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ABSTRACT

This introduction to distance education includes the following sections: (1) definitions of distance education; (2) the typology of distance education systems (including examinations of the correspondence school model, the consultation model, the integrated mode, the multimedia system model and media selection; (3) nature (the didactic structure of distance education systems, the linking of learning materials to learning, the role of the learner, sociological charactersitics, and administration); and analogues (the relationship between distance education and conventional higher-level university study. the use of educational technology in conventional programs, and the relationship between educational technology and distance education). A brief concluding statement posits that there are extensive differences in both didactic structure and administrative theory between distance and conventional systems. (40 references) (GL)

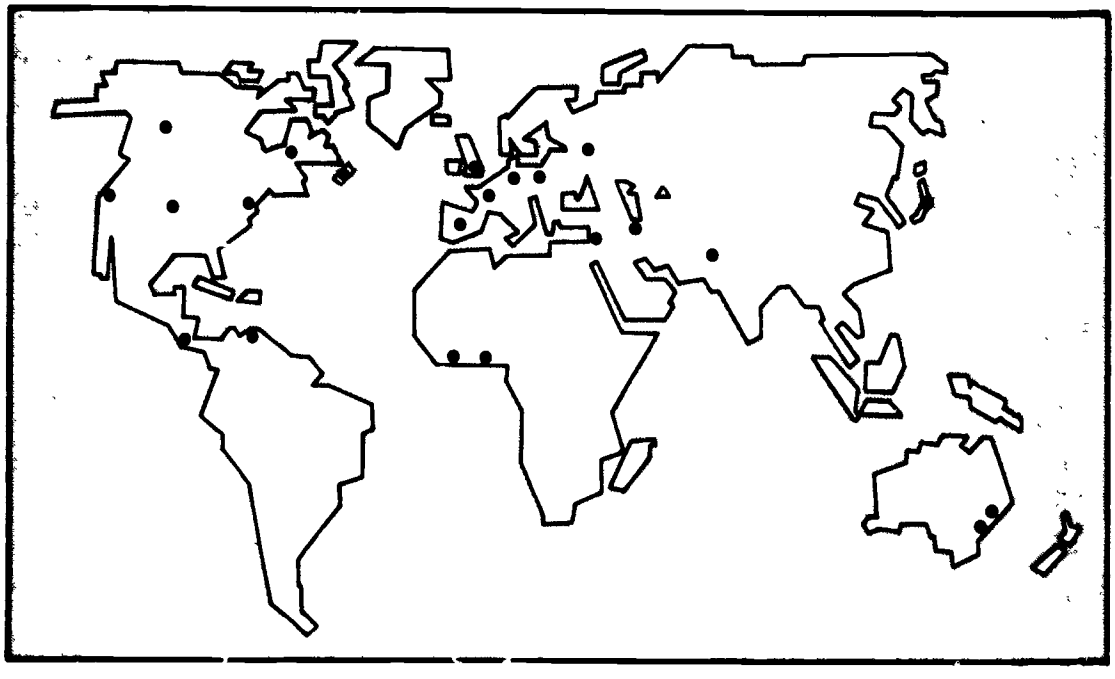
FernUniversität
Gesamthochschule

ZIFF Papiere 33

On the Nature of Distance Education

by

Desmond J. Keegan



Zentrales Institut für Fernstudienforschung
Hagen, November 1980

Kurze Zusammenfassung

Zu den Besonderheiten von Fernstudium

Es erscheint kaum sinnvoll, zu versuchen, Fernstudium mit üblichen Theorieansätzen zu beschreiben. Dies betrifft die didaktische Struktur, die Kommunikation zwischen Lehrenden und Lernenden, die Rolle der Lernenden sowie soziologische und psychologische Besonderheiten von Lehrkörper und Studentenschaft.

Aufgrund von Forschungen in den Fernstudien-Systemen in Indien, Irland, England, Holland, Frankreich, Bundesrepublik Deutschland, DDR, Italien, USA, Canada und Australien beschreibt der Autor die Besonderheiten des Fernstudiums und setzt sich mit früheren Definitionsversuchen auseinander.

ZIFF-Papiere.

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CONTENTS

1. DEFINITION

'Distance education' is a generic term that includes the range of teaching/learning strategies referred to as 'correspondence education/study' at further education level and 'independent study' at higher education level in the United States, 'external studies' at all levels in Australia and 'distance teaching' or 'teaching at a distance' by the Open University of the United Kingdom. In French it is referred to as télé-enseignement, Fernstudium/Fernunterricht in German, educación a distancia in Spanish and teleducação in Portuguese.

With such a proliferation of terminology, especially in the English-speaking world, a clear definition of what is meant by 'distance education' is necessary. The method used here to establish a definition is a search for definitions in the literature of distance education over the last decade. From the many definitions which have been prepared by scholars during this period, four have been chosen for presentation and analysis in this monograph. Selection has been on the basis of influence, citation by other writers and ability to describe the wide range of institutions encompassed by the terms listed above. The purpose is not to devise yet another definition of 'distance education' but by analysis to highlight those elements which can be considered essential to a comprehensive definition.

The four definitions chosen for analysis come from the writings of Börje Holmberg, Michael S. Moore, Otto Peters and from a French Government law.

Holmberg

> The term 'distance education' covers the various forms of study 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 of a tutorial organisation. (Holmberg, 1977a: 9)

Basic to Holmberg's definition are two elements both of which can be considered essential:

- o the separation of teacher and learner
- o the planning of an educational organisation.

The separation of teacher and learner is fundamental to all forms of distance education whether they be print-based, audio/radio-based, video/television-based, computer-based or satellite-based. This separation distinguishes distance education from all forms of conventional, face-to-face, direct teaching and learning. (Holmberg, 1974, 1979)

The structuring of learning materials and the linking of these learning materials to effective learning by students through an educational organisation differentiate distance education from (i) private study, (ii) learning from interesting books or (iii) cultural television programmes.

French law

On 12 July 1971 the French Government passed a law regulating the conduct of distance education in its territories. This law contained the following definition:

> Enseignement à distance: l'enseignement ne comportant pas dans le lieu ou il est reçu, la présence physique du mâitre chargé de le dispenser ou ne comportant une telle présence que de manière occasionelle ou pour certains exercises. (1) (Loi 71.556 du 12 juillet 1971).

Again two elements are basic to this definition:

- o the separation of teacher and learner
- o the possibility of occasional seminars or meetings between student and teacher.

The separation of teacher and taught is underlined as it is in Holmberg's definition and it can be accepted that no one would wish to propose a definition of distance education which did not include the possibility of face-to-face contact 'on occasion or for

selected tasks'. The wording of the law can be challenged in that it is so broad that it could encompass certain forms of conventional education; this was deliberately done so that existing and future forms of distance education, including those that are not print-based, would be included.

Moore

> Distance teaching may be defined as the family of instructional methods in which the teaching behaviours are performed apart from the learning behaviours, including those that in a contiguous situation would be performed in the learner's presence, so that communication between the teacher and the learner must be facilitated by print, electronic, mechanical or other devices.

Moore's definition highlights three elements:

- o the separation of teaching behaviours and learning behaviours
- o the use of technical media
- o the possibility of two-way communication.

Moore's analysis (1977) separates teaching into two areas: preparation and delivery. In normal, face-to-face teaching the teacher's preparation is done apart from the students and he teaches in the presence of students. In distance education both the preparation and the teaching are done apart from students.

The emphasis on technical media and two-way communication (Bååth and Flinck, 1973) are valuable additions to what has already been presented. It is important for Moore (1973, 1977) that the system should allow the learner to initiate this communication.

Peters

The three definitions so far considered can probably be accomodated within any basic theory of education. The major theoretical formulation of distance education so far published, Otto Peters' *Die didaktische Struktur des Fernunterrichts. Untersuchungen zu einer industrialisierten Form des Lehrens und Lernens (1973)* takes quite a different position. It merits careful study:

> Der Fernunterricht ist ein rationalisiertes und arbeitsteiliges Verfahren zur Vermittlung von Wissen, Fertigkeiten und Einstellungen, das infolge weitgehender Nutzung technischer Mittel und konsequenter Anwendung von Organisationstechniken und der dadurch ermöglichten Reproduktion von optimiertem Lehrmaterial zur gleichen Zeit einer großen Zahl von Lernenden ohne Rücksicht auf deren Wohnort gestattet, am Unterricht teilzunehmen. (2) (1973: 206)

On his way to establishing this definition, Peters commences his study with a description of distance education which coincides quite readily with the three definitions considered so far:

> Der Fernunterricht ist eine Form des indirekten, d.h. durch technische Medien wie Briefe, gedrucktes Material, Lehr-, Lern- und Arbeitsmittel, audio-visuelle Lehrmittel, Hörfunk, Fernsehen und Computer vermittelten Unterrichts. (3) (1973: 104)

Basic to this description are two of the elements already identified: separation between the teacher and the learner, and the use of technical media. Peters' analysis, however, proceeds (1973: 157-205) much further than the others considered and leads him to the conclusion that the didactical structure of distance education can best be understood from industrial principles especially those of productivity, division of labour and mass production. The mechanisation and automation of teaching methodology and the dependence of teaching effectiveness on prior planning and organisation (rather than on teaching ability) lead him to posit a radically different role for the teacher in distance education from that exercised in the lecture hall or seminar room. This leads Peters to the definition quoted above. (1973: 206)

Peters next (1973: 207) considers other theories of distance education and gives a comprehensive listing of those that have been proposed:

- a fringe form of ordinary teaching (Grenzfall des Direktunterrichts)
- an institutionalised form of individual study (organisierte Form der Autodidaxie)
- education through teaching aids (Unterricht durch unmittelbare Hilfsmittel)

- o expanded form of teaching by correspondence with feedback (erweiterte Form des schriftlichen Lehrens durch die Korrektur)
- o special type of mass education. (Sonderfall des Großgruppen-unterrichts).

