CHAPTER - III

THEORIES OF DISTANCE EDUCATION
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• Introduction:

Early pioneers of correspondence education, William Rainey Harper of Chicago, William H. Lightly of Wisconsin, and Hans Hermod of Malmo, wrote about the advantages of this form of education. But the historian of distance education, Rudolf Manfred Delling from Tubingen, claimed in 1966 that although institutionalized distance education had existed for about a hundred years, it was only during the previous few years that the practice of distance teaching had commenced to rely on theory. Nevertheless there was no systematic theory of distance education which might make it possible to classify practitioners individual experiences in relation to their essence. Delling states that the first theoretical work was developed in the 1950s

As theoretical approaches began to emerge in the 1970s, their development was fitful. The first major theoretical structure and to date the most comprehensive categorized distance education as an industrialization of the education process suggested by (Peters, 1973) is that the closest parallel to a distance-teaching organization was the industrialized production of goods.

The theories to date can be classified into three groupings:

1. Theories of autonomy and independence: These contributions come mainly from the late 1960s and early 1970s and the major representatives are Rudolf Manfred Delling (Germany), Charles A. Wedemeyer (USA) and Michael G. Moore (USA)

2. Theory of industrialization. Otto Peters’ work in Germany comprised comparative studies throughout the 1960s and theoretical formulation in the early 1970s

3. Theories of interaction and communication: More contemporary views from Borje Holmberg (Sweden/Germany), John A. Baath (Sweden), David Sewart (UK), Kevin C. Smith (Australia), and John S. Daniel (Canada/UK)

I. THEORIES OF AUTONOMY AND INDEPENDENCE:

In 1993, Amundsen published a major analysis of the evolution of theoretical
Distance education, adding presentation of the work of D.R. Garrison (Canada) and J. Verduin and T. Clark (United States) to the authors presented here (Amundsen, 1993).

- **A Helping Organization:**

  Rudolf Manfred Delling of the Deutsches Institute fur Fernstu-dienforschung and the Universidad Tubingen a historian and bibliographer in 1966 provided the definition:

  “Distance education (*Fernunterricht*) is a planned and systematic activity which comprises the choice, didactic preparation and presentation of teaching materials as well as the supervision and support of student learning and which is achieved by bridging the physical distance between student and teacher by means of at least one appropriate technical medium”.

  Delling sees distance education as a multi-dimensional system of learning and communication processes, with the aid of an artificial signal-carrier. In many of his writings (1968,1978) he lists eight dimensions:

  1. a learner;
  2. Society (including legislation, administration, family, etc.);
  3. a helping organization (distance teaching institutions);
  4. a learning objective;
  5. the content to be learned;
  6. the result of learning;
  7. distance;
  8. a signal-carrier

  Remarkable in his approach are his hesitation to label distance education a teaching process (distance colleges or departments are organizations which ‘help’ learning) and the absence of the teacher from the eight dimensions of the system.

  A distance education course is an artificial, dialogic opportunity for learning in which the distance between the learner and the helping organization is bridged by an artificial signal-carrier.

  From the start the concepts of feedback and two-way communications are central to Delling’s position. He sees an essential difference between learning opportunities that are *monologues* (books, newspapers, journals, documentary films,
lectures without discussion, broadcasts, self-teaching courses, and other self-instructional material) and those that are dialogic (normal classroom or school teaching, conversations, letters with answers, and distance education courses). Monologues are based on one-way communication, whereas dialogues are characterized by two-way communication.

Delling claims that world of distance education, has little of the characteristics of ‘teaching’ because there is, in general, no teacher in the system and the functions relating to student learning within the helping organization are performed by a variety of machines, people, and materials.

Delling tends to reduce the role of the teacher and of the educational organization to a minimum and throw the whole emphasis on the autonomy and independence of the learner. This is especially important because adults are normally the learners in distance programmes. According to him the adults do not accept the conventional educator-pupil relationship. The function of the ‘helping organization’ is to take over, upon the wish of learners, everything that they cannot yet do for themselves, with the tendency that the learners eventually become autonomous. When this occurs the only function left for the helping organization is to provide information, documentation, and library facilities.

Delling seems to place distance education outside the field of educational theory. He sees it falling within the range of communication processes and to be characterized by industrialized mechanisms which carry on its artificial dialogic and two-way communication processes. He reduces the role of the teacher and throws the whole weight of his analysis on the learning of the student studying at a distance.

- **Independent Study**: The term ‘independent study’ was used by Charles A. Wedemeyer (1973) to describe distance education at university level. Throughout his professional life he was Professor of Education at the University of Wisconsin, Madison and closely associated with the Independent Study Division of the National University Extension Association of the United States of America.

He uses the term ‘independent study’ to describe distance education at university level and gives this definition:
‘Independent learning’ is that learning, that changed behaviours, that results from activities carried on by learners in space and time, learners whose environment is different from that of the school, learners who may be guided by teachers but who are not dependent upon them, learners who accept degrees of freedom and responsibility in initiating and carrying out the activities that lead to learning.

Wedemeyer’s thought is generous and liberal. A major influence is the philosophy of Carl Rogers. There are two bases for his views on independent study: a democratic social ideal and a liberal educational philosophy. He considers that nobody should be denied the opportunity to learn because he/she is poor, geographically isolated, socially disadvantaged, in poor health, institutionalized, or otherwise unable to place himself/herself within the institution’s special environment for learning. Thus he claims that independent study should be self-pacing, individualized, and offers freedom in goal selection.

- The independent learner:
  
  Wedemeyer (1973) sees the independent learner as the original or ‘proto’-learner whose success in learning enables him/her to survive and he claims that each individual commences with a period of pre-school individual learning. Group instruction which evolved in schools was first intended, he tells us, for the elite, and the long history of formal education is characterized by a persistent pattern of the learner in the group - a dependent learner whose goals, activities, rewards, and punishments are decided by the policies and practices of an ever-present group of teachers.

