students enrolled.

Distance education is being constantly evaluated and has proved to be very effective in helping motivated and hard-working students to reach their goals.

Like other modes of learning distance education can serve both truly educational objectives and mere instrumental learning; on the one hand it has the potential to contribute to the development of independence in learning, on the other hand it usually expects a certain amount of independence on the part of the learner.

There is a wealth of research on distance education and some theory building both of a kind to guide its further development and of a sociological type; in this book important parts of this research are expounded and a theory based on the principle of empathy and the use of conversation-like approaches has been presented with a report on its testing.

Several distance educators have contributed descriptive, critical and querying studies of distance education, its principles and practice as well

as its role in society; the above presentation draws on and comments on these.

The first nine chapters of this book illuminate and discuss the points listed, show how distance education is practised on the basis of principles specified and provide groundwork for further thinking and practice.

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The evolution of the character and practice of distance education

If by education we mean the acquisition of intellectual learning matter and cognitive skills, these were fairly exclusive activities until the middle of the nineteenth century or later. Formal education was for very long open only to financially or otherwise privileged groups - which is still the case in a number of developing countries - and was almost exclusively meant for children and youngsters. When in the nineteenth century organised adult education began in Europe and North America the methods of distance education gradually developed to meet needs not easily catered for by other means.

The background of early distance education

While it was - and is - perfectly possible to learn in study groups and by private reading in one's spare time, the need for systematic study alongside paid work could only partly be met in these ways. For many study was - and is - possible only if it does not interfere with jobs by means of which adult students support themselves and their families. Only in thickly populated areas is it possible to organise study groups in the subjects required for university entrance, degree studies, professional qualifications or special training needs arising in industry and commerce.

Education and training became important social concerns in the latter half of the nineteenth century. This - combined on the one hand with liberal thinking concerned with the development of students' personalities, on the other hand with the necessities of livelihood - constitutes the background for the introduction of distance education at that time. It was the need for **study alongside paid work** and for **individual learning** as opposed to classroom learning that was the great instigating force. While presumably quite a few adults preferred individual study, this was in a great many cases the only learning opportunity open to would-be students.

The only media available to distance education during the pioneering period and until the second half of the twentieth century were print, the written word and phonograph recordings. What emerged was what is today regarded as traditional correspondence education. It seems worth stressing, however, that the two basic constituent elements of today's distance education, i.e. mediated subject-matter presentation and mediated student-tutor interaction, were the vital characteristics also of the very early actions to bring about education in situations when students and tutors do not meet.

The pioneers

Evidently, the needs referred to have occurred at other times in history than in the period indicated. People have studied in their spare time much earlier. There is even an indication that distance education may have been provided as early as 1728. In The Boston Gazette of 20 March, 1728, 'Caleb Phillipps, Teacher of the New Method of Short Hand' advertises that any 'Persons in the Country desirous to Learn this Art, may by having the several Lessons sent weekly to them, be as perfectly instructed as those that live in Boston' (Battenberg 1971, p.44).

A hundred years later we find more conclusive evidence of distance education in our sense. An advertisement in English in 'Lunds Weckoblad', No.30, 1833, a weekly published in the old Swedish university city of Lund, offers 'Ladies and Gentlemen' an opportunity to study 'Composition through the medium of the Post' (Bååth 1980, p.13 and Bååth 1985, p.62). Another early attempt to organise distance education was made in England by

Isaac Pitman who reduced the main principles of his shorthand system to fit into postcards. He sent these to students, who were invited to transcribe into shorthand short passages of the Bible and send the transcription to him for correction. This teaching of shorthand combined with a study of the Scriptures began in the year 1840 when in the United Kingdom the uniform penny postage was introduced. In 1843 the Phonographic Correspondence Society was formed to take over these corrections of shorthand exercises. It was the beginning of what was later to become Sir Isaac Pitman Correspondence Colleges (Dinsdale 1953, p.573; Light 1956; The Times of 24 December, 1952).

According to early tradition, organised distance education is assumed to have been introduced in Germany in the year 1856 by the Frenchman Charles Toussaint and the German Gustav Langenscheidt, who formed and organised a school in Berlin for language teaching by correspondence (Noffsinger 1926, p.4). What scope the correspondence actually had is uncertain; students were offered opportunities to submit questions, but, Bååth writes, translating from the Toussaint-Langenscheidt prospectus, 'they were by no means encouraged to do so - "it would hardly be necessary", the prospectus said, "since everything is fully explained in the course" (Methode Toussaint-Langenscheidt 1901, p.10).' (Bååth 1985, p.62; cf. also Delling 1978).