He is led to the conclusion that all are inadequate as explanations of the phenomenon described.

Peters concludes (1973: 295) with an attempt to define the relationship between teacher and taught in a distance education system. He characterises this relationship as being controlled by technological rules (and not social norms as in face-to-face teaching), maintained by emotion-free language (and not interactional speech), based on a limited possibility of analysing students' needs and giving them directions (not on expectations built on personal contact) and achieving its goal by efficiency (and not through personal interaction).

In earlier writings (1965, 1971) Peters had laid the ground for his theory of distance education:

> Correspondence instruction is the most industrialised form of instruction, and the usual theoretical criteria for the description of traditional instruction do not help very much in analysing correspondence instruction. (This) has suggested the introduction of *new categories* taken from those sciences investigating the industrial production process. It is, in fact, astounding to see how much better these criteria help to understand and describe the institutional process in correspondence instruction. Some of the suggested criteria are: division of labour (on the side of the teachers): mechanisation; automation; application of organisational principles; scientific control; objectivity of teaching behaviour; mass production; concentration and centralisation.
> (1971: 225)

This brief presentation cannot do justice to Peters' attempts to show that distance education is based on a new academic theory which is quite alien to traditional didactics. He is quite convinced that distance education has its own laws of didactical structure, great teaching potential, serious didactical flaws and that it presents opportunities and dangers to both teachers and students which are as yet not fully studied. Anyone professionally involved in education, he maintains, must presume the existence of two forms of education

which are strictly separable: traditional education based on personal communication and distance education based on industrialised and technological communication.

One can grant to Otto Peters that he has demonstrated the importance of a characteristic of distance education that should form part of any definition:

o it is the most industrialised form of education.

Comprehensive definition

The discussion of the four definitions chosen for analysis has highlighted certain constituents of this form of education and these become the basis for a comprehensive definition which will be used throughout this monograph. It is claimed that such a definition can be applied to the wide range of institutions which provide distance education throughout the world, from the proprietary schools to the new government-sponsored universities at Milton Keynes, Hagen and elsewhere. Purists may claim that as the fifth point, the 'possibility of occasional meetings' is only a possibility which will occur in some institutions and in some programmes but not in others, it should be omitted from the definition. The present writer considers the question of meetings from time to time, their advantages and disadvantages (Holmberg, 1977b), to be of such importance that reference must be made to it in a comprehensive definition.

The main elements of a definition of distance education are:

- o the separation of teacher and learner which distinguishes it from face-to-face lecturing
- o the influence of an educational organisation which distinguishes it from private study
- o the use of technical media, usually print, to unite teacher and learner and carry the educational content of the course
- o the provision of two-way communication so that the student may benefit from or even initiate dialogue
- o the possibility of occasional meetings for both didactic and socialisation purposes
- o the participation in an industrialised form of education.

(Keegan, 1980b: 42)

2. TYPOLOGY

Distance education as defined is widespread. Representatives of institutions in thirty-seven countries attended the 11th International Council for Correspondence Education world conference at New Delhi, India, in November 1978 and there were fifty-one nations represented at the Open University conference on the education of adults at a distance at Birmingham, England in November 1979. Most of the programmes represented at these conferences would have fallen within the limits of the definition given.

Holmberg (1960) and Delling (1978) have argued about precisely when distance education began but one can accept the view of Peters (1973) that it can only follow on the relative industrialisation of a society. Programmes which fall within the definition given have been in existence for one hundred years.

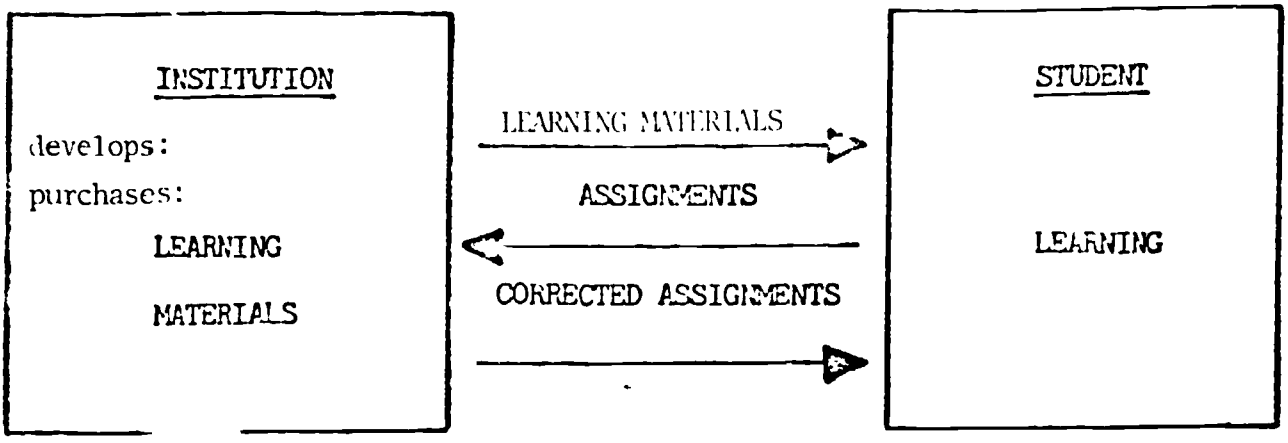
Rapid developments have occurred in the last decade with gains in both the quantity and quality of provision. An extensive higher education offering has been added to what was previously mainly a further education area. Government-sponsored organisations have taken the initiative in what was formerly an area dominated by proprietary institutions.

Writings by Holmberg (1980) and others which show the interrelationship within the field of distance education of both privately sponsored institutions and those that are publicly supported have occasionally been queried by spokesmen of distance universities created in the 1970s. It seems that these universities wish to forget the past which has not always been glorious (Weinstock, 1976) and claim that distance education changed its nature in the 1970s.

The position taken up by Holmberg seems to coincide with that of the general public which tends to place private, government and university institutions teaching at a distance in the same category. So too do educational administrators, particularly those who administer institutions in conventional systems. The contention in this monograph is that there is a certain cohesiveness in the field of distance education. In the next section an effort will be made to identify some of the elements which contribute to that cohesion.

It should not be thought, however, that institutions which teach at a distance a.e uniform. When examined from the point of view of the way that sudents' learning is linked to the learning strategies developed by the institution, four main groupings can be identified:
the correspondence school model;
the counsultation model;
the multi-media system and
the integrated mode.

The correspondence school model

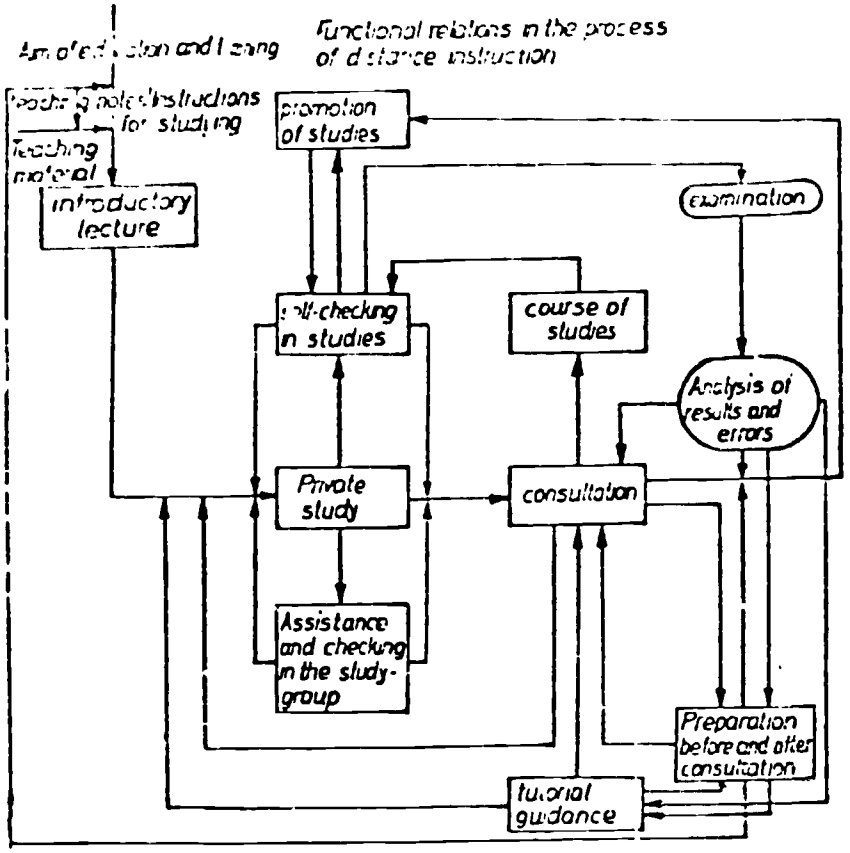


The correspondence schools send learning materials by post to the student, the student studies the materials and posts them back to the institution which marks and comments upon them and posts them back to the student. The student studies the comments, completes the next assignment and the process is repeated.

