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ABSTRACT

The history of research on distance education was studied. Major research done on distance education in such diverse areas as the United States, Venezuela, and Europe was analyzed. It was discovered that the earliest attempts to develop theories of distance education were mainly concerned with identifying its very concept. Like most educational research, studies of distance education were, from the outset, based both on intellectual inquisitiveness and practical requirements. During the 1970s and 1980s (when distance education research seems to have come of age), most research emanated from distance education organizations. Many studies were carried out in the planning stage in anticipation of the needs of new distance teaching organizations. Statistical studies seemed to dominate for a long time. Inductive methods were often used. An articulated discipline of research on distance education should include attention to the following areas: the philosophy and theory of distance education, the characteristics and attitudes of distance students, subject-matter presentation, interaction between students and supporting organizations, administration and organization, economics, systems, and history. (MN)

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Perspectives of research on distance education

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Summary

This is a survey of some important trends in the history of distance-education research. Although a fairly new field of scholarly study it has caused a great many investigations. There is good reason now to consider this area of study a separate discipline although many of its parts can be attributed to long - established disciplines.

Zusammenfassung

Dieses Papier bietet einen Oberblick über einige wichtige Trends in der Geschichte der Fernstudienforschung. Obwohl es sich hierbei um ein recht neues Forschungsfeld handelt, liegt bereits eine große Auswahl wissenschaftlicher Untersuchungen vor. Heute ist es deshalb durchaus begründet, dieses Forschungsgebiet als eigenständige Disziplin anzusehen, wenngleich viele seiner Teilbereiche auch anderen, längst etablierten Disziplinen zugerechnet werden können.

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RESEARCH AS CATERING TO THE NEEDS OF THEORETICIANS AND PRACTITIONERS

The conditions, methods and processes of distance education can - like other objects of study - be seen from different viewpoints. To the distance-education practitioner those aspects come to the fore that are relevant to facilitating and optimising teaching and learning. To the scholar concerned with distance education it is on the one hand the understanding of its character and applicability, on the other hand the explanations of its processes that are important.

Fortunately these concerns of the practitioner and the theoretician converge. The latter's aim 'is to find explanatory theories (if possible, true explanatory theories); that is to say, theories which describe certain structural properties of the world, and which permit us to deduce, with the help of initial conditions, the effects to be explained' (Popper 1980 p. 61). This means, as the philosopher quoted says elsewhere, that the task of scholarship is on the one hand theoretical, to bring about explanation, on the other hand practical, to provide for application or technology (Popper 1972 p. 49). Application, whether seen as consideration of target groups and study goals, methodology or administration, media selection or technology, or some other aspect of practice is, of course, exactly what the practitioner is primarily interested in.

Research into distance education of theoretical and practical importance includes knowledge acquisition as to the identification of students, their circumstances, needs and wishes, the study process, the courses used, the effectiveness and economics of the teaching and learning, as well as the general relevance to individuals and to society. Insight into the potentials of distance education for individual learning and various degrees of student autonomy as well as, paradoxically, mass communication is a ubiquitous concern.

We shall look into this research, but let us first give some attention to its basis and delineate our research area.

1 THE CONCEPT OF DISTANCE EDUCATION

The term DISTANCE EDUCATION covers the various forms of teaching and learning at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same premises, but which, nevertheless, benefit from the planning, guidance and tuition[1)] of a tutorial organisation. Distance study denotes the activity of the students, distance teaching that of the tutorial organisation.

There are evidently two chief partners in the teaching-learning process, i.e. the student and the distance-teaching organisation. Following Delling I refer to this organisation, be it a school, a university, an association or a company, as the supporting organisation.

The very concept of distance education has been made the subject of scholarly debate, thus in Bååth 1981, Delling 1966 and 1987, Holmberg 1977 and 1985a, and Keegan 1980.

2 STUDENT BODIES

Distance-teaching institutions in different parts of the world have collected a great number of data about their students, their age, sex, family, occupations, study time available, study milieu and conditions of study, prior knowledge, aims etc. (McIntosh, Calder & Swift 1976, Ansere 1978, Flinck 1980, Wångdahl 1980 etc.). Data concerning degrees, examinations, marks, drop-out and other information about study results have been registered everywhere.