A pioneer of some interest is mentioned by Mathieson as a representative of the 'proto-correspondence study programs' that existed in the United States between 1865 and 1890:

> 'The "mother" of American correspondence study was Anna Eliot Ticknor, daughter of a Harvard University professor, who founded and ran the Boston-based Society to Encourage Study at Home from 1873 until her death in 1897. The idea of exchanging letters between teacher and student originated with her and monthly correspondence with guided readings and frequent tests formed a vital part of the organization's personalized instruction. Although the curriculum reflected the "classical orientation", it is interesting that most of her students were women, a clientele then only beginning to demand access to higher education.'
> (Mathieson 1971, p.1.)

About the same time distance education was introduced in Japan. In an advertisement published in 1898 it was claimed that 'the method of correspondence education' had been 'invented' in Japan in 1882, which seems actually to have been the year when a form of distance education was first applied in Japan (Hisano 1989, p.71).

At the end of the nineteenth century distance education was above all applied on the one hand to university and pre-university study, on the other hand to occupational training. The university extension movement promoted the use of distance education.

Among British pioneering organisations were Skerry's College, Edinburgh, founded in 1878 (preparing candidates for Civil Service Examinations), Foulks Lynch Correspondence Tuition Service, London, 1884 (specialising in accountancy), University Correspondence College, Cambridge, founded in 1887 and preparing students for University of London external degrees (in 1965 this college was taken over by the National Extension College [Perraton 1978, p.1]), and the Diploma Correspondence College, now called Wolsey Hall, Oxford, founded in 1894, preparing students for university qualifications but also offering a wide range of courses on other subjects (Dinsdale 1953).

In the USA Illinois Wesleyan College, founded in 1874, the Correspondence University in Ithaca, N.Y., 1883, and the university extension department of Chicago University, 1890, were amongst the pioneers (Mathiesen 1971, p.3). It can be mentioned that William Harper of Chicago, who has been called the father of American distance education, offered instruction in Hebrew by mail in the 1880s (Vincent 1900).

The early use of distance-education methods in occupational training can be illustrated by an attempt to teach mining and methods of preventing mine accidents which was introduced by a course in 1891 constituting a systematised continuation of an instructional activity begun earlier in a question column in the Mining Herald, a daily newspaper published in the coal mining district of eastern Pennsylvania. The initiator of the correspondence course was the editor of this newspaper, Thomas J. Foster. His initiative met with great success, and the response his course won led to the production of first an extended course of the same type and then to the preparation of a number of correspondence courses in various fields

(Correspondence Instruction 1901). In fact, this was the beginning of the International Correspondence Schools (ICS) in Scranton, Pennsylvania, and their subsidiaries and offshoots.

Later developments show that the provision of both academic and practical occupational study opportunities was to be typical of distance education in the 20th century. Another pioneer illustrating this is Hermods in Sweden, founded in 1898 and later to become one of the world's largest and most influential distance-teaching organisations (Gaddén 1973).

Twentieth-century developments

From these beginnings until around 1970 a steady expansion of distance education occurred without any radical changes but with gradually more sophisticated use of methods and media, for example, audio recordings in language teaching and in courses for blind people and the use of laboratory kits in subjects like electronics, radio engineering etc.

The founding of the British Open University in 1969 marks the beginning of a period in which degree-giving distance-teaching universities with full degree programmes, sophisticated courses, new media and systematic systems evaluation crop up in various parts of the world and confer prestige on distance education (Rumble and Harry 1982). Whereas up to the 1960s the large-scale distance-teaching organisations had - with very few exceptions - been private correspondence schools (one of which - Hermods in Sweden - had since 1959 been an official examining body for its own students), the new period saw publicly supported and established universities and schools becoming more and more important. An outstanding pioneer in this respect is the University of South Africa, which emerged as a development of the University of Good Hope, founded in 1873 as an examining body based on the model of the University of London. It started teaching at a distance in 1946. The University of South Africa was established as a distance-teaching university through a governmental decree of 1962 (Boucher 1973).