Correspondence study institutions frequently have a philosophy that suggests that students enrol with them becaus hey 'want to be left alone', that student support services can int ge learner autonomy or that seminars for students do not add to student learning and are not desired by the students.

This is a model which emphasises the correspondence element in distance education. It is used widely throughout the world by both government-supported and proprietary institutions. (Glatter and Wedell, 1971)

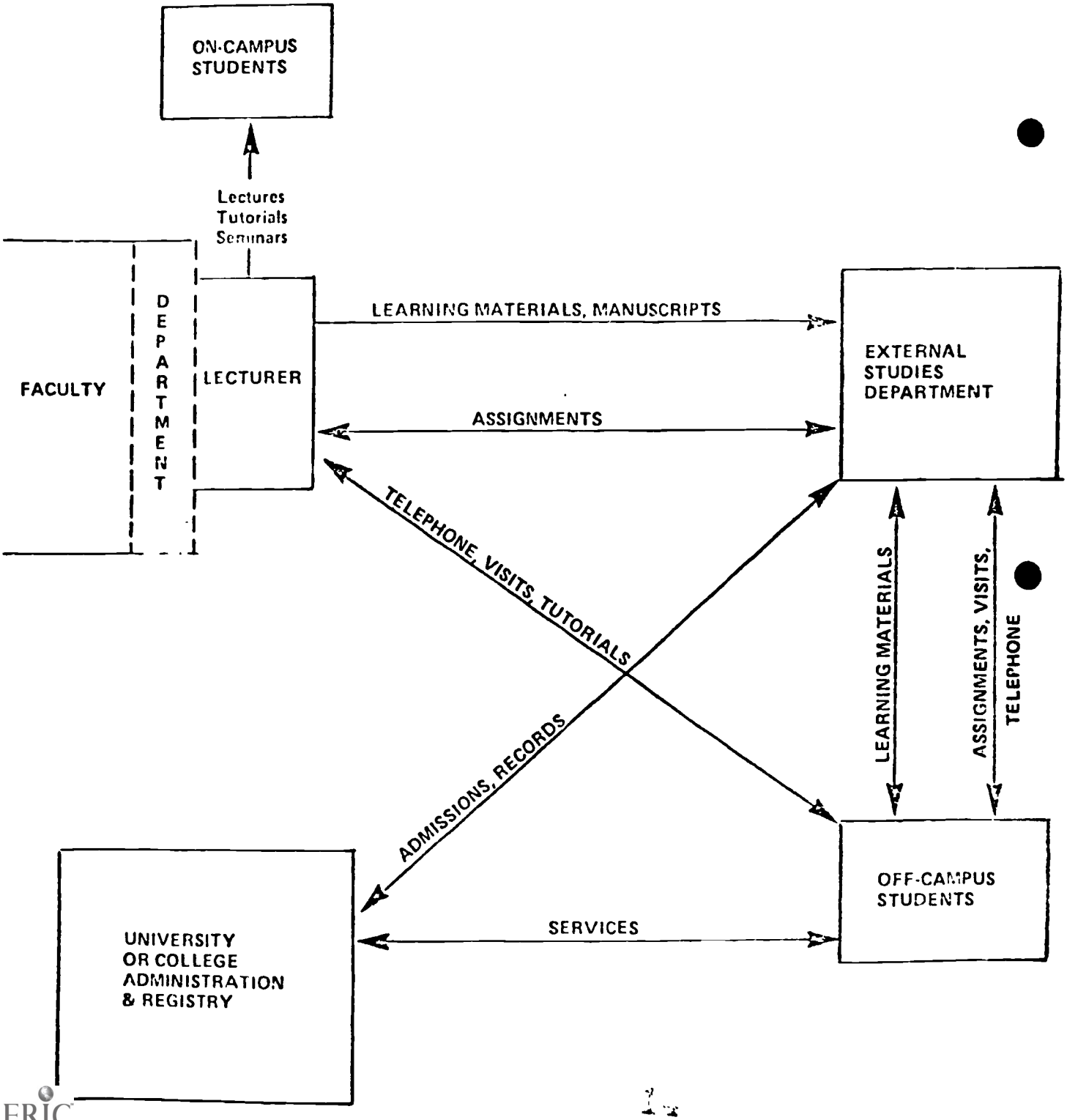
The consultation model



This model of distance education is important because the correspondence element is reduced to a minimum and the emphasis (Dietze, 1978) is placed on compulsory fortnightly attendance at seminars (consultations). Once the learning materials are developed and distributed to the students, the system relies heavily on private study, with motivation,

clarification and evaluation provided by the seminars. This model suggests that distance education (Möhle, 1977) should move as little as possible away from conventional, lecture-room teaching if it wants to provide the climate for a successful educational programme. (Möhle, 1978). The model illustrated is that described as Fernstudium in the German Democratic Republic. (Möhle, 1980)

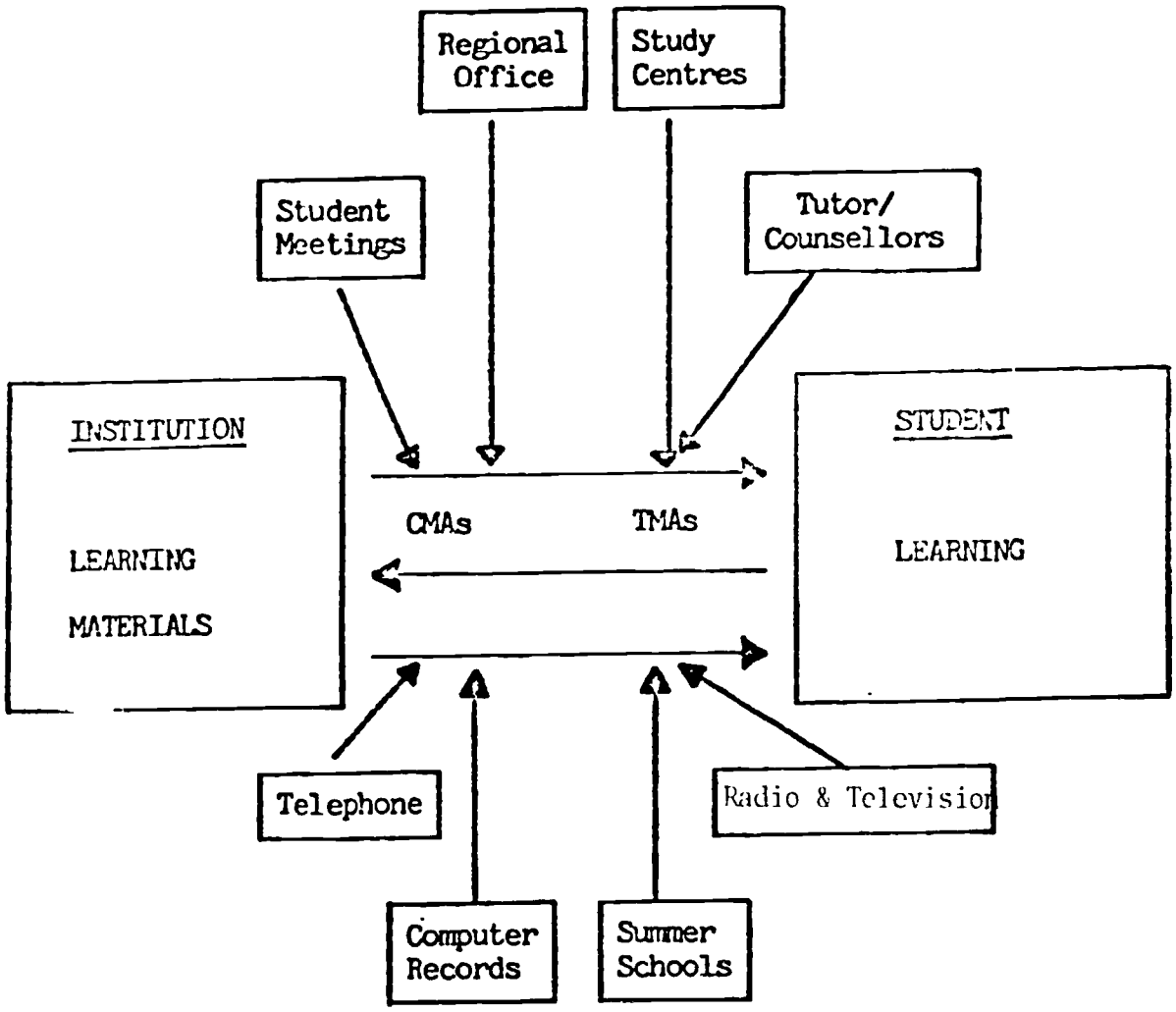
The integrated mode



External and internal teaching is integrated. The same staff teach and assess both sets of students, who are enrolled in the same courses, take the same examinations and qualify for the same degrees and diplomas. Because academic staff have internal teaching commitments to conventional students, besides the responsibility of developing learning materials for external studies and then tutoring them, an External Studies Department is set up to relieve them of administrative details. This department frequently has no teaching function but looks after the production and distribution of course material, student records, statistics and student support services. (Smith, 1979; Laverty, 1980).