There is evidence to indicate that distance students cannot be regarded as a homogeneous group. The only common factor is that, with few exceptions, these students are adults and consequently as a rule are gainfully employed and/or are housewives. The age group 25 to 35 seems to be the largest one in most systems. The Australian University of New England reports that the average age of their distant students was, in 1979, 34 years; 73.1 per cent of the students of the Spanish Universidad Nacional de Educación a Distancia are over 26, whereas correspondence students in Brazil taking courses at lower secondary level are usually 15 to 20-year-old male workers. Although in some

1) The word 'tuition' is used in its British sense, meaning 'tutoring, teaching'; here it has nothing to do with fees as it would have in American usage.

countries (Norway and Sweden are typical examples) distance study is an almost universally recognized study form, with male and female students in all social strata, in other countries (West Germany, for instance) it is mainly seen as a second chance for people unable to acquire a formal education. Distance study evidently contributes to social mobility. It did so in Sweden during the first half of this century and afterwards, and it does so in the UK at present.

American and British studies indicate that 'correspondence students' to a greater extent than other adult students have examinations and degrees as their aims. On the other hand, considerable numbers of them have declared, in different contexts, that they study purely for academic interest.

McIntosh, Calder & Swift 1976 and Glatter & Wedell 1971 have shed some light on the reasons thy students have chosen distance study instead of other types of adult education. T' replies to a questionnaire sent to 20,000 students and answered by some 12,000 showed, according to Glatter & Wedell, that more than 70 per cent chose correspondence study because it was felt better than other study forms to facilitate the planning of the study programme chosen and to assess the progress made. The time factor came next as a reason given for the choice of study. More than 50 per cent answered that they had chosen correspondence study because it makes 'it easier for you to work at your own pace that if you went to classes'. Almost the same percentage regarded g ı to classes as 'uneconomical of time'. More than a third of the respondents stated that they preferred studying on their own 'to studying in a class with other people'.

Of the reasons given by students for studying with the Open University, it was found that 'those stressing ends predominated over those stressing means' (McIntosh, Clader & Swift 1976 p. 245). The younger students stressed educational qualifications and jobs, whereas reference to the general widening of knowledge increased with age.

Flinck's study shows that the three most important reasons why the students investigated had chosen correspondence education were:

- The freedom offered to pace their study as they wanted to (83 per cent).
- The support provided in planning the study and assessing progress (in relation to completely unaided study) (73 per cent).

- A predilection for individual work: 'I like working by myself' (63 per cent).

(Flinck 1980 pp. 6 - 9)

Distant students' views of themselves is of great interest in this context. An investigation of these has been made by Göttert 1983, who reports on an interview study of more than 500 FernUniversität prospective and real students. These 'saw themselves as more competitive, achievement oriented and assertive' than the average general population and student groups investigated. 'Only small differences were found between dropouts and persisters (after one year in distant study): the persisters (before enrolment) had portrayed themselves as more competent and successful in coping with academic and social demands ...' (Göttert 1983, Summary before the list of contents).

These are results illuminating the situation in countries where there is a real choice between study opportunities. When the traditional educational facilities of a country are overburdened, students may enrol for distance - education programmes because they represent the only possibility open to them. Realising this must not stand in the way of the insight that to may adults in various parts of the world distance education is the preferred mode of study as it allows entirely private and individual learning, requires no classroom attendance and can make study independent of time and place.

Attempts have been made to find out what types of students distance education suits best and who is most apt to benefit from distance education. So far we are hardly in a situation to give anything like a definite reply. However, some intimations are possible. From three recent German studies can be concluded

- that the agreement between personal interest and course offer (degree structure) is the most decisive factor for success (continuation of study) and failure (drop-out) (Bartesl 1982 p. 11, Bartels 1983 p. 16)
- that students inclined to work on their own rather than collectively, i.e. those who do not feel any handicap of isolation, but rely on their own initiatives to establish contacts when desired, tend to be successful (Bartels 1982 p. 18), whereas most drop-outs suffer from learning in insolation (Bartels 1983 p. 24 - 25)
- that a certain amount of resignation concerning the chances of professional promotion is common among the drop-outs (Bartels 1983 p. 7)

- that most of the students investigated, whether successful or not, are on the whole satisifed with the courses and student service provided, although some are explicitly critical of the pacing imposed on them, poor-quality tutor comments, slow turn-round time for submission assignments and administrative snags (Bartels 1982 pp. 34 - 35; Bartels 1983 pp. 30 - 32, 35 - 36)

- that the drop-outs have 'greater problems co-ordinating the requirements of their jobs, families and study than those continuing their study and are less capable of substaining heavy workloads and changes in job situations; the latter are more prepared to accept that their personal life suffers during their time of study' (Bartels, Helms, Rossiē & Schormann 1984 p. 94).