  With respect to the space and time barriers the study on the pattern of the learner can be dissipated in six successive stages:
  
  1. The invention of writing.
  2. The invention of printing.
  3. The invention of correspondence education: the first formally structured format for the independent learner, which made use of new technology in the form of a reliable mail service in the mid-1800s.
  4. Development of democratic and egalitarian philosophies.
  5. Application of telecommunications media to teaching.
These series of developments relates to the possibility for people, cut off from the regular schools to continue learning in ever larger numbers. Wedemeyer has used three terms for such programmes: ‘independent study’, ‘open learning’, and ‘distance education’. He saw in the 1960s the re-emergence of the independent learner, with a new plan for independent programmes in areas where conventional group-based formal learning was less able to succeed.

- ‘Independent study’:

  Wedemeyer (1977) made a determined effort to establish the term ‘independent study’ as the umbrella term for this field of education both in the US and throughout the world:

  Independent study consists of various forms of teaching-learning arrangements in which teachers and learners carry out their essential tasks and responsibilities apart from one another, communicating in a variety of ways. Its purposes are to free on-campus or internal learners from inappropriate class placing or patterns, to provide off-campus or external learners with the opportunity to continue learning in their own environments, and developing in all learners the capacity to carry on self-directed learning, the ultimate maturity required of the educated person.

  It can be noticed at once that Wedemeyer’s concept of ‘independent study’ comprises two different forms of education: ‘independent study for the internal student’ and ‘independent study for the external student’. Independent study for the internal student makes freedom from lecture attendance possible for exceptional university students by the allocation of series of readings and individual study programmes. One can see elements in his thought of ideas similar to the contract programmes and educational brokerage ideas favored in some experimental American programmes of the mid-1970s. The linking of external and internal programmes in the one definition, however, tends to diffuse Wedemeyer’s ideas and the emphasis of internal independent study disappears in his later articles.

  Wedemeyer’s liberal educational theory (1961) and egalitarian social philosophy were ill-at-ease with the conventional educational system and many of his writings are marked by comments on the shortcomings of the contemporary scene both at school and university level:
Conventional teaching and learning, makes use of concepts of learning and teaching that have preserved the old mystiques, which have maintained space-time barriers to learning.

In this context Wedemeyer (1968) set out a conceptual structure for an educational system that would be more akin to his views. Most of his writings list ten characteristics of the proposed system:

1. The system should be capable of operation any place where there are students - or even only one student -whether or not there are teachers at the same place at the same time.
2. The system should place greater responsibility for learning on the student.
3. The system should free faculty members from custodial type duties so that more time can be given to truly educational tasks.
4. The system should offer students and adults wider choices (more opportunities) in courses, formats, methodologies.
5. The system should use, as appropriate, all the teaching media and methods that have been proved effective.
6. The system should mix and combine media and methods so that each subject or unit within a subject is taught in the best way known.
7. The system should cause the redesign and development of courses to fit into an ‘articulated media programme’.
8. The system should preserve and enhance opportunities for adaptation to individual differences.
9. The system should evaluate student achievement simply, not by raising barriers concerned with the place the student studies, the rate at which he studies, the method by which he studies or the sequence within which he studies.
10. The system should permit students to start, stop and learn at their own pace.

Wedemeyer noted instinctively that the only way to break what he called the ‘space-time barriers’ of education was by separating teaching from learning. This involved planning each as a separate activity. These early insights by Wedemeyer were later confirmed by Kaye and Rumble (1987).

Based on planning teaching and learning as separate activities Wedemeyer (1973) postulates six characteristics of distance or independent systems that are capable of operation from any place whether there are students - or even only one
student - whether or not there are teachers at the same place at the same time:

1. The student and teacher are separated.
2. The normal processes of teaching and learning are carried on in writing or through some other medium.
3. Teaching is individualized.
4. Learning takes place through the student’s activity.
5. Learning is made convenient for the student in his own environment.
6. The learner takes responsibility for his progress, with freedom to start and stop at any time and to pace it himself.

- The teaching-learning situation:

   Wedemeyer has presented his thoughts diagrammatically wherein he claims that every teaching-learning situation comprises four elements:
   - a teacher;
   - a learner or learners;
   - a communications system or mode;
   - Something to be taught / learned.

   He then claims that a traditional classroom could be represented as a box which encompasses the four elements as shown in Figure 1.

   ![Diagram of Teaching-Learning Situation](source)

   The classroom as a teaching-learning situation (Wedemeyer) Source: Adapted from Keegan (1976)

   - a communications system or mode;
   - Something to be taught / learned.

   In a number of his writings Wedemeyer explains what he has called the 'classroom-box': If the communications system is given either because it is the only system available (think of Plato meeting learners in the Grove of Akademos) or is a cultural artifact acting as an imperative, then there are no options, and the communication must be face-to-face, eyeball-to-eyeball, earpan-to-earpan speech.
Then, if a box is put around the four essential elements, we have a classroom. A teaching-learning system that must work from any place, any time, for one learner or many, directly confronts the space-time-elite barriers of the classroom model. In fact, however, distance has long been a problem in the classroom model. As classes became larger, and lectures replaced the dialogue that Plato conducted, the integrity of the model was breached. Only the illusion of being effectively face-to-face remains, as distance within the box lengthens between teacher and learners and speech is amplified for ever more distant reception. According to Wedemeyer the concept of distance involves more than physical distance. There is social as well as cultural distance. All of these are present wherever teaching and learning are carried on.

If we are to achieve a ‘teaching-learning system that must work any place, any time, for one learner or many then as illustrated by Wedemeyer the ‘classroom-box’ must be restructured (Figure – 2) where the four elements of the previous structure remains but have been reorganized to accommodate physical space. This representation of the teaching-learning process by Wedemeyer to accommodate the ‘any time, any place, single or multiple learner’s requirements’ has as its aim the organization of instruction so that greater freedom in learning is possible. As an outcome of this Wedemeyer (1973) proposes three conceptualizations of freedom for learners in all independent or distance programmes:

- learning should be self-pacing: the learner should be able to pace his studies in accordance with his circumstances and needs
- learning should be individualized and the learners should be free to follow any of several courses of learning
- The learner should have freedom in selection of goals and activities.