This system is found mainly in higher education in Australia. Systems with some similarities exist in Zambia, Sweden, Canada and the Centres de Télé-enseignement Universitaire in France.

The multi-media system



In a system similar to that of the Open University of the United Kingdom the link between learning materials and learning is assured by as coherent a structure as possible. The student is supported by a wide range of activities, most of them optional, in an effort to achieve a satisfactory educational experience and prevent avoidable drop-out.

The proponents of this system as it exists at the Open University in the United Kingdom today would claim that the student who graduates with a B.A. (Open) degree has achieved a standard similar to that achieved by students awarded a B.A. degree from most other British universities. They would also claim that retention rates at the Open University are satisfactory and that the university has, in fact, no drop-out problem. The major drawback is the annual cost of maintaining this structure. When salaries of part-time staff are included, the cost of student related services would consume up to one-third of the Open University's annual budget. (£50m. in 1980)

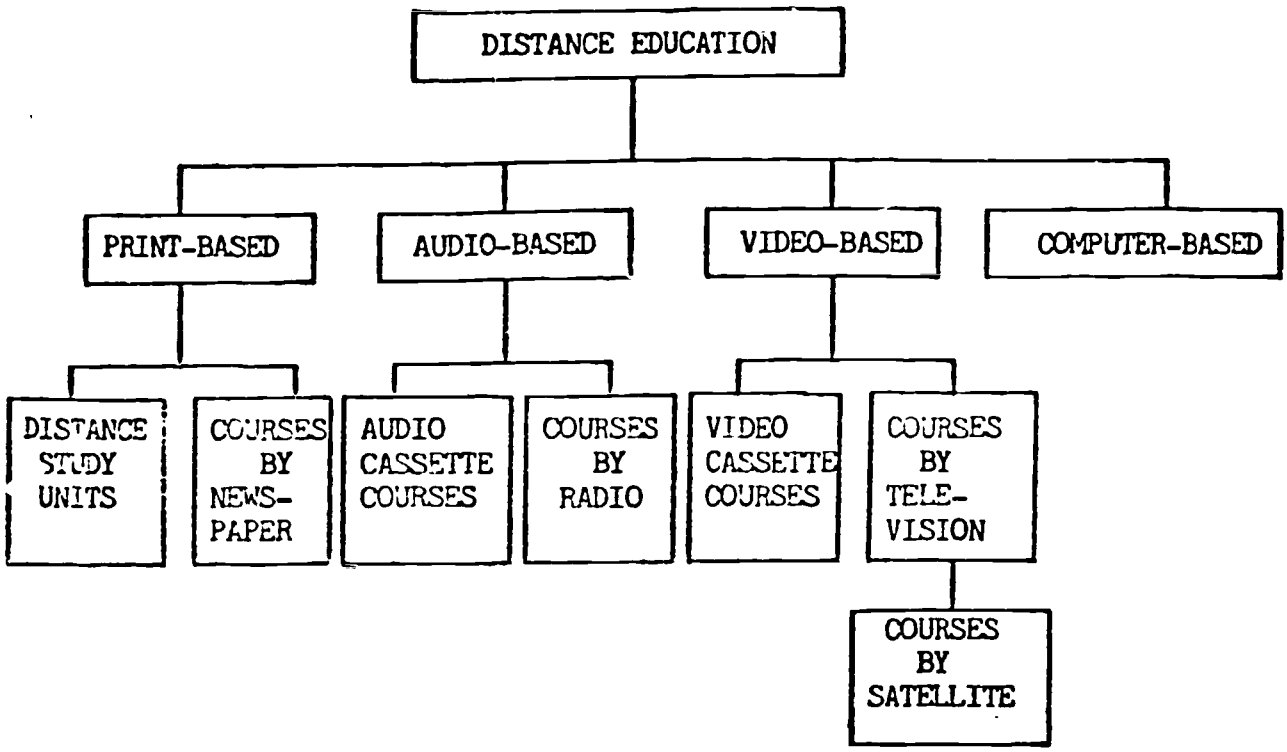
Those who accept a model with extensive student services would query the proponents of the first model on two counts: the quality of the educational experience provided and the problem of drop-outs that, in general, remains unsolved after one hundred years' experience. They would suggest that model 1 is suitable, at most, for further education (technical and vocational colleges) but not for higher education (universities and university-orientated colleges).

The second model can be queried on the grounds that it is too inflexible for any but a planned economy and it is frequently suggested that it approaches so near to conventional higher education teaching that it is doubtful whether it should be included within the scope of distance education.

The validity of the 'integrated mode' is challenged by those who feel that if a lecturer has divided loyalties, he may give his first attention to his classroom students and the external group may become an appendage to the system. It is suggested two year old recent school-leavers in the face-to-face situation do not mix easily with those needed for an often much older off-campus group.

Choice of medium

Distance education institutions, whether they be public or private and whatever didactic model they follow, can be identified by their use of technical media as the basis for the learning materials which are prepared for the students. A possible presentation of the bases of the learning materials is given schematically here:



By far the great majority of distance education programmes are print-based. The teaching basis of the Open University, for example, is approximately 80% print-based, 10% broadcasting (radio and television) and 10% face-to-face seminars and summer schools. Attempts have been made to construct multi-media systems incorporating two or more of the elements outlined in Figure 5 as the basis for the learning materials and an extensive debate has ensued on the relative merits of the different media, especially radio and television. (Bates and Robinson, 1977)

3. NATURE

Otto Peters has argued:

> Correspondence instruction is the most industrialised form of instruction, and the usual theoretical criteria for the description of traditional instruction do not help much in analysing correspondence instruction, (1971: 225)

and even more strongly:

> Wer sich heute professionell mit Unterricht befaßt, muß davon ausgehen, daß zwei streng voneinander zu trennende Unterrichtsformen zur Verfügung stehen, nämlich der traditionale Direktunterricht mit seinem Grundmedium des kommunikativen Handelns und der industrialisierte Unterricht auf der Basis des technisch vermittelten und daher vergegenständlichten zweckrationalen Handelns. (1973: 310) (4)

If the position taken up in these two quotations is true, then we are faced with serious problems. Administrators of educational systems do not often indicate that they consider distance education to be distinct from conventional education. 'A fringe form of ordinary teaching' - the position frequently taken. Practitioners of distance education rarely attribute to distance education quite the same distinctness from conventional teaching that Peters does. As most of them teach, or have taught, in a conventional setting they should be well able to perceive and comment on the alleged difference.

There is the further problem that the question of distance education has always been bedevilled by the tacit assumption that we know what it is. Most effort of research in this field has been practical, or utilitarian or mechanical, and has concentrated on the logistics of the enterprise. In Aristotelian terms it has dealt, not with the essence of the problem - an understanding of what distance education is - but on the accidents: the events and actions that accompany it. Thus we have a lot of information about students, their background, their reasons for studying (McIntosh, 1980), their relative progress (Keegan, 1980a); there is a lot of discussion (Sims, -; Dohmen, 1977) of learning materials, of choice of medium and means of distribution. Apart from Peters' work and more recently Bååth's (1979), Correspondence education in the light of a number of contemporary teaching models, little analysis has been made of the nature of distance education.

Four bases for an analysis of the nature of distance education are suggested by Peters' work: didactic structure; learning strategies; management and sociological characteristics. To these have been added a fifth which may be considered central to any distance system: the linking mechanism between learning materials and learning.

Didactic Structure

The nature of the didactic structure of distance education has been described as follows:

> In traditional education a teacher teaches. In distance education an institution teaches. This is a radical difference. In traditional education the teacher is present in the lecture room with students and his success often depends on the rapport he can build up with students: personality and even idiosyncracies may be central. In distance education a teacher prepares learning materials from which he himself may never teach. Another teacher may use the materials and evaluate students' work. The pedagogical structuring of the learning materials, instructional design and execution may be assigned to others. Personality needs to be played down, idiosyncracies eliminated. The teaching becomes institutionalised. Different skills are needed as even part of the content of what is taught may be contributed by others. (Keegan, 1980b: 19)

The institutionalisation of teaching in distance education is shown by the fact that courses continue in existence at the university or college offering them after the professor or lecturer responsible for producing them has left the institution. In conventional institutions the same course cannot be taught once the lecturer has left; his replacement will introduce some modification of approach or delivery even when teaching to the same syllabus. Even in a distance institution where full-time staff are used both in the development of course materials once developed, there can be no guarantee that the lecturer who developed the materials will teach students from them. The course becomes a course of the institution and the teaching, tutoring and assessment of the course may be assigned to other full-time or part-time staff.

The institutionalisation of teaching is even more clearcut in those distance education institutions in which part-time staffing for both the development of course materials and teaching therefrom is the

norm. Here it is clearly the institution that teaches: the development of course materials is contracted out to writers who are employed only for the period of writing; their manuscripts are edited by the institution and frequently published without the author's name. Teaching too, may be anonymous: enrolment, counselling and enquiries are handled by the institution; the student may never meet his tutor, may not be given his telephone number, nor even, in some systems, his name. Teaching is an institutional responsibility: its computer may do the assessment and even write commentaries and advice on students' work. Students enrol in D333 or M123 not in Professor Brown's Geography course or Dr. Smith' Chinese History as in conventional institutions.