What above all gives us reason to regard the early 1970s as a period of change in distance education is the new public recognition since then usually given to this kind of education. With few exceptions, as in Scandinavia, authorities had until then been sceptical. The creation of the Open University in the United Kingdom can be seen as the beginning of a more prestigious era. The image of distance education in several countries changed from one of possibly estimable but often little respected endeavour to one of a publicly acknowledged type of education acclaimed as an innovative promise for the future. In the 1990s some 30 distance-teaching universities are active in various parts of the world.

In the twentieth century distance education has occurred in mainly two forms. One represents a large-scale approach with courses produced for hundreds and thousands of students (student bodies of up to 50,000 for one particular course are known [cf. Holmberg 1995, p.151]) and with tutoring at a distance provided by a number of tutors who need have had no part in the development of the course. The second represents a small-scale approach with the course writer in charge also of the tutoring, in which case courses are developed for small target-groups. Typical examples of the first type are the large correspondence schools and the distance-teaching universities, whereas the second type is typically represented by the Australian dual-mode universities (cf. Keegan 1986, Chapter 8).

In both these types the use of information technology and modern media has led to changes in the presentation of learning matter and, above all, in the student-tutor interaction. It has been claimed on the one hand that the introduction of computers and sophisticated media has meant a revolutionary metamorphosis of distance education, on the other hand that present-day stress on technology represents no more than a fad to be compared with the enthusiasm for programmed learning common in the 1960s. I reject both these views.

There can be no doubt that modern technology has led to great improvements. Search for information in databases and the emerging possibilities to apply hypertext approaches are no doubt promising elements in the presentation of subject matter, i.e. the one-way traffic. Telefax and electronic mail can obviously eliminate the harmful procrastination characteristic of student-tutor interaction in writing. This implies an improvement of distance education that is of an evolutionary rather than revolutionary character. There is no change in the basic conditions: students still mainly study individually at a distance from, i.e.

not on the same premises as, their tutors, the communication is still brought about non-contiguously by media, now, however, at least in part of new kinds. Distance education has simply availed itself of the technical developments of modern society. (cf. Mason and Kaye 1989)

The target groups and their requirements

As indicated at the beginning of this paper adults with occupational, social and family commitments were the original target group of distance education, and this is the one still mainly catered for. These students wish to educate themselves in their spare time either to improve and update their professional knowledge or to widen their intellectual horizons generally, to learn for practical purposes, for instance, applications of computer technology or a foreign language, or to acquire knowledge and insight for its own sake. To the generations that were young when the first correspondence schools and similar distance-teaching organisations started their work, the opportunities they offered were very often the only chances available to compensate for faulty or insufficient early education. Distance education gave - and gives - gifted and hard-working people a possibility to study beside their jobs and other commitments. In some countries it had and may still have a pronounced careerist character. It served and serves upward mobility educationally, professionally and socially.

A new target group has emerged during the last few decades: university students taking individual courses by distance study as parts of degree curricula based on conventional study. Whereas prescribed pacing, the organisation of students in classes or groups as well as adaptation to university or school semesters and holidays are felt to be undesirable and unnecessary restrictions by the first-mentioned, larger category of students, they are largely acceptable and found natural by the new target group. In the latter case distance education is simply a form of distribution.

Understanding distance education

The insistence on classes and pacing seems to represent a typical characteristic of a view of distance education that regards it as a substitute for education face to face. Conventional views of educational planning and organisation induce protagonists of this school of thought to impose the same restrictions on distance study as are usually unavoidable in traditional study: limited geographical coverage, classes of limited size, regular meetings, pacing, division of the year into terms of study, prescribed examination dates, vocations, etc. To the extent that, in systems adopting these limitations, the type of distance education applied is felt to be innovative, it is what Ross (1976) calls innovation within the accepted paradigm.

Once distance education is applied outside the organisational and administrative framework of conventional schools and universities, its potential for extra-paradigmatic innovation becomes evident. Its claim to be a mode of education in its own right is based on this potential. It is possible for each student to begin, interrupt, and complete the study as it suits him/her or as work, health, and family conditions allow, to work at his/her own pace, and to disregard all the restrictions that apply to classroom teaching or group learning.

Thus there are at least two different schools of thought on distance education: one stressing individual study and individual, non-contiguous tutoring, the other aiming at parallelism with resident study and usually including class or group teaching face to face as a regular element. The former can and does serve mass education. It is in this context that the industrial approach described by Otto Peters is important (Peters 1973, 1989). It stresses rationalisation and division of labour in the interest of quality and economy. This approach is partly or fully applied by the large distance-education organisations, whereas small-scale distance education as a rule favours procedures more in line with traditional face-to-face education. Distance education using its full potential as indicated must necessarily be regarded as a separate kind of education which can hardly be described, understood and explained in terms of conventional education.