Figure- 2 teaching-learning situation to accommodate physical distance

Source: Adapted from Keegan (1976)
Structuring the system:

Wedemeyer faced some criticism when he tried to suggest that these theoretical propositions about the freedom of the distance learner should be implemented in practice. These criticisms came both from those looking for a workable system and from those who feared that public monies spent on distance systems would be transferred back to conventional education if the learning in the distance system could not be accurately evaluated or if the evaluation was that the learning in the independent system was inferior.

Despite the idealistic nature of much of Wedemeyer’s writing (1963) he had a very extensive knowledge of the day-to-day workings of correspondence systems. ‘Not every student’, he warns, ‘will be able to succeed by correspondence instruction. This is not an easy method of learning.

Wedemeyer in 1962 has stated five serious obstacles to success as a distance learner:

- developing interest in the task and motivation
- readiness for study is a problem in correspondence study witnessed by ‘the non-start, the early drop-out, the under achiever’
- grasping the structure of the subject to be learned at a distance
- learning both analytic and instructive thinking
- evaluating progress in learning.

The secret of success in Wedemeyer’s (1963) thought is placed squarely on the shoulders of the instructor who is in a continuous tutorial relationship with the correspondence student. The teacher is the daily monitor and motivator of the distance student. The chief value of the correspondence method lies in the tutorial relationship developed between the teacher and the student, and to minimize or destroy this relationship (by check-off type lessons, multiple-choice answers) actually changes the character of the work offered. Schools that depend solely on the use of objective or machine-type scoring have abandoned distance education. Such programmes are, in fact, programmes of ‘self-study’.

In a similar vein Wedemeyer (1971) does not consider close-circuit television, radio, telephone, teaching machines, computer, and satellite as forms of independent study or distance education except under strict conditions: ‘If media (CCTV, for example) are employed merely to replicate a regular class without broadening
opportunity and shifting responsibility and freedom to the learner, the system cannot be defined as independent study’.

- Evaluation:

  Wedemeyer’s personal dedication, generosity, and liberal vision contributed much to the growth of a consensus among distance educators throughout the world and influenced many of the writers.

**AUTONOMY AND DISTANCE**

In 1973, Michael G. Moore of Pennsylvania State University, complained that progress in distance education was being hindered by lack of attention to what he called the ‘macro-factors’:

- Description;
- Definition;
- Discrimination;
- Identification;
- building a theoretical framework.

His own contribution was the development of a theory of distance education based on the variables ‘autonomy’ and ‘distance’.

Moore’s first contributions to a theory of distance education came in the early 1970s but they are read with surprising freshness today. A number of themes are immediately apparent in his writing: he states clearly that he wishes to develop a theory of education at a distance, defines which aspects of educational endeavour he is dealing with and which are excluded, speaks of those students who will not attend groupings but choose to learn apart from teachers, uses confidently terms like ‘distance teaching’ and ‘distance education’ as ‘a field of education’ at a time when most were classifying it merely as a method or a mode (Moore 1975).

Moore’s focuses on all forms of deliberate, planned, structured learning and teaching that are carried on outside the school environment. He defines the school environment as ‘the classroom, lecture or seminar, the setting in which the events of teaching are contemporaneous and co-terminous with the events of learning’. Distance education (he uses the term ‘independent learning and teaching’) is an educational system in which the learner is autonomous and separated from the teacher.
by space and time so that communication is by a non-human medium. The distance system has three subsystems: a learner, a teacher and a method of communication. These subsystems have critical characteristics distinguishing them from learning, teaching, and communication in other forms of education.

His research began with the belief that instruction can be considered as comprising two families of teaching activities: face-to-face or ‘contiguous’ teaching and ‘distance teaching’. From an exhaustive search of the literature, Moore lists the forms of educational provision that fall within his concept of ‘distance teaching’: an open university, a university without walls, an independent study programme on-campus, an external degree programme, and even a teach-yourself book. This is a much wider classification than that accepted for distance education. The reason for it is, as with Wedemeyer, the inclusion of on-campus independent study programmes within the definition, and an opening up of the concept ‘independence’ to include programmes without two-way communication.

Within this theoretical structure Moore identifies two clusters of educational offerings as essential components of independent study:

- Programmes designed for learners in environments apart from their instructors - distance teaching: and
- Programmes designed for the encouragement of independent/self-directed learning - learner autonomy.

Thus Moore brings together two traditions: distance teaching which he traces back (with Noffsinger) to the 1840s and self-directed study which he traces back through a range of practices in American higher education to the tutor system in Oxford University in the nineteenth century.

Moore (1977) defines Distance teaching as the family of instructional methods in which the teaching behaviours are executed apart from the learning behaviours, including those behaviours 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. Besides this it is seen that Moore had accepted that teaching consists of two phases: ‘the preactive’ and the ‘interactive’. For Moore, the teacher in the preactive phase selects objectives and plans the curriculum and instructional strategies. In the ‘interactive’ phase, face to face with learners, the teacher provides verbal stimulation, makes explanations, asks questions, and provides guidance (1977b: 15).
According to Moore most educational research treats teaching as ‘the activity which takes place *during* school and *within* the classroom setting’ where communication is by the human voice and there is ‘immediate, spontaneous, often emotionally-motivated interaction between the learner and the teacher, and usually between the learner and other learners: there is a social interactional relationship which assumes no delay in communication, no distance in space or time’. Since the introduction of compulsory education for children, Moore points out, face-to-face teaching has been accepted as the norm. But distance teaching situations do exist, particularly with adult learners.

- **The concept of distance:**

  Moore has correctly identified the concept of separation of learner and teacher as the origin of the concept ‘distance’ in education, and as crucial for determining the selection of research data from which theoretical frameworks in this field may be constructed. Moore suggests that distance teaching programmes can be classified according to the distance between learner and teacher. Thus programmes can be classified by the provision for two-way communication (dialogue or D) and by the extent to which a programme can be responsive to a learner’s individual needs (structure or S). He believes that the element of two-way communication in all distance teaching programmes can be measured and suggests that an educational telephone network is an example of high two-way communication or dialogue (+D) and an educational radio broadcast is an example of a distance teaching methodology in which two-way communication is not possible (-D) and hence would not be counted as an example of distance education as defined in this book. (Here Moore has considered the classifying educational uses of media, not communications media.)