Central to the didactics of distance education is the pedagogical structuring of learning materials and there is a growing literature on the subject that points to the difference in skills between lecturing and conducting tutorials in face-to-face institutions and designing distance education materials. Competent conventional academics, the literature seems to state, have two skills neither of which is applicable to teaching at a distance: the delivery of lectures and other forms of face-to-face instruction and the preparation of journal articles for their peers.

When interviewing for distance education positions on the other hand, one seeks, firstly, competent academics; secondly, competent academics who can write; next, academics who have written or could write textbooks; finally, academics who can write distance education courses. Bååth (1973: 65-89) has made the classic statement on the didactic construction of distance education courses and there is no need to repeat it here. Many of the skills listed by Bååth are quite different from those of conventional teaching.

Design is a fundamental constituent of the pedagogical structuring of learning materials and the instructional content cannot be divorced from it. Although modern instructional theory (Burris, 1976: 133) emphasises the primacy of content and few would claim today that 'the medium is the message', the message to be learned is, nonetheless, affected in this mode of instruction by choice of

typeface, layout, illustration and use of colour and other production decisions. When the learning materials are audio-based and video-based, production techniques become even more central and at the Open University have led to lengthy discussions between academics and B.B.C. producers on the relative emphasis to be given to education, production techniques are crucial in distance education systems and, in the opinion of the present author, final decisions on design rest with the academic and not with the graphic artist when agreement cannot be reached. This remains so in spite of the fact that in most of the systems studied in preparation for writing this monograph, academics showed little knowledge of, or interest in, production techniques. This is attributable to the fact that many of them had responsibilities to conventional education in addition to their distance teaching or that the institution employed intermediaries, known as instructional designers, to bridge the gap between content and communication medium.

In institutions where a course-team approach to the design of distance education materials is used one additional barrier between conventional and distance teaching is provided: the content of a lecturer's instruction is modified by others and part of the content may be contributed by others. This is not the place to discuss the importance of the course-team approach in eliminating idiosyncracy and prejudice from instructional content and in ensuring that the course that is taught can really be claimed by the institution as an approved course (sometimes (Crick, 1980: 125) because all the academics who have contributed to it wish to disown it), nor the difficulties in this approach of maintaining dynamism and avoiding a stereotyped middle-of-the road approach. What is at issue is the nature of the communication between teacher and learner in this system of education. Far from the lecturer being able to communicate his teaching directly to his students, he may have to accept the constraint that part of the content of what is taught may be contributed by others. To a lesser extent this result is brought about by the editing procedures of those institutions which do not use course teams.

The contention is that from the point of view of didactic structure there is a clear difference between conventional education and distance education. This is because the skills that are required in

technological communication are not those of person-to-person communication; skills in instructional design have to be supplied in distance education - preferably by the academics who provide the content. It is the institution rather than the individual who teaches, especially when a course-team approach is used.

The corollary is that academics who accept a full-time position in a distance education university or college automatically accept a radical diminution of that academic autonomy (Die Freiheit des Lehrens) that is so prized in a number of national education systems. They accept that the content of the courses that they teach may be modified or complemented by others and that the institution rather than the individual professor will be credited with the success of the course. They accept too a responsibility for developing skills in instructional layout and design, skills not normally associated with academics, if they are competently to perform their role.

Linking of learning materials to learning

In the attempt to throw light on the nature of distance education by comparing it with conventional education the previous section considered the role of the teacher; the role of the learner will be considered in the next. This section considers the linking of the two. For this purpose, views of the linking of teaching and learning in conventional education are presented from a generally accepted philosophy of education, (the writings of R.S. Peters have been selected) and then compared with distance education.

Central to R.S. Peters' theory is the linking of teacher and learner by what he calls 'intersubjectivity':

> At the culminating stages of education there is little distinction between teacher and taught; they are both participating in the shared experience of exploring a common world. The teacher is simply more familiar with its contours and more skilled in handling the tools for laying bare its mysteries and appraising its nuances. Occasionally in a tutorial this exploration takes the form of a dialogue. But more usually it is a group experience. The great teachers are those who can conduct such a shared exploration in accordance with rigorous canons, and convey, at the same time, the contagion of a shared enterprise in which all are united by a common zeal. (1970: 104)

And again:

> Respect for persons, enlivened by fraternity, provides the warmth in which the teacher can perform his cardinal function of exhibiting the form of thought into which he is trying to initiate others. It is one thing to understand the canons of any discipline or mode of conduct; it is quite another to apply them with skill and judgment in particular circumstances. Judgment, said Quintilian, is the final flower of much experience. But such experience has to be acquired in the company of a man who already has judgment; it cannot be learnt from books or formal lectures alone. (1970: 106)

Fundamentally to be differentiated from the process of initiation, based on intersubjectivity and group experience, which is characteristic of R.S. Peters' view of education, is that form of education in which, by definition, the teacher is permanently separated from the learner. Education, as described by R.S. Peters (1972) is based on interpersonal communication and governed by the rules of personal interaction. Distance education is based on communication by mechanical and technological means and governed by the efficiency of the mechanisms used. It treats the learner as an individual: the group is absent.

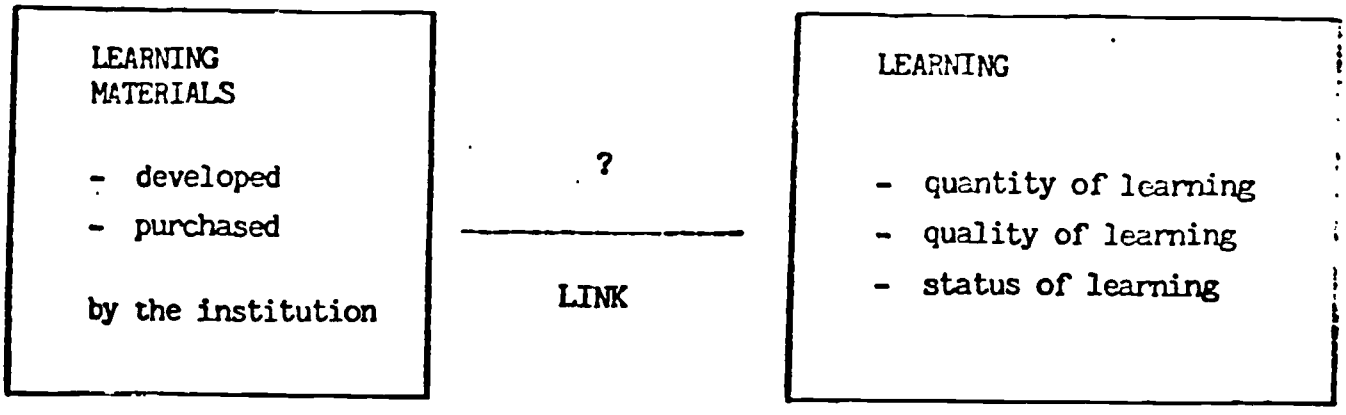
One can pursue the analogy between conventional education and distance education further. Sometimes the interpersonal communication which is central to conventional education fails: students sleep during lectures, tutorials are boring, learning does not occur. So too it is frequently necessary for the distance system to provide a means of linking between materials (print, audio-, video-, and computer-based) and learning.

Administrators of distance education systems often forget to provide this linking. They feel that once the learning materials have been developed and dispatched to the student, the job is done: learning will occur. If 'drop-outs' have been one problem for which the administration of distance ..tems has been criticised, non-starters have been another. Well-produced learning materials remain unopened when they are delivered by the postman, or, if they are opened, no learning takes place.

The need for a linking system in distance education is reemphasised by the absence of the non-verbal domain of interpersonal communication in teaching at a distance. This weakness is rarely recognised by distance educators and has received little analysis in the literature of distance education.

Smith (1979: 638) has outlined the categories of non-verbal communication which are influential in education: environmental factors; proxemics; kinesics; touching behaviour; physical characteristics; paralanguage; artifacts. He claims that these characteristics have significant potential in helping to understand better the teaching process. They are totally absent in distance education.

The importance of a linking system in distance education to replace the intersubjectivity of conventional education and the presence of the learning group does not deal solely with the elimination of non-starters and drop-outs. There is a need to guarantee in addition the quality of the learning experience and the status of the learning once it has taken place. This can be represented schematically thus:



Kevin C. Smith, of the University of New England, has been one of the commentators on distance education who has seen most clearly the importance of a linking system as the basis of a distance education administrative system:

> External studies will not operate effectively just by offering carefully prepared courses and marking assignments. All too many systems at home and abroad bear testimony to this with catastrophic withdrawal and failure rates. (Smith, 1979: 35)

The 'cohesiveness and underlying strength' of the administrative system for linking learning materials to learning is seen by Smith as being central to the success of any distance system. One might add that this infrastructure is often costly to establish and to maintain, and that the importance of providing such a system is central to distance education and differentiates it clearly from conventional education. In conventional education the learning exchange is automatically set up when teacher and student meet and does not need to be provided for by an artificial and often costly administrative mechanism.