This discussion overlaps with views of control and independence. Those strongly influenced by conventional education stress control whereas those regarding distance education as a wholly separate mode usually favour far-reaching student independence. While Harper in the 1880s seems to have imposed pacing on students (Vincent 1886), Hermods from the beginning allowed them freedom in this respect

('One student may complete a course in three months and another the same course in two years' [Korrespondens 2 1901, p.29]), and Lighty of Wisconsin in 1915 is very explicit in insisting on student independence:

> 'He (the student) has a fairly definite idea as to what he needs and wants, and often an almost equally definite idea as to what he does not want. He has to be convinced by logic and experience, and not by rule of order, of the position of the teacher, for none of the ordinary compulsions operating in the intramural instruction are effective here. The student makes up his mind quite promptly on an early, if not the first, examination of the lessons or course as to whether it is worth his while...
>
> With the type of student suggested, it follows that there must be changed standards of success and failure for extramural students. A man may go through half or a third of a course and get all he needs or wants to satisfy his original purpose. It would be folly to apply conventional pedagogue standards...'
>
> (From the Proceedings of the first conference [National University Extension] as reprinted in Mackenzie and Christensen 1971, p.21.)

Occasionally the value of attempts to promote student autonomy is queried. Garrison and Shale ask 'whether autonomy is desirable, realistic, or even possible to attain', and believe that 'the usual notion of independence runs a serious risk of obscuring the true nature of education' (Garrison and Shale 1990, p.124). They state their position as 'independence is not an essential characteristic of distance education' (p.129). (See also Willén 1981, pp.249-50.)

The potential of distance education is exploited more or less fully in relation to student autonomy vs. institutional control of students. A careful study of student autonomy and its limits in distance education was carried out in 1990 by Monika Weingartz. Using as her empirical basis the data collected in a FernUniversität international study comprising some 200 distance-teaching organisations (see Graff and Holmberg 1988), she identified an autonomy score, a score of individual control, one of goal-oriented control and one of control by additional media. Her study shows that almost 25 per cent of the organisations studied endeavour to promote a high degree of autonomy, while some 70 per cent of them apply highly individualised control methods, i.e. personal tutoring and counselling. Weingartz' analysis includes contract learning. She concludes that selected individual control measures are essential for student autonomy, that independent study does not imply unlimited freedom but a differentiated guidance of learners engaging students and tutors together and that the need for tutoring and counselling diminishes as students become more independent (Weingartz 1990, p.81). Isaacs writing on computer-assisted learning comes to a similar conclusion: 'In courses aimed at making students more independent as learners a degree of control is placed in their hands; students learn control by practising control' (Isaacs 1990, p.86). On the independence and control concepts see Boud (1988); Baynton (1992); Candy (1987) and Elton (1988).

The picture that emerges reveals a continuum of approaches from almost entirely independent study to fairly strictly controlled learning. The individualisation that has contributed to independence is still a much appreciated reality (cf. 'each student constitutes his/her own class' in Korrespondens 2 1901, p.14) and can now be supplemented by tele or computer conferencing, i.e. group work at a distance.

Conclusion

Distance education is a separate mode of education in its own right. Its typical characteristics were from the beginning and are still mediated student-tutor interaction and mediated subject-matter presentation, media being necessary as students either do not meet tutors face to face at all or do so only to a limited extent. This has constantly favoured individual learning. Students chose and choose distance education either because they genuinely prefer this mode or because they cannot - for reasons of job, family, geographical distance, finance etc. - make use of conventional education. While at the beginning of this century the only media applied were print, written communication and, occasionally, phonograph recordings, today's distance education has a wealth of sophisticated media at its disposal. A new dimension was added when tele and computer conferencing were introduced as they open possibilities for non-contiguous group interaction. What is above all typical of distance education, however, is its almost unique one-to-one relationship between one student and one tutor.

Distance education at the end of the twentieth century is a product of an evolutionary development rooted in early attempts to teach and learn by correspondence. Students' work on their own at a distance from tutors demands a degree of independence, which can be - and often also has been - consciously promoted by the organisations that support students, i.e. correspondence schools, distance-teaching universities and similar bodies.

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