  Moore also measures programmes in so far as they are responsive to students’ needs as individuals, and labels this ‘structure’.
Figure 3 - Table & Types of distance teaching programmes (Moore)

<table>
<thead>
<tr>
<th>Type</th>
<th>Programme Types</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most distance</td>
<td>-D-S</td>
<td>Programmes with no dialogue and no structure</td>
</tr>
<tr>
<td></td>
<td>-D+S</td>
<td>Programmes with no dialogue but with structure</td>
</tr>
<tr>
<td></td>
<td>+D+S</td>
<td>Programmes with dialogue and structure</td>
</tr>
<tr>
<td>Least distance</td>
<td>+D-S</td>
<td>Programmes with dialogue and no structure</td>
</tr>
</tbody>
</table>

Source: Adapted from Moore (1977)

In a highly structured programme (+S) no variation of the programme is possible (as in a Linear Programmed Instruction Text), but when there is a minimum of structure teachers and learners can respond easily to stimuli. Thus Moore feels it is important to measure the extent of the responsiveness of a teaching programme to a learner’s individual needs, goals, progress, or achievements (is it highly structured or not?) whether the communications medium on which it is based permits two-way communication or not. He presents this as in Figure 3 (with S representing structure and D dialogue).

- **The concept of autonomy**

  The more tentative section of Moore’s theory is when he tries to establish learner autonomy as the second dimension of independent learning (1972).

  Moore through his various publications states regarding the autonomy of the independent learner. There is a strong humanistic tendency in his writing. He is influenced by Charles Wedemeyer, Carl Rogers, Allan Tough, and Malcolm Knowles, but the synthesis is his own. Starting from a general observation that learners both in schools and universities are very dependent on teachers for explanations, guidance, questions, and stimulation, Moore shows that such an approach places more decision-making powers in the hands of the teacher than is acceptable to some adult education theorists.
Like Wedemeyer he seeks for learner autonomy in:

- The setting of objectives;
- Methods of study;
- Evaluation.

Both in conventional education and in most programmes of distance teaching and learning, Moore supports Maslow’s analysis that the teacher is the active one who teaches a passive person. Thus the passive person is shaped and taught and is given something which he or she then accumulates and which they may lose or retain. This kind of learning, easily reflects the goals of the teacher, and ignores the values and ends of the learner (1977b: 21).

The basis for learner autonomy as a necessary theoretical component of distance education is justified by Moore from his analysis of the separation between teacher and learner in education at a distance. He raised the query whether the concept of ‘distance’ or ‘separation’ or ‘apartness’ is adequate to explain the gap between teacher and learner. However his own answer is negative. The existence of this gap means that the activities of teachers and learners are influenced by it. Because the learner is alone, he is compelled to accept a comparatively high degree of responsibility for the conduct of the learning programme. The learner also exercises a greater degree of control over his/her learning.

The autonomous learner proceeds without need for admonition and little need for direction. If highly autonomous he/she may have no personal relationship with a teacher but if he/she has a personal teacher he/she will be able to control the effect and significance of teacher input in a realistic and unemotional way. To the highly autonomous learner the teacher’s role is that of respondent rather than director and the institution becomes a helping organization.

There are some adult learners who need help in formulating their learning objectives and in identifying sources of information and in measuring achievements, whereas there are many others who are autonomous learners, with the abilities of self-stimulation, knowledge of ways to achieve their objectives, and ways of measuring achievement. It is necessary, therefore, to be able to measure the ‘autonomy’ dimension of educational programmes. Moore has set out to do this in terms of his statement that all teaching-learning processes have these characteristic components:

- *Establishment or preparatory activities* in which problems are identified, goals set and strategies planned
• **Executive activities** in which data, information and ideas are patterned, experiments and tests take place in order to arrive at instructional solutions

• **Evaluatory activities** in which the instructional processes make judgments about the appropriateness of the information and ideas for solving the problems and meeting the goals.

(Moore 1977b: 21)

Moore claims that in conventional education the establishment activities are entirely in the purview of the teacher, whereas at a distance the teacher merely prepares instructional materials to be used and drawn upon to the extent that the learner desires. The teacher hopes that his/her material will meet the goals established by learners and will be used in their executive activities. In distance education, whether or not the material is used remains outside the distant teacher’s control, and is dependent almost entirely on the worth of the material, as distant learners accept only executive material that meets their goals.

Similarly in evaluation, the conventional teacher invariably establishes both the criteria of successful learning and passes judgment on whether the criteria are satisfied. Where the teachers’ and learners’ goals do not coincide the latter invariably compromise through fear, apathy, or courtesy. Learner autonomy is heightened by distance and the learner is compelled by distance to assume a degree of autonomy that might be uncomfortable in other circumstances.

• **Classification of Programmes**

Moore has classified programmes according to the extent to which the learner can exercise autonomy in learning by asking three questions:

• **Autonomy in setting of objectives?** Is the selection of learning objectives in the programme that of the learner or the teacher?

• **Autonomy in methods of study?** Is the selection and use of resource persons, of bodies, and other media, the decision of the teacher or the learner?

• **Autonomy in evaluation?** Are the decisions about the method of evaluation and criteria to be used made by the learner or the teacher?

By applying these questions to teaching programmes Moore arrives at the classification shown in Figure No 4 in which A = learner determined (autonomous) and N = teacher determined (non-autonomous). An indication of the type of
programme which Moore considers is given for each of his eight categories.