The theoretical analysis of this section, to have an aura of validity, must be checked against the touchstone of successful practice. A satisfactory benchmark is the practice of the Open University of the United Kingdom:

> The Open University maintains a personal and continuing concern for and interest in, each of its students. This element is arguably more developed in the Open University than in any other distance teaching system. Indeed, it is in this element alone that the Open University is now unique. There are, at present, many similar institutions offering a teaching package, normally written materials, but sometimes also with audio-visual support through broadcasting or cassette, and some of these teaching packages are similar in standard to the Open University's teaching materials. I am aware of no comparable support service for students learning at a distance. It may well be therefore that it is this individualised support system which is the all important ingredient in the low drop-out rate which continues to elude other distance teaching systems. (Sewart, 1980: 177)

Basic to the nature of distance education is the necessity of replacing the interpersonal communication of conventional education by a mechanical or technological means of communication and the importance of linking learning materials to the possibility of students' learning by as coherent a structure as possible.

The role of the learner

Otto Peters claims that the role of the learner in distance education differs from that in conventional education and is characterised by an insistence on skill-learning, emphasis on learning for qualifications, problem-solving procedures and danger of drop-out. (1973: 295)

In addition to the characteristics outlined by Peters the distance system gives a radical new meaning to the concept of the independence of the adult learner. In this system the learner is responsible for initiating the learning process and, to a large extent, for maintaining it throughout. There are real benefits for students in the fact that they are always actively involved in their work, not just passively attending as can happen in a class or lecture situation. But the responsibilities, often unexpected by students, of initiating and maintaining a study programme are real too.

Insufficient attention has as yet been paid by educational administrators to the role of motivation and the absence of the support of the group in a distance study programme and the differences which this entails with the situation of the learner in a conventional programme. If an administrator considers that distance education is similar to conventional education, the unique role of learner responsibility in the distance system will not be recognised and administrative structures will not be developed to cope with it. Successful steps have been taken by a number of institutions and this section concludes with ideas from Athabasca University and the Open University.

A recent article in Teaching at a Distance puts the problem well:

> Independence is a striking characteristic of the Open University students. The independent learner can, however, easily become an isolated learner and then cease to be a learner at all from lack of stimulus, encouragement or advice at the right time. Correspondence may be the best vehicle for distance study at degree level but on its own it lacks the dimension of personal interaction and rapport between tutor and student that so many not only need but expect as a part of learning. (George, 1978: 19)

Daniel, formerly of Athabasca University, has laid a theoretical basis for administrative strategies in this area with his now frequently-quoted dictum: 'interaction and independence: getting the mixture right'. Daniel here parts company with a number of influential writers on distance education who emphasise independence more strongly than he; Moore and Wedemeyer are probably the best known. (Daniel and Marquis, 1979; Wedemeyer, 1977)

There is little doubt that Daniel is right. If a student wants total independence he should not enrol in a distance education programme. I have listed (Keegan, 1980: 26) and so has Peters (1973: 101) the range of other study options available. They include: education by letters, teach yourself manuals, teaching kits, radio and television programmes, independent study and private reading. The nature of distance education is different from all of these (Keegan, 1980: 25-29); its administration involves a careful balance between interaction and independence.

The experience of the Open University is again chosen as a benchmark against which the theories presented above can be checked. In this case the practice of the Open University is presented from the writings of Sewart (1978, 1980). Sewart is an important authority because of his extensive experience lecturing on Menander and Terence in the classics department of a conventional university, the University of Hull. He subsequently transferred to the Open University, where his interests lie in the provision of support services for the education of adults at a distance.

> Failure to recognise and concentrate on individual needs (in distance education) arises out of a failure adequately to appreciate the difference between the conventional student and the student learning at a distance. Conventional students, in digesting the academic pabulum of their chosen study, exist within a highly artificial and wholly supportive framework. For most of them their study is merely a further stage in an unbroken linear development which began when they were infants. Whereas the infant school class and the university lecture have easily discernable differences, they are generically similar in offering a group learning situation with a face-to-face teacher/student contact, and the subsequent possiblity for instand feedback of an oral and visual nature. The group learning situation is itself supportive of the learning

process, not only because of the potential interaction between students in relation to the academic content of the course - learning through discussion with one's peers - but also because the group learning offers a benchmark to the individual members of the group. The students might naturally expect to fall short of the comprehension of a particular subject which is demonstrated by their teacher. The benchmark of "how far short?" or "how much of this are we expected to understand?" is provided by the group, and through the group a common denominator of success or achievement is established for all its members.

The situation of students learning at a distance is wholly different. Often they are returning to learning after a number of years. For such people the concept and practice of their previous learning is somewhat clouded. They have an experience of life and work and hence a framework into which their new learning has to be set. Often the students learning at a distance are part-time. Their work and families are of prime importance. It is not open to them, as it is open to the conventional students, to devote themselves entirely and with singular purpose to learning. Moreover, the process of learning at a distance is generically different from the conventional mode. The swift feedback available from the face-to-face learning model is almost entirely absent. The supportive environment of the peer group is lacking and the benchmark of achievement and, deriving from this, the maintenance of the individual's confidence is difficult to establish. (Sewart, 1980: 160)

Sociological characteristics

Otto Peters has claimed that a propensity to alienation is one of the characteristics of a distance system. Some brief comments on this position are offered here particularly with regard to staff in distance education institutions.

One can distinguish three models of staffing for distance education:

Part-time model: In this model the development of learning materials for students and the marking and comment on students' work is undertaken by staff who have commitments (often seen as more important) to students in other institutions, to internal students in the same institution or to other professions (law, accounting etc.). This is the most widespread form of staffing of distance education and is used extensively in the correspondence school model (Model 1 above) and exclusively in the integrated mode (Model 3 above).

Full-time/part-time model: Learning materials are developed by full-time academic staff (with certain portions of the writing contracted out to specialists) and the marking and supervising of students' work is conducted by part-time tutors. This system is used extensively in the multi-mode systems (Model 4 above).

Full-time model: Full-time staff are involved in both the development of learning materials as well as the marking and supervising of students' work. Certain portions of the course writing and overflow numbers of students' assignments are handled by part-time contract staff or marked by computer.

The Centre National de Tēlē-enseignement in France and the Open College of Further Education in South Australia are examples of institutions which use this staffing model for what are basically correspondence school systems (Model 1 above).

A study of the nature of distance education is not the place to discuss the relative merits of the staffing structures for this type of education that are found throughout the world. Part-time staffing has been more common with the Open University employing 5,482 part-time lecturers at the time of writing, seventy-three per cent of whom are employed as full-time lecturers in other British higher education institutions.

I have alluded to some of the tensions that are implied in such a structure elsewhere (Keegan, 1979):

> For many OU tutors their full-time teaching occupation is their major interest. However, if they teach at a College of Technical or Further Education and not at a university there can be more status in the OU work. For nearly all of them teaching with the OU is the first time they have ever been checked in their academic work, the first time their written comments on students' work has been monitored, or their teaching has been observed.
>
> The tension of teaching someone else's material and being monitored for doing it can be very real. There are those tutors who react with hostility to the course material and those who are critical of it - though this can be stimulating to the brighter student. There is the boredom of teaching, say, course A100 for the fifth year running, as very little turn-over of part-time staff occurs in the employment situation of 1979.

I have argued above that the entry of a number of universities into the field of distance education has not altered its nature. It has, however, introduced a larger number of full-time academics into it: the Open University, for instance, employs more than 2,000. The three major roles usually assigned to university staff: teaching, research and community service do not mesh easily with the nature of distance education, and may contribute to the possibility of alienation.

It is important that university academics who are employed full-time in distance education maintain parity in professional status with their counterparts in conventional universities. This is usually achieved by research publications in academic journals and conference papers. Success in such activities is vital both for the status of the institution teaching at a distance and for the individual to maintain the possibility of transfer or promotion to a conventional academic position in his discipline.

Distance education, however, tends to attenuate that freedom of research which many academics claim (Die Freiheit der Forschung). Besides research in their discipline, research into the theory and practice of distance education by distance education academics is also necessary. Even discipline-based research needs from time to time to include research on how best that discipline can be taught at a distance - by print, aural or visual means. It is inadequate that discipline-based research in distance education be left to researchers who lack training in the discipline, like representatives of the I.E.T. or Z.I.F.F.

Administration

Perry (1979: 47) has written of the Open University:

> From the outset we foresaw that we would be operating not only an academic establishment, but, in a very real sense, a sort of commercial establishment as well. The latter would require a form of government quite different from that which was common in conventional universities.

Peters (1973: 206) uses 'industrialised' rather than commercial:

> Die Struktur des Fernunterrichts wird in erheblichem Maße von Prinzipien der Industrialisierung bestimmt, und zwar insbesondere von denen der Rationalisierung, Arbeitsteilung und Massenproduktion. (5).

Smith and Daniel (1978: 2) cite Perry when they seek to justify the management structure of Athabasca:

> Perry suggests that, in order to flourish, an open university operation requires a high degree of institutional autonomy. This is because an open university, whilst it may share with other universities the fundamental mission of teaching, research and public service, undertakes this mission in an entirely different manner. The new teaching/learning system on which an open university is based has repercussions on every other aspect of the operation, from governance, management and leadership to the work of the faculty and the design of physical plant. Almost every aspect of an open university operation makes a fascinating comparison with the conventional university.