Apart from the last characteristic, which is concerned with physical and mental strength, and, partly, the general satisfaction with the study facilities, this summary indicates the dependence of success on strong study motivation generally and motivation for distance study in particular.

A study by Rekkedal indicates on the basis of statistical evidence

- that practically no relationship could be established between students' domestic background and discontinuance (Rekkedal 1972 p. 17); this is remarkable as distant students generally stress the importance of encouraging support from husband/wife and other family members (cf. Bartels 1982 p. 14 and 1983 p. 20 confirming this)

- that older students 'survived' to a greater extent and achieved better results than younger students (ibidem p. 26), which, as far as the first statement is concerned, agrees with Donehower's study of 1968; as to the second statement Donehower

  > '..found that the oldest group (only 9 students more than 60 years old) received the lowest marks. Except for these oldest students, the achievement rose with increasing age of group, at least up to about 45 years of age' (Rekkedal 1972 p. 26).

- that, not unexpectedly, there were positive correlations between the levels of previous education and both survival and achievement, which agrees with findings at the Open University (McIntosh, Woodley & Morrison 1980 pp. 54 - 55).

Even though, thus, age and previous education are important, the one single factor that is typical of the succesful distant student is personal motivation. Cf. Sewart 1983 p. 168. Masson 1987 favours, on the basis of reflections on Jungian typology, the hypothesis that distance education is more appropriate for students of the introvert type than for extroverts. So far this hypothesis has not been tested empirically.

3 TEACHING AND LEARNING IN A RESTRICTED SENSE

There are two constituent elements of teaching and learning in distance education. One is the presentation of learning matter in pre-produced courses; the other is the communication between the supporting organisation (its tutors and/or counsellors) and its students. The former, which can be labelled course development, is concerned with the creation and production of learning material for the message of the supporting organisation to the students, i.e. with one-way traffic between the supporting organisation and the students. Both have been subjected to thorough reserarch.

3.1 Course development

It is probably true to say that the greatest number of research studies within the field of distance education have concentrated on course development, its requirements, its use of communicable, more or less behaviourist objectives, selection and structuring of contents, the choice and use of media, language and style and similar matters. Here it has been possible to draw on research on written presentations generally, use of radio and TV, audio and video recordings, information technology, illustration techniques etc. The Open University seems to have contributed a particularly great number of studies specifically relevant to the development of distance-education materials (Bates 1984, Lewis 1974 and later, MacDonald-Ross 1973, 1977 and 1979, Waller 1980, e.g.).

Several authors have concerned themselves with conflicting general approaches, like behaviourism, cognitive psychology, discovery learning, cybernetic theory, aptitude-treatment interaction, subsuming and 'meaningful verbal learning' in Ausul l's sense etc. Possibilities to individualise teaching also when preproduced courses are used, i.e. allowing students to choose their own objectives as far as this is possible, have been subjected to some important studies (Ljosa & Sandvold 1976 e.g.). Pluralistic approaches implying the use of literature chosen at least to some extent at students' discretion with the help of study guides orienting them in the subjects and sources concerned have been studied in a scholarly way by some distance-education researchers (Lehner & Weingartz 1981 and 1985, e.g.). Approaches of this kind tend to direct attention to so-called contract learning and its application in distance education (Worth 1982).

Distance educators have developed techniques to direct students' attention to important issues, to considering and searching for solutions. Various designs are used to help students to structure their learning. Apart from graphical methods such as headings, graphs and change of type a number of pedagogical pointers are used. Here belong attention-directors of various kinds. Those which are most typical of distance-study courses are suggestions to note or review something and self-checking exercises. Assignments for submission can also have this function. Ausubel's 'advance organisers' and Rothkopf's inserted questions are also of common occurrence (Ausubel 1968 pp. 148 and 137, Rothkopf 1966 and 1970).