<table>
<thead>
<tr>
<th>Example</th>
<th>Objective Setting</th>
<th>Implementation</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Private study</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>2 University of London External Degree</td>
<td>A</td>
<td>A</td>
<td>N</td>
</tr>
<tr>
<td>3 Learning sports skills</td>
<td>A</td>
<td>N</td>
<td>-</td>
</tr>
<tr>
<td>4 Learning car driving</td>
<td>A</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>5 Learner controls course and evaluation</td>
<td>N</td>
<td>A</td>
<td>N</td>
</tr>
<tr>
<td>6 Learner controls evaluation</td>
<td>N</td>
<td>N</td>
<td>A</td>
</tr>
<tr>
<td>7 Many independent study courses</td>
<td>N</td>
<td>A</td>
<td>N</td>
</tr>
<tr>
<td>8 Independent study for credit</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

Since learner autonomy is the extent to which in an independent study programme the learner determines the objectives, implementation strategies and evaluation and since distance means a combination of the availability of two-way communication plus the extent to which a programme is adaptable to the individuality of students. Hence Moore has classified all educational programmes by his own variables ‘distance’ and ‘autonomy’. Here he has superimposed Figure 3 on Figure 4 in such a way to categorize all educational programmes so that they range from having most independent to the least independent study.

In Figure -4 type AAA-D-S represents the most independent form of education: totally private study with no two-way communication and completely unstructured with the learner entirely autonomous in goals, methods, and evaluation. Type NNN+D-S is the least independent, where autonomy and distance are very low and the learner is completely controlled by the teacher.

Thus, Moore states that the independent study is any educational programme in which the learning programme occurs separate in time and place from the teaching programme, and in which the learner has an influence equal to the teacher’s in determining learning goals, resources, and evaluation decisions.
As learners vary in the extent to which they are able to exercise autonomy and hence there is no value judgment in the use of the terms ‘autonomy’ and ‘distance’. There are programmes with much autonomy and dialogue and programmes with less, and they vary in distance. A programme of high autonomy may be as damaging to a person as one of low autonomy. The problem is to match programmes to learners so that each learner exercises the maximum autonomy and grows.

**Evaluation:**

The first pole of Moore’s theoretical position ‘distance’ is well established, but further contribution is required so as to justify ‘autonomy’ (1972, 1983) as a second pole.

Moore published a reappraisal of his position in 1993 under the title Theory of transactional distance where he adapts his views that analysed to the introduction of electronic telecommunications media into the field:

Since the theory of Transactional Distance was written, the most important evolution in distance education has been the development of highly interactive telecommunications media. This is the family of teleconference media - i.e., the use of interactive computer networks and audio, audio-graphic, and video networks, which may be local, regional, national and international and are linked by cable, microwave and satellite. The use has added the possibility of faster dialogue with the teacher and, by computer conferencing, more individual dialogue. These media provide less structured programmes than the recorded or print-media. Above all, the teleconference media allow a new form of dialogue that can be called inter-learner dialogue. Inter-learner dialogue occurs between learners and other learners, alone or
in groups, with or without the real-time presence of an instructor. By audio
conference, videoconference, and computer conference, groups can learn through
interaction with other groups and within groups.

(Moore 1993: 32)

II. THE THEORY OF INDUSTRIALIZATION

The Industrialization of Teaching:

―Anyone professionally involved in education is obliged to presume the
existence of two forms of instruction which are strictly separable: traditional face-to-
face teaching based on interpersonal communication and industrialized teaching
which is based on an objectified, rationalized, technologically-produced interaction.‖

• Introduction:

Much of the early research work in distance education was accomplished by
Otto Peters in the early 1960s. Peters worked at the German Institute for Distance
Education (DIFF) at Tubingen in the Federal Republic of Germany, then at the Berlin
College of Education before becoming in 1975 the foundation Vice-Chancellor
(Grundungsrektor) of the Fernuniversitat in Hagen. In 1965 he published an
authoritative analytical and comparative survey of distance teaching at higher
education level.

With the completion of analytical and comparative analysis of distance
teaching systems Peter proceeded to develop a theoretical structure for the field. As
the traditional categories of educational research proved inadequate for a didactical
analysis of distance systems he was forced to abandon them. According to him
building up for teaching at a distance, is structured so differently form conventional,
oral education that the didactical analyst must look elsewhere for his models.

For Peters the most fruitful model was the similarities between the industrial
production process and the teaching, learning process in distance education. He
analyzed the industrial production process and found that not only did this provide a
satisfactory basis for an analysis of distance teaching but that a fruitful explanatory
and forecasting theory of teaching at a distance was possible when one considered it
as the most industrialized form of teaching and learning.
Peter has justified his search for a new theoretical basis for distance teaching be as it is a new form of industrialized and technological education. Considering several points of view he states that the conventional, oral, group-based education is a pre-industrial form of education. In the universities of the Middle Ages the ancient theoretical form of education was replaced by the lecture, the seminar, and the lesson and these have remained permanent characteristics of traditional education ever since. Later the humanistic influence added the tutorial. These can all be regarded as pre-industrialized forms of education in which the individual lecturer remains in close contact with the completely teaching process just as an artisan does with his craft. However attempts to adapt the lecture, seminar, and tutorial to industrialized techniques by the use of educational technology will not prove successful because of the pre-industrial characteristics of the didactic structures in conventional universities.

Distance teaching, however, is recent. It could not have existed before the industrial era. It began, at most, 130 years ago (Peter 1980). It was no historical accident that correspondence education and the industrialization of society began about the same time because they are intrinsically linked. Distance education is impossible without a relatively fast and regular postal service and transport system: the first railway lines and the first correspondence schools were established around the same time.

Traditional educational concepts are only of partial use in analyzing and describing this industrialized form of education hence new categories for analysis must be found and they can best be found from the sciences which analyze industrial processes.

All forms of human life have been heavily influenced by the Industrial Revolution. Only traditional forms of education in schools, colleges and universities have remained outside it except for the phenomenon of education at a distance.