Snowden and Daniel (1980) in an important article have rejected conventional financial management for distance education institutions. They show that the fundamental cost model of conventional education:

$$\text{Faculty salary expense} = \frac{\text{WSH x AFS}}{\text{ACS x AFL}}$$

where WSH represents 'weekly student hours', ACS 'average class size' and AFS and AFL are 'average faculty salary and load'. Their formulation is on a quite different basis: a basis which is quite foreign to the administration of conventional systems:

$$TC = a_1, (x_1 + x_2/l) + by + c$$

where TC = total cost, and

a_1 = course development costs per credit

b = delivery costs per weighted course enrolment

c = overheads

l = lifetime of course

and x_1 = course credits 'in development'

x_2 = course credits 'in delivery'

y = weighted course enrolments.

The claims of Snowden and Daniel that distance education institutions can neither be staffed nor funded on models drawn from conventional education are impressive and carry implications for both conventional and distance education administrators.

The theoretical positions of Perry, Peters, Smith, Snowden and Daniel are borne out by an analysis of the day-to-day administration of distance education institutions. One finds preoccupations with lead times, deadlines, print runs, job schedules, typefaces, warehousing, delivery and dispatch: preoccupations which are not characteristics of conventional educational administration.

The research on which this monograph is based brought the writer to distance education institutions in India, Ireland, United Kingdom, Netherlands, France, Federal Republic of Germany, German Democratic Republic, Italy, U.S.A., Canada and Australia. A significant, and quite unexpected, conclusion of the study is that the design of the physical plant for distance education is quite different from that for conventional education. Apart from the fact that students are not normally invited to the distance institutions at which they study and the almost complete absence of lecture and tutorial rooms, the central position of the warehouse was an unexpected feature of distance institutions.

Nowhere would Otto Peters get better evidence for his theory of the industrialisation of education than in the hangar-like warehouses of the Open University at Wellingborough with current stock of 3,500,000 course units, besides audio-visual items and laboratory kits, allied to a dispatch system which handles 20,000 pieces of mail each day.

4. ANALOGUES

There have always been those who have objected to any separation between conventional education and distance education and these objections must be considered here. From time to time there may be administrative, or even educational reasons for fusing these two forms of education and for blurring the distinctions between them.

A study of the nature of an area of educational endeavour, such as distance education, has to focus on the concept to be delineated and neglect those administrative situations in which elements extraneous to the concept under analysis are introduced. This has been done in the present study. Nevertheless, as many philosophical positions have shown, the consideration of objections to the hypothesis can bring important clarification.

Three objections will be sonsidered here: (i) the claim that much adult education, especially at post-graduate level, is individual education and therefore synonymous with distance education; (ii) the claim that many of the techniques of educational technology can be used in conventional education as well as in distance education and blur the demarcation between the two; (iii) the claim that distance education is similar to or a part of educational technology. It will be shown that such programmes are analogous to distance education, that is that they are different entities having certain elements in common.

The relationship between distance education and higher-level university study

This objection claims that it is incorrect to make a stark black and white contrast between traditional and distance education. This view is often encountered in the United States of America and Australia, particularly in those institutions where distance education is organised by a purely administrative staff and there are no academics specifically designated to distance education for the whole, or even the major part, of their workload. In these institutions the goal is often to offer traditional courses to distance students: and academics say they are 'not in the

business of producing some new form of higher education by the assembly-line method of the most industrialised form of education' and that their distance programmes are similar to on-campus courses.

Typical of this objection is the statement:

> Much confusion stems from the popular misconception that correspondence instruction is somehow different in kind from resident or institutional instruction. This simply is not so. Correspondence instruction shares the same goals and the same educational philosophy as many different methods of instruction. It differs from them primarily in the means, in the method itself. (Mackenzie, Christensen and Rigby, 1968: 5).

The objection might be developed along the following lines: 'Good university education is essentially self-education by the learner. The lecturer's (or teacher's) role is that of a facilitator. It is incorrect to state that in traditional education learning takes place in the classroom and that the teacher's role is therefore of crucial importance. Virtually all courses and subjects have their text and reference books which are at the heart of the learning process and which are studied away from the class room in private. The vast bulk of any student's learning is done in private by individual study'.

The author accepts the previous paragraph as a description of a satisfactory form of university study, especially at post-graduate level. He does not consider that this makes it identical to distance education. In distance education the separation of teacher and learner is more fundamental, the absence of the group to which the learner belongs is more complete, the instructional content is carried only by the technical medium, though text and reference books will be studied as well. R.S. Peters' view of the 'intersubjectivity' that takes place in the educational process is applicable also to most university courses, no matter how much private study or library research accompanies or follows it. Distance education is often harshly criticized by administrators of conventional university systems because such personal contact is lacking.

Sparkes of the Open University (1979: 2) sums up the position well:

> The main communication channels in normal face-to-face teaching (namely lectures, tutorials, laboratories, supported by student-to-student discussion and large libraries) are not available, or only to a limited extent, in distance teaching. This means that the largely intuitive conversational, trial-by-error teaching techniques common in face-to-face teaching, cannot so readily be used in distance teaching: they have to be replaced by a more detailed understanding of the educational capabilities and limitations of each communication channel.

The use of educational technology in conventional programmes

This objection considers the role of modern media in education and claims that in many large, traditional tertiary institutions industrialised methods of producing course materials are often used. The use of modern educational technology on-campus is widespread in many countries and few significant tertiary institutions these days are traditional in their neglect of modern educational media.

Let us take an exact example. At Northeastern University in Boston the annual enrolment of 700 students in Foundations of Psychology has led to the video-taping of the first year course. Lectures are no longer delivered; students study the tapes in carrels equipped with videotype facilities. Sixteen videotypes together with an interactive textbook comprise the course. Does this form of instruction differ from distance education?

This is clearly an example in which the principles of distance education approximate most closely to a form of on-campus education and where the debate could deteriorate quickly into a question of semantics. The writer would prefer to classify the Northeastern programme as an extensive use of education technology on-campus rather than a form of distance education.

The relationship between educational technology and distance education

Any analysis of the nature of distance education would be incomplete without a consideration of its relationship to educational technology. Peters has shown that the nature of distance education requires some form of technological structuring and that, in fact, a certain level of technological advancement is necessary in a society before distance education can be established. But there is little analysis in the literature of the relationship between distance education and what is known as 'educational technology'.

The distinction between distance education and educational technology poses definitional problems of a complex nature. In what follows (i) a generally accepted definiton of educational technology is chosen from the literature, and this is (ii) analysed in the light of the discussion of distance education presented above. In conclusion (iii) rules for deciding whether a programme falls within educational technology of distance education are proposed.

(i) A comprehensive presentation of the possible communication channels in distance education is given by Sparkes (1979: 2).

> Given that in distance teaching, lectures, tutorials, supervised laboratories, academic libraries for browsing in and easy-to-contact fellow-students are in short supply, the main communication channels available or possible are:
>
> (1) textbooks and structured teaching texts.
> (2) TV (plus 'broadcast notes')
> (3) radio (plus 'broadcast notes')
> (4) audio-tape and audio-vision
> (5) tutorials and telephone conferencing
> (6) assignments with tutor comments
> (7) computer aided teaching (including Viewdata)
> (8) language laboratories
> (9) video-tapes
> (10) dial access video-tapes
> (11) home kits.

The definition of educational technology accepted for discussion purposes is taken from Elton (1979: 40). Elton commences by distinguishing 'technology in education' and 'technology of education'. A listing similar to that given by Sparkes he labels 'technology in education: a concept dominant in the 1960s but obsolescent today'.

To define 'technology of education' he quotes Rowntree (1974: 1 in Elton 1979: 41): 'it is a rational problem-solving approach to education. A way of thinking sceptically and systematically about learning and teaching'. Rowntree and Elton therefore seem to wish educational technology to be considered as some form of instructional analysis - a very different use of the word 'technology' from that intended by Peters.

Holmberg has written well of this technology of education and its importance for distance education:

> Few theories have had greater impact on educational thinking and practice than the type of behaviourism represented by Skinner and his followers. This particularly applies to the development of instructional systems or packages, correspondence courses and similar educational products. The stimulus - response theory has been very fruitful in, for instance, inspiring the so-called educational technology and the systems apporach ..... Accepting the procedures of educational technology in the sense described means adopting a technique, not a psychological theory.
> (Holmberg, 1977c: 5)

No debate on theories of instructional design can be entered into here except to point out that recent American writing on educational psychology queries much of the theory of programmed learning and early technology of education with which distance educators have been associated. Park and Burris of the University of Minnesota summarise this position:

> Most the programming principles originally set forth by the early proponents of linear programs have not been supported by the research results. The research results suggest that 'small steps with immediate feedback' may have a detrimental effect on learning, especially in situations where the probability of error is low.
> (Park and Burris, 1978: 98)

Bååth has therefore made an important contribution to the philosophy of distance education in his recent Correspondence education in the light of a number of contemporary teaching models by analysing distance education in the light of the educational philosophies not only of Skinner, but of Ausubel, Bruner, Rogers, Gagné and others.

When educational technology is considered in its broader sense as a 'technology of education'; 'a rational problem-solving approach to education', its findings are of importance to distance education especially in the area of instructional design. Both educational technology and distance education depend on the latest findings of educational philosophers and psychologists.