A Venezuelan study by Anne Benkö de Rotaeche of different versions of the same distance-teaching course is of particular interest here as it looks into the basic questions whether institutional design in this sense actually exerts a positive influence on learning effectiveness or not. On the basis of careful empirical investigations of a small student sample the author concludes that her analysis 'supports numerous studies that have demonstrated the importance of instructional aids' (Benkö de Rotaeche 1987 p. 67). Her study shows that 'different versions stimulated different learning activities and that higher achievements were attained when the instructional aids were taken into account. It was also found that instructional design was able to stimulate a higher level of processing' (ibidem p. vii).

Other scholars are more reserved in their attitude to attention-directors and similar aids used in educational design. This would seem to apply to Weingartz (1980 and 1981), who considers formal text criteria fairly insignificant in relation to the basic text design, which may start out from problems to be solved and thus support problem learning, or may simply present ready-made systems of knowledge for reproductive learning, and even more to Marton, who fears that all kinds of attention-director may avert students' interest from the content to the technical aspects of the reading process, thus encouraging surface learning and leading to neglect of deep structure.

Beside a number of studies of specific measures and media there has also been some search for overarching principles in course development. I have made some attempts in this direction by my theory of guided didactic converation and my empathy approach implying that teaching and learning are a communication process resembling conversation. The pre-produced courses

which cater for one-way traffic are then taken to represent simulated communication (whereas real communication occurs in distance education through mediated interaction between students and the supporting organisation) (Holmberg, Schuemer & Obermeier 1982). Research contributions pointing in the same direction have been made by Pask 1976, Thomas & Harry-Augstein 1977, Forsythe 1986 and others.

3.2 Two-way communication

Distant students do not learn only from course materials, but also from interaction with tutors (and others representing the supporting organisation). As they are at a distance from their organisation, this interaction is mediated and occurs in the form of written correspondence, telephone conversations, computer communication or other means which allow non-contiguous communication. Usually this interaction is chiefly based on assignments for submission attached to pre-produced course units.

To this two-way communication have, as shown in a comprehensive research report by Bååth 1980, been attributed a number of functions. The most important of these are 'to encourage, to correct errors, to signal difficulties on the part of the learner, to inform those who prepare educational materials, and to allow learner and teacher to take off in directions which had not been forecast. This last capacity is, for many educators, of unique value and importance, lying at the heart of the educational process if it is to be worthy of the name' (Perraton 1987 p. 5).

Communication in distance education is a research area to which many contributions have been made and more are to be expected. Non-contiguous communication in writing, particularly its frequency, has been carefully studied by Bååth 1980, telephone interaction by Flinck 1978, Robinson 1984 and others, computerised communication by Bacsish 1984, Bååth & Månsson 1977, Lampikoski 1984, Jones 1984, O'Shea 1984 etc. A survey of research and practical applications of communication in distance education occurs in Chapter 4 of Holmberg 1985a (and in Holmberg 1985c).

The importance of short turn-round times (from students sending an assignment to the supporting organisation until the assignment has been returned with the tutors' corrections and comments) has been seriously looked into by Rekkedal 1983 and Barker et al. 1986. It is quite evident that delayed communication is a great weakness of normal distance education. The possibility

to use micro-computers, modems and telephone communication to attain immediate reception both of students' assignment papers etc. and of tutors' corrections and comments will undoubtedly bring about considerable improvement as soon as the cost for equipment can be afforded by students and organisations. The organisational and technical developments in this respect will be an important research topic.

The attempts to identify overarching principles mentioned under 3.1 are relevant also to the two-way communication in distance education. The empathy concept has, not unexpectedly, been found to apply as much to the interaction between students and the supporting organisation as to course development. An investigation by Rekkedal, which sheds light on the communication process, demonstrates this.

Communication based on assignments can be merely matter-of-fact without any really personal element. Many distance educators consider such impersonal correction and commenting a waste of valuable opportunities. If personal rapport is established, students are likely to enjoy the learning more and to be more successful than otherwise.