Peter claims some basis for his comparative study from the fact that the production of learning materials for distance students is, in itself, an industrialized process and one that is, in its didactic procedures, quite different from book production.
• **Didactical Analysis:**

Peter’s theoretical presentation to distance teaching commences with a didactical analysis. In his presentation distance teaching is analysed as a distinct field of educational endeavor and not as teaching ‘mode’. The analysis of the didactic structure of distance teaching (1979) follows exactly the structures proposed by Paul Heimann and Wolfgang Schultz, two German educational theorists who founded the Berlin School of Didactics education now also referred to as the Hamburg model. (Heidt 1978; Holmberg 1982).

Heimann and Schultz claims that all teaching learning processes can be analyzed in terms of six intrinsic structural elements viz aims, content, methods, choice of medium, human prerequisites, and socio-cultural prerequisites. Peter analyses distance education, as Heimann and Schultz had analyzed education in general, in terms of these six essential structures of the educational process and has little difficulty in demonstration profound structural differences between distance education and conventional education for all six of the constituent characteristics (1967: 4-16).

- **Aim:** The aim of distance teaching is determined by structural consideration as in all forms of teaching. Specific structural differences in the cognitive, emotional, and practical domains are indicated for distance teaching.
- **Contents:** The teaching of knowledge, skills, and practical ‘hand-on’ learning are examined and the difficulties and /or possibility of teaching certain content at a distance is considered.
- **Methods:** The drastic reduction or complete suppression of interpersonal communication is treated and its substitution by written information carriers and motivators.
- **Choice of medium:** It is claimed that communication suffers and essential loss of substance in its transfer from human speech to the written word and the possible compensating role of other media is considered.
- **Human prerequisites:** Employment conditions, age, diagnostic counselling for entry to courses are contrasted with the condition of conventional students.
- **Socio-cultural prerequisites:** Ideological, political, academic status, and tradition aspects of distance education in different cultures (USA, USSR, South Africa, England, Sweden) are considered.
The conclusion for assumption of Peter is inescapable. Distance education and conventional education have been shown to be essentially diverse on each of the six constituent components of educational process as defined by the most ‘adequate theoretical basis for dealing with instruction media’ (Heidt 1978: 47) known to German educational theorists.

The analysis leads to a fundamental separation between direct and indirect teaching and the claim that educational theorists have focused on direct teaching, especially in its conventional, oral, group based form, to the virtual exclusion of that other component of the educational scene-indirect teaching-of which distance teaching is one of the elements.

Peter lists the other components of teaching which are not direct, but which are not however to be identified as distance education: education by letter; printed learning material; audio-visual teaching; educational radio and television; programmed learning; computer based instruction; independent study; private study; and learning from teaching materials.

- **Industrial Comparison**: At this point in this treatment of the subject (1967, 1971, 1973) Peter presents a comparison of distance teaching and the industrial production of goods under the following headings: rationalization; division of labour; mechanization; assembly line; mass production; preparatory work; formalization; standardization; functional change; objectification; concentration; and centralization.
- **Rationalization** is seen as a characteristic of distance teaching when the knowledge and skills of a teacher are transmitted to a theoretically unlimited number of students by the detached objectivity of a distance education course of constant quality.
- **Division of labour** is the main prerequisite for the advantages of distance teaching to become effective and is thus a constituent element of it. If the number of students enrolled in a distance course is high, regular assessment of performance is not carried out by those academics who developed the course and other elements of the teaching/learning process are assigned to others.
- **Mechanization**. Conventional education proceeds at a pre-industrial level with the teacher using the tools of the trade (pictures, objects, books) without these
changing the structure of teaching; in distance teaching mechanization eventually changes the nature of the teaching process.

- **Assembly line.** In distance teaching the staff remain at their posts but the teaching (manuscript for example) is passed from one area of responsibility to another and specific changes are made at each stage.

- **Mass production.** Traditional forms of teaching envisage small groups and can only be applied to mass education artificially (e.g. a loudspeaker form one lecture hall to an adjoining one). Distance teaching copes confidently with mass production which is essential to it.

- **Planning and preparation.** As in industry, distance teaching is characterized by extensive planning by senior specialist staff in special departments and prior financial investment. Success is linked to the preparatory phase in a way that is different from conventional teaching.

- **Standardization.** A greater degree of standardization is required than in conventional teaching and the educational advantage of the interesting deviation at a particular time with a particular group of students is not possible: the objective requirements of the total course profile dominate the particular interests of the teacher.

- **Functional change and objectification are further essential elements of the most industrialized form of education, especially when the functional role of teacher is split at least three ways: provider of knowledge (distance unit author), evaluator of knowledge and progress (course maker or tutor), and counselor (subject programme adviser).**

- **Monopolization.** Concentration and centralization are characteristics of the management of distance system and of industrial enterprise; distance teaching institutions have a tendency to monopolization within a state or national provision.

- **Educational Technology**

  The completion of this comparative study of distance education and the industrial production of goods led Peters to an analysis of distance teaching in the light of the then current ideas (mid-1960s) about educational technology. He follows distance education through five groupings of educational theorists, which he takes
over from the German didactician Fleshing:

- simulation models;
- planning models (Zweckrationalität);
- materials development strategies;
- systems approach
- curriculum development.

Peter studies the affinities between distance education and educational technology, especially programmed learning. He shares with Flechsig and the educational technologists of the period the belief that planning and technology will achieve educational success. It was felt that the application of technical categories to educational processes would achieve beneficial results and that systematic planning and rationalization of educational means of reach defined goals. (Zweckrationalität) could achieve both educational and economic efficiency.

- **Conclusions**:

  The final dimension of Peter’s analysis of distance education is what he calls the historical, sociological and anthropological perspective. Humanistic attacks on the industrialization of society and its contribution to mass culture lead Peters to expect criticism from humanists of his theory of distance education as the most industrialized form of education.

  Tracing the historical evolution of educational structures back to early Indo-European origins, Peters finds them characterized by six elements:

  - elitism;
  - sacral aspects;
  - hierarchical aspects;
  - family-small groups structures;
  - personal communication
  - Time-place- person ties.