When educational technology is considered more narrowly in the sense of 'technology in education' the basic premise of Peters has to be maintained: communication between teacher and learner in a distance education system is achieved by technological means. Normally this is achieved by print, though there are examples of audio-based, video-based and computer-based distance education programmes.

(ii) There are, therefore, pressing needs for a clearcut analysis of the relationship between distance education and 'technology in education'. Four of these reasons are given here:

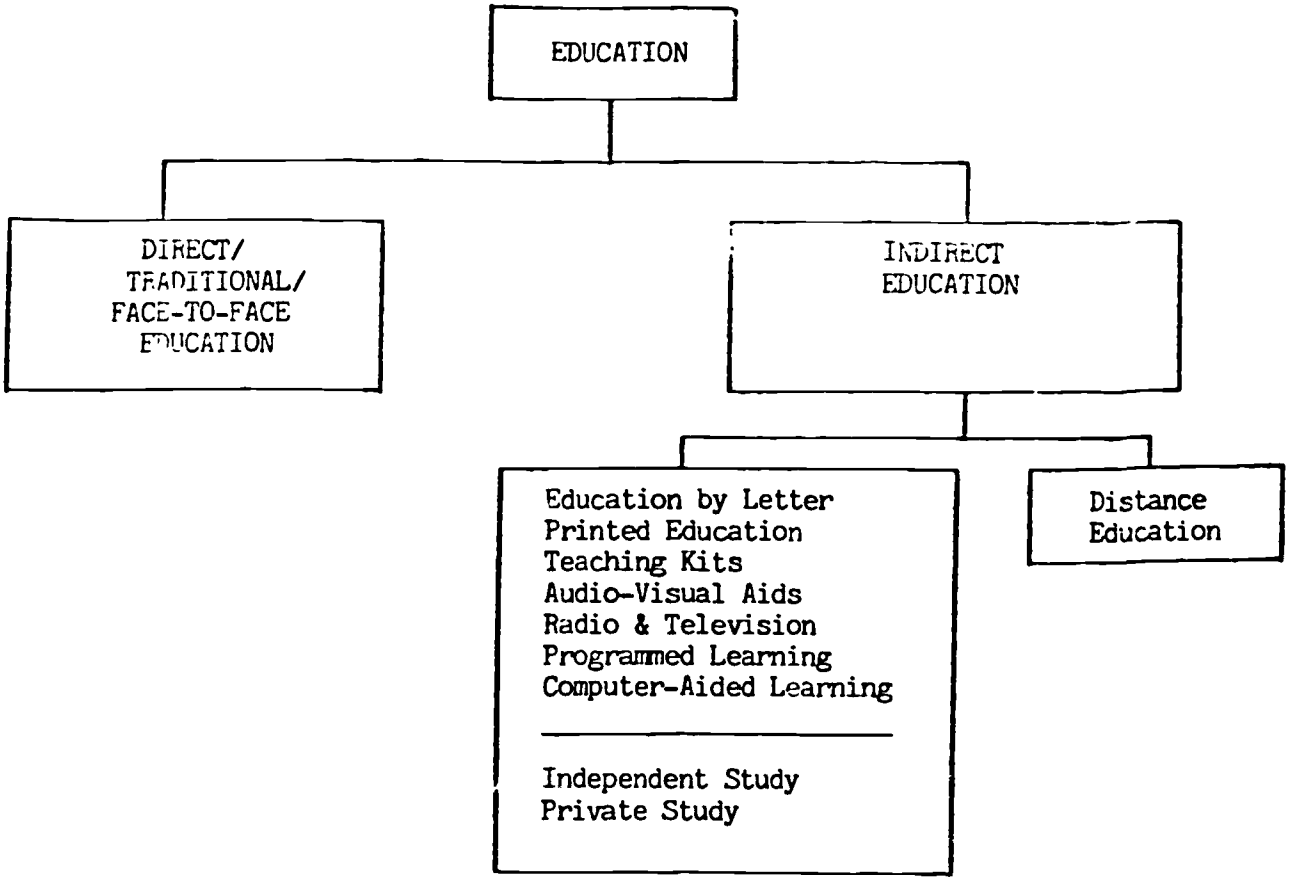
(1) In a careful analysis of the history of educational technology, Chesnais (1974) quotes Thomas Addis Edison in 1913 claiming that schoolbooks would soon become obsolete and that all teaching in future would be done by the cinematograph. The claim has been made often since about subsequent forms of educational technology.

(2) An extensive debate from Chu and Schramm (1967) to Bates and Robinson (1978) has been entered into on the evaluation of learning from non-print media, especially radio and television.

(3) It is disquieting to encounter over-use of terminology like 'university of the air' to describe systems which are basically print-based.

(4) Costly decisions will have to be made in the 1980s on the successors to the present range of educational technology.

Peters gives a useful starting point for this analysis with his distinction between direct and indirect teaching. Direct teaching is conventional, face-to-face teaching. Indirect teaching is teaching mediated by some form of technology:



Indirect teaching is divided into distance education and those forms of mediated teaching which are not distance education: these comprise the many forms of educational technology which are used extensively in face-to-face teaching.

As an example the programmes for BBC1 und BBC2 on the day of writing contained the following transmissions:

BBC1		BBC2	
6.40	Open University	6.40	Open University
	Keynes and War Economy Rich Law, Poor Law? The Suez		Transmission Lines Instrumentation: Pressure Transducers Maths: Numerical Methods
7.55	Closedown	7.55	Closedown
9.00	For Schools, Colleges	11.00	Play School
	A good job with prospects Biology Communicate! Music Time Maths Topics Merry-go-round General Studies		Where is the Green Parrot?
		11.25	Closedown
		4.50	Open University
			A School approach to Energy Strawberry Hill Riccio's Bronzes M101/7 Functions and Graphs Thermal analysis
12.45	Midday News		
2.01	For Schools, Colleges		
	Words and Pictures Out of the Past Going to Work		
3.00	Closedown		

Programmes headed 'Open University' are to be regarded as distance education programmes, whereas the sections 'For Schools, Colleges' and 'Play School' are examples of educational technology. Kenneth Clarke's Civilisation and Jacob Bronowski's The Ascent of Man, were probably conceived neither as educational technology nor as distance education. Both have been used as 'technology in education' when replayed as supportive media in face-to-face teaching in schools and colleges. When syndicated out by U.S. community colleges and universities as courses for college credit, with back-up notes, assignments for assessment, additional reading and tutoring they become distance education programmes.

(iii) The following are proposed as criteria for distinguishing between educational technology programmes and distance education:

(1) To qualify as distance education the programmes must constitute a course, usually - but not necessarily - for credit. One-off programmes and educational media supportive of face-to-face teaching are examples of educational technology. In the same way distance education institutions are not publishing houses: the courses they produce imply some form of interaction, assignments or assessment. (Some distance education institutions also publish textbooks.)

(2) In distance education the learning materials constitute the course of instruction; educational technology is usually supplementary to and provides background material for a course of instruction.

(3) In distance education enrolment in the course is obligatory. It is not necessary to enrol in an educational technology offering.

(4) In distance education two-way communication with the institution is available and face-to-face contacts are supplementary. In educational technology interaction with the institution or group making the programme is not possible and programmes are often used as enrichment material for a face-to-face programme of instruction.

5. CONCLUSION

Otto Peters' argument in favour of a differentiation between distance education and conventional education is supported by the analysis to which it has been subjected here. It seem untenable to explain the didactic structure, the communication of teacher and learner at a distance, the role of the student or the sociological and psychological features that affect both staff and students in a distance system in terms of conventional theory. Much work remains to be done fully to establish the nature of distance education, but sufficient evidence is already

available to suggest that it is unsatisfactory to apply the rules of conventional educational administrative theory to the administration and management of distance systems.

The various functions and factors of which the educational process is comprised are arranged in such different ways in distance education and conventional education that although the educational process can be seen as a unity when all its constituents are brought together, there is nonetheless legitimacy in positing extensive differences both in didactic structure and administrative theory between distance and conventional systems.

6. NOTES

(1) As this monograph is being published in Germany it has been considered best to present quotations exactly as published and not in translation. Unofficial translations or paraphrases of these passages are offered here:

> Distance education is education which either does not imply the physical presence of the teacher appointed to dispense it in the place where it is received or in which the teacher is present only on oaccasion or for selected tasks.
> (Law 71.556. 12 July, 1971)

(2) Distance teaching/education is a method of imparting knowledge skills and attitudes which is rationalised by the application of division of labour and organisation principles as well as by the extensive use of technical media, especially for the purpose of reproducing high quality teaching material which makes it possible to instruct great numbers of students at the same time wherever they live.

(3) Distance education is a form of indirect instruction. It is imparted by technical media such as correspondence, printed materials, teaching and learning aids, audio-visual aids, radio, television and computers.

(4) Anyone professionally involved in education is compelled to presume the existence of two forms of instruction which are strictly separable: traditional face-to-face teaching based on interpersonal communication and industrialised teaching, which is based on an objectivised, rationalised technologically-produced interaction.

(5) The structure of distance teaching is to a large extent governed by the principles of industrialisation; especially those of rational planning, division of labour, and mass production.

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