Rekkedal's study is relevant in this context. It tests a 'new' tutor role which integrates 'the functions of administrative measures, tuition and counselling' (Rekkedal 1985 p. 35). Each student in Rekkedal's experimental group was given one contact person in the distance-teaching organisation. This contact person was the student's tutor, counsellor and administrator answering questions about all matters connected with the study. Rekkedal investigated the outcome of this integration of supporting tasks, which included introductory letters in which the contact persons introduced themselves to their students, short turn-round times for assignments and frequent telephone contacts with students. The study comprised a comparison between an experimental group offered these services by a personal tutor-counsellor while studyin 3 - 11 courses of a course combination leading to a professional qualification and a control group following the usual pattern of the school concerned (NKI in Oslo).

> The main difference between the treatment of the experimental group and the control group was that the experimental students communicated with one personal tutor integrating administrative, teaching and counselling functions, which normally are separated.
>
> (Rekkedal 1985, p. 9)

Statistically significant differences were found between the two groups. 'The students in the experimental group had a higher completion rate, they were more active in their studies and completed a larger number of study units and courses during the experimental period' (Rekkedal 1985, p. 13).

4 ADMINISTERING DISTANCE EDUCATION

The administration of distance education necessarily exerts strong influence on the teaching-learning process. The Rekkedal project just referred to illuminates the interrelationship between education per se and administration. The distribution of course materials (individually following each student's submission of assignments, periodically on fixed dates or the whole course at the beginning of the study) can mean much for students' possibilities to work independently. Cf. Holmberg 1985a pp. 106 - 107 and 1985c pp. 101 - 107. The same applies to pacing imposed on students by the supporting organisations. Such prescribed pacing is of common occurrence although it often creates avoidable problems and can lead to discontinuation (Bartels & Hofmann 1978). Whether or not to impose pacing is a bone of contention among distance educators. Cf. Daniel & Marquis 1979, Delling 1975 and Holmberg 1985 a pp. 126 and 144 - 151 (1985c pp. 132 and 139 - 145).

Distance education is organised in very different ways depending on the general conditions of the supporting organisation. Extreme contrasts are the large-scale systems of the Open-University type and small-scale systems like the Australien University of New England. In the former there is considerable division of labour so that course developers create courses in large editions with often thousands of students per course, whereas a number of tutors, counsellors and administrative staff provide for student service. In the latter individual university lecturers develop distance-study course for their own students only and also function as their tutors. Cf. Holmberg 1986 a Chapter 2.1. There are also a number of further organisational approaches. In some studies the conditions referred to have caused development of typologies of distance - teaching systems (Keegan 1988 Chapter 8, for example).

Organisational-administrative considerations of course development have caused a number of studies (Holmberg 1983, Kaufmann 1982, Keegan 1986 Ch. 11). Basically, as shown in these studies, two organisational approaches dominate. They are the course team approach, which by division of the course development

work among subject specialists, educational designers, illustrators, media specialists, etc., caters for first-class expertise on all aspects of the course being created, and the author-editor approach, which tries to unite subject expertise with educational design.

The course-team approach may lead to a de-personalised style of presentation contrary to the style of didactic conversation and may tend to support the presentation of learning matter as ready-made systems rather than as guides to problem-solving. Cf. Weingartz 1980 pp. 167 - 169. To what extent these effects occur or are avoidable is uncertain, although there are signs that few of the courses created by course teams are based on problem-solving approaches (Weingartz op.cit.).

The organisation and administration of distance education constitute an area of research to which a number of contribution have been made and more are needed. A comprehensive survey of what has been done so far with a number of original approaches is Rumble 1986. Further up-to-date constributions to this field are the relevant chapters in Kaye & Rumble 1981 and Henri & Kaye 1985. A study of the very system or systems of distance education is a concern of both theoretical and practical relevance. Ljosa 1975, including among other papers Erdos' classical 'System of distance education in terms of sub-systems and characteristic functions', bears witness to this.

5 COURSE AND SYSTEMS EVALUATION

The type of evaluation which is not primarily concerned with assessing the achievements of students and awarding marks but rather with the estimation of distance courses and systems of distance education has attracted much attention. Formative evaluation in the form of developmental testing as part of course creation has been described and discussed by, among others, Henderson & Nathenson 1976 and Bartels & Wurster 1979 (the latter in German). The methodology of evaluation has been looked into from a mainly technological point of view in Chapter 6 of Holmberg 1985a and in a way critical of rationalisation approaches by Kemmis 1980. The evaluation of distance education naturally largely relies on principles developed for educational evaluation generally. Scriven 1967 and Stake 1977 have been particularly influential.