  Distance education is the final phase of the evolution of education away from these sociological structures. It presents a new, strange, and foreign educational pattern that has six characteristics, being:

  - egalitarian;
  - profane;
- democratic;
- aimed at a mass audience;
- technologically based;
- free form the dimensions of educational time, places and persons.

A sociological analysis based on the German philosophical Gemeinschaft/Gesellschaft positions taken from Weber, Tonnies, and Habermas shows that traditional, oral, group-based education follows the ‘Gemeinschaft’ categorization with distance education falling into the ‘Gesellschaft’ grouping. In general terms ‘Gemeinschaft’ structures are friendly and community-based; Gesellschaft implies a wider, society-based structure that may be unfriendly. The communication processes within these two sociological groupings show that the inter subjectivity and reciprocity of interpersonal communication in conventional education is radically to be contrasted with the ‘context-free’ mechanical communication of education at a distance. The possibility of alienation is not overlooked.

Peters feels that it is a slow process for a teacher to adapt to a distance education system because there will always be clashes between traditional teaching and the carefully structured procedures of a distance teaching university, in which the unity of the teaching/learning process is split into many units performed by different persons and elements of the education system. The process of adaptation however can be furthered by reflection on the characteristics of distance education.

The student in an industrialized education system finds that instruction is available in such ways that he can choose his own way. Instruction is not linked to fixed times, to fixed persons. This throws new responsibilities on the learner that are not characteristic of pre-industrialized education systems.

Peters has no desire to criticize conventional education. His view, however, is that industrialized society of today has developed so many needs for education that it is absurd to imagine that conventional systems can satisfy them. New techniques are needed and these must be industrial.

He recognizes that traditionalists will say: What happens to the highly valued traditions of face-to-face education? What happens to the spirit of the learning community? These are all, he admits, of value but you cannot have 40000-50000 students in a system like an open university and try to provide face-to-face tuition with finite means.
Almost alone among distance educators writing about distance education, Peters finds much to query in the industrialization of education. He finds distance education unnatural; it breaks up the process of communication; artificial mechanical substitutes for interpersonal communication are provided; this changes the teaching behaviors and the learning behaviours; there is a definite propensity to alienation. If you are going to teach in the most industrialized form of education, he tells us, you have to be ready to live with the problems that the industrialization of education brings.

- **Evaluation**:

  Reactions and objections to Peters thesis have been many and there are those who deplore the introduction of industrial concepts into an educational field. Four of these reactions are considered here: Christof Ehmann, Karl-Heinz Rebel, Manfred Hamann, and integrationist responses.

- **Christof Ehmann**:

  Ehmann (1981) criticizes Peters position because of its dependence on faith in the value of planning in education and faith in technical progress. He claims that these faiths, strong in the 1960s, have been shown to be wrong in the 1980s and that ‘the application of technical categories to social processes is just as questionable as the use of biological analogies’. Planning euphoria, programmed learning, faith in the calculability of processes – all central features of Peters industrialized models – have all been dissipated before the 1980s started.

  Ehmann’s evaluation of Peters contribution is negative. He feels that as an academic position it is largely dated because of its reliance on theories of planning and technical progress, that its influence on Peters own institution – the Fernuniversitat – has been nil, as has been its influence on the world of commercial correspondence schools.

- **Karl-Heinz Rebel**:

  Rebel complains (1983) that the basis of Otto Peters assumption – the six interdependent elements that constitute each teaching – learning process (the so-called Berlin Didactic School of Paul Heimann and Wolfgang Schulz) – could never
be expressed in such a way that research data capable of falsifying this theory could be collected.

- **Manfred Hamann:**
  
  Hamann (1978) argues that all forms defined goals (Zweckrationalitat) whether they be called media didactics, learning psychology, systems theory or information theory, have been without success: there have been occasional glimpses of didactic possibilities but no progress towards increased cost-efficiency in education. He accuses Peters of simply applying the structures of Heimann-Schulz to distance education and nothing more. This reproach is justifiable for only the didactical analysis part of Peters presentation. The theory of industrialization is certainly original and owes nothing to Heimann-Schulz either in its presentation or in its origin.

**III. THEORIES OF INTERACTION AND COMMUNICATION**

- **Introduction:**
  
  Interaction and communication are central to any concept of distance education. In very general terms Moore, Wedemeyer, and Delling tended to concentrate on the autonomy and independence of the student as the basis for their views, while Peter’s focused on the functions of the institution developing learning materials. The starting point of their study was related to the role of the institution in providing a satisfactory learning experience for students, and the materials that developed and dispatched.

  Five research studies have been considered that of Baath, Holmberg, Daniel, Sewart, and K.C. Smith. Baath is particularly associated with an emphasis on two-way communication and Holmberg with a theory of guided didactic conversation. Daniel, Sewart, and Smith are, or have been, managers of distance systems. Their writings are developed from the day-to-day pressure of managing distance systems. Their inclusion is justified by the wide-ranging and influential character of their contributions.
A Swedish researcher John A. Baath worked for many years for Her-mods at Malmo. He put forth the concept of two-way communication. His work is based on knowledge of the literature of distance education in the Scandinavian language English, German, and French. During the 1970s he adopted the concept of two-way communication in correspondence education. Though he was not the pioneer this concept even though he made an important theoretical and empirical contribution to establishing this idea (Two way-communication) as a major define feature of distance systems today.

One part of his research aimed to relate modern education research to distance education. He examined the applicability the teaching models of Skinner, Rothkopf, Ausubel, Egan, Bru Rogers, and Gagne to correspondence education (1980:12). He was able to state the functions of two-way communication in correspondence communication in the light of each of the teaching models (Ref. Table 6)
• J. A. Baath’s conclusions are:
  
  • Models with stricter control of learning towards fixed goals tend to imply in distance education, a greater emphasis on the teaching material than on the two-way communication between student and tutor/institution;
  
  • Models with less control of learning towards fixed goals tend to make simultaneous communication between student and tutor/institution more desirable; here the communication takes the form of either face-to-face or telephone contacts (1979). Holmberg (1981) has summarized Baath's presentation of the relevance to distance education of the authorities and the same are cited in Table 6.
  