What most evaluation of distance education is concerned with are the effects on students achievement and their attitudes to their courses, the supporting

organisation and distance education generally. Studies of course completion and student drop out belong here. Important research in this area has been conducted by Bååth 1984, Rekkedal 1978 and a number of other scholars.

Other kinds of evaluation are mainly focused on the economics of distance education, thus, e.g. Wagner 1977, Snowden & Daniel 1980 and Perraton 1982. Keegan 1986 summarises much of this research. There is fairly general agreement that distance education can offer considerable financial advantages.

6 THEORETICAL APPROACHES TO DISTANCE EDUCATION

The earliest and some latter-day attempts to develop theories of distance education are mainly concerned with the identification of its very concept, thus Delling 1966 and 1987, Peters 1973 and 1983, Sewart 1981 and Keegan 1986 Chapter 7.

The directions of research in this area so far followed vary. Whereas Bååth 1979 consistently relates the concerns of distance education to well-known general theories of teaching and learning, Moore 1973 and 1977 in developing his theoretical approach and discussing the distance concept distinguishes between dialogue and structure as important elements of distance. Peters 1973 (and 1983) analyses distance education as an industrial form of teaching and learning and stresses rationalisation, division of labour, economies of scale and similar characteristics of distance-education organisations. Wedemeyer 1981 (and elsewhere) represents a liberal, humanistic, 'andragogical' approach. Kevin Smith 1983 should be mentioned as a protagonist of the dual-mode approach, which represents a kind of distance study which, as far as periods of study, examinations and general conditions are concerned, is a consistent parallel to on-campus study.

The search for a theory that can guide practical work is a complicated endeavour. Epistemological concerns must be considered, descriptive elements must be identified, explanatory and predictive potentials looked into. Perraton 1981, basing his arguments on a view of education as connected with power and a base both for expanding education as an egalitarian requirement and for stressing the importance of dialogue, makes his contribution to a theory of distance education in the form of fourteen hypotheses or statements. He indicates a desire to find ways of testing his hypotheses. The present author has attempted a hypothetico-deductive theory based on the rapport

and empathy concept. It has, as far as a theory of teaching for distance education is concerned, generated eleven testable (and, in fact, in part already tested) hypotheses, some of which resemble at least five of Perraton's hypotheses (Holmberg 1986a Chapter 8).

The two last-mentioned approaches differ from the other more descriptive theoretical considerations in that they represent search for predictive hypotheses. My own attempts in this direction is based on the view of theory as a set of hypotheses logically related to one another in explaining and predicting occurrences. Theories of this kind should, if they are general and inclusive enough, be helpful to practitioners by suggesting suitable methods and procedures. Also theories of more limited scope are useful, thus, for example, the differentiating of intellectual skills introduced by Chang, Crombag, van der Drift & Moonen 1983. Skills to be learnt through distance study are divided into operations on knowledge and operations with knowledge. The latter imply application of knowledge acquired and are concerned with 'results in the exterior world, reality' (Chang, Crombag, van der Drift & Monnen 1983 p. 15). 'Operations on knowledge (critique may be a good example) apply to coded knowledge and result in new or new representations of knowledge, and in the skill of producing new forms of knowledge out of existing knowledge' (op.cit. p. 14). Distance educators following this approach have to judge where these two types of operation are required and for each procedure and each medium to decide to what extent it helps students to acquire the operational capacities concerned.

7 ON THE HISTORY OF DISTANCE-EDUCATION RESEARCH

Distance education is nothing new. There are documents indicating that it was practised as early as the beginning of the eighteenth century. We know for certain that it existed in the early nineteenth century (Holmberg 1986a pp. 6 - 7). Scholarly interest and research in distance education is of fairly late date, however.

With few exceptions (like Feig 1932 and Bittner & Mallory 1933) studies testifying to interest in research in this area did not appear until after the second world war, however, and the earliest monographs date from the 1960s (Holmberg 1960 and 1967, Wedemeyer & Childs 1961, Sommer 1965, Dohmen 1967, Erdos 1967, Peters 1965 and 1968). The sixties also saw a number of articles and occasional papers with seminal ideas. Delling 1966, Rosberg 1966, Sims 1966

and Wedemeyer 1965 should be mentioned here. The first bibliographies of distance-education writings also appeared in the 1960s (Childs 1960, Bibliographie Fernstudiums 1961 and Holmberg 1968).

Like most educational research, studies of distance education were from the beginning based both on intellectual inquisitiveness generally and on practical requirements implying, among other things, a desire to know as a result of feelings of social and educational responsibility among practitioners. During the 1970s and 1980s, when distance-education research seems to have become of age, it is from the distance-teaching organisations that most research studies emanate. Not unexpectedly scholars at the big distance universities and the Australian, Canadian and US 'dual-mode' universities have made a number of contributions, and so have recently Latin-American scholars (like Miguel Casas, for example). Studies carried out at the planning stage in anticipation of the needs of new distance-teaching organisations have in some cases been of high scholarly standard of general interest to the field (Chang et al. and Köymen 1983, inter alia).

Sometimes research initiated by organisations practically concerned with distance education seems to have had as its incentive a management/administrative background rather than wishes to serve attainable student bodies or theoretical considerations. A kind of meta study is often found desirable as a means to study the organisation (university etc.) itself, which can lead to the research organisation becoming a kind of auditing body checking how resources are used etc. If it is then attached to a decision-making authority, its search for knowledge may be limited to purely instrumental concerns and it may be hampered by loyalty to institutions rather than to scholarship per se. Entirely free research performed within the framework of an independent institute with resources of its own is more likely to include fundamentally critical issues of more than an ephemeral character.

8 METHODS APPLICABLE TO RESEARCH INTO DISTANCE EDUCATION

The methods applied in distance-education research have varied. Statistical studies of student bodies seemed to dominate for a long time, but also so - called qualitative studies have been made of the conditions of students (Heinze 1979 e.g.). The kind of research that implies collecting statistical data, without from the beginning relating them to a theoretical framework,

used to be very common in the field of distance education and can evidently still be found. The usual design of such studies was an arrangement with two comparable groups of students made to learn the same subject matter, one by working through a correspondence course, the other by taking part in ordinary classromm work. The achievements of the two groups were then compared. Peters refers to research of this kind as relatively advanced statistical analysis combined with a complete lack of theory (Peters 1973 p. 17). This kind of comparison illuminates a view of distance education which entirely neglects its potentials for both individual and mass education (by remaining within the traditional framework of organised classes of students), for reaching students irrespective of geographical distances and for economies of scale.

It was under the influence of positivism and behaviourism that it used to be found acceptable to collect and evaluate data without any basis in theory. This often meant an inductive approach. Awareness of the devastating criticism of inductivism delivered by Popper and his followers have made scholars more anxious than earlier to use hypothetico-deductive research methods. I have discussed these issues at some length in my book Growth and Structure of Distance Education (Holmberg 1986a pp. 104 - 107).

Whatever conclusions we come to in our consideration of inductive methods there can be no doubt that there is great need of fact finding about international distance education. Only with a reliable factual background is it feasible to relate value judgments, traditions and practice to one another in a fruitful way. Work of this kind is being done within the framework of the United Nations University (Perry 1984), the British Open University (Raggatt & Harry 1984) and the West German FernUniversität (Graff & Holmberg 1984, Holmberg 1985b).

9 A DISCIPLINE OF DISTANCE EDUCATION

What has been said so far makes it evident that a research discipline of distance education has emerged. On the basis of documented work I have elsewhere described the articulated structure of this discipline as comprising the following areas:

- Philosophy and theory of distance education
- Distant students, their milieu, conditions and study motivation
- Subject-matter presentation

- Communication and interaction between students and their supporting organisation (tutors, counsellors, administrators, other students)
- Administration and organisation
- Economics
- Systems (comparative distance education, typologies, evaluation etc.)
- History of distance education

(Holmberg 1986b p. 28).

Distance education is also taught by universities as a separate discipline (Willmott & King 1984, Holmberg 1984 and 1986 a and b). There can thus be no doubt that a discipline of distance education has by now been established both in research and university teaching. Much has been achieved since the first scholarly studies of distance education were published.

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