  • All the models investigated are applicable to distance study.
  
  • Some of them (Skinner, Gagne, Rothkopf, Ausubel, structural communication) seem particularly adaptable to distance study in its fairly strictly structured/form.
  
  • Bruner's more open model and even Rogers' model can be applied to distance study, though not without special measures, e.g. concerning simultaneous non-contiguous communication (telephone etc.).
  
  • Demands on distance study systems, which would inspire new developments, can be inferred from the models studied. In a second volume, Postal Two-way Communication in Correspondence Education, Math (1980) adds empirical analysis of two-way communication to the theoretical analysis of his previous book. In particular, he studied:
  
  • The relationship of submission density (frequency of assignment submission during a course) to two-way communication;
  
  • The replacement of tutor-marked assignments by self-assessment questions; and
  
  • The introduction of computer-marked assignments as a form of two-way communication.
  
  Baath's theoretical and conceptual contributions stem from his experience in Sweden. In 1980 he has elaborated how his own situation led to his involvement:
  
  ‘When writing correspondence course materials I was struck by the idea that it was possible to provide some kind of two-way communication within the material, by means of exercises, questions or self-check tests with detailed model or specimen
answers. Could such two-way communication, to any considerable extent, replace the postal two-way communication induced by assignments for submission?

The combination of personal experience and theoretical empirical investigation led Baath to place two-way communication as central to the distance education process and the distance tutor as central to his concept.

Baath states the importance of the tutor in a distance system. He indicates that there is evidence to show that distance learners need special help with the start of their studies and they need help in particular to promote their study motivation (1982). According to him the role of the tutor should go well beyond that correcting errors and assessing students' progress hence as the role of the distant tutor: one can have important pedagogical functions, not only that of correcting errors and assessing students' papers but to play a principal part in the linking of learning materials to learning - by trying to relate the learning material to each student's previous reinforcement patterns (Skinner), or to his mathemagenic activities (Rothkopf), or to his previous knowledge and cognitive structure (Ausubel), or to his previous comprehension of the basic concepts and principles of the curricular (Bruner), or by concentrating on the task of establishing good personal relationship with the learner (Rogers). Baath (1980) quotes that, ‘The correspondence teacher must be painstaking, patient sympathetic, and alive; whatever a dead teacher may accomplish in the classroom, he can do nothing by correspondence.’

A query about Baath's work is that he does not see attempt a full theoretical framework for two-way communication in correspondence education. He has greatly furthered understanding of two-way communication but has not explained how it would fit in an overview of this field.

- **Guided Didactic Conversation :**

  Borje Holmberg another Swedish national in 1995 has written profusely on distance education in Swedish, German, and English.

  A number of characteristic traits link together the publications of Holmberg across thirty years. Among these are a generous, humanistic philosophy that values highly student independence and autonomy, an early concentration on two-way communication in distance education, an emerging concept of distance education as guided didactic conversation, a critical approach to non-print media and the provision
of face-to-face sessions as components of a system and a concentration on assignment marking and its importance.

Like the dedicated humanist Holmberg’s view about distance education are based on his conviction that the only important thing in education is learning by individual students. Administration, counseling, teaching, group work, enrolment, and evaluation are of importance only in so far as they support individual learning. He determines such systems with completely free pacing, a free choice of examination periods, and plenty of two-way communication for tutorial and feedback purposes.

Distance education is considered to be particularly suitable for individual learning because it is usually based on personal work by individual students more or less independent from the direct guidance of tutors. The distance student is in a situation where the chances of individually selecting what educational offerings he/she is to partake of can be much greater than that of conventional students. The student studying at a distance can, and frequently does, ignore elements of the teaching package that has been prepared for the course being studied. TV programmes or comments on assignments or face-to-face sessions or visits to study centres may all be ignored.

Holmberg characterizes study in a distance system as self-study but it is not, he insists, private reading, for the student is not alone. The student benefits from having a course developed for him and from interaction with his tutors and other representatives of a supporting organization. The relationship between the supporting organization and the student is described as a guided didactic conversation. The general approach agrees closely with Wedemeyer's wherein Holmberg insists on allowing students a maximum freedom of choice in matters of both content and study procedures, individual pacing of the study, and far-reaching autonomy generally. In this context the Two-way communication in writing and on the telephone between students and tutors has been one of the concerns. Students' assignments are regarded as facilitators of this communication rather than as instruments of assessment.

Distance education is seen as a guided didactic conversation that aims at learning and it is felt that the presence of the typical traits of successful conversation will facilitate learning. The continuous interaction between the student on the one hand and on the other hand the tutors and counselors and other representatives of the institution administering the study programme is seen as a kind of conversation.
There is a kind of two-way conversational traffic through the written and telephone interaction between student and institution. More dubiously, Holmberg also argues for what he calls simulated conversation from the students' study of the learning materials that have been prepared in a didactic style.

Holmberg's view of distance education as guided didactic conversation might be presented schematically as in following Figure 7. There are traces of these ideas in Holmberg's early writings but in recent years, he has developed them into the basis for a general theory of distance education. Holmberg’s Methods of Teaching by Correspondence (1960) states:

A considerable portion of all oral tuition can rightly be described, as did active conversation. In a great number of successful correspondence courses the atmosphere and style of such conversation is found. It is typical of the style of did active conversation that advice is given on how to tackle problems, what to learn more or less carefully, how to connect items of knowledge discussed in different lessons and this also characterizes many good correspondence courses. It seems to me that advice and suggestions should preferably by expressed in phrases of personal address, such as when you have read these paragraphs, makes sure that ......’

Figure -7

- Holmberg’s seven bases for his position:
  1. That feeling or personal relation between the teaching and learning parties promote study pleasure and motivation;
  2. That such feelings can be fostered by well-developed self-instructional
material and suitable two-way communication at a distance;

3. That intellectual pleasure and study motivation are favorable to the attainment of study goals and the use of proper study processes and methods;

4. That the atmosphere, language and conventions of friendly conversation favour feelings of personal relation according to postulate 1;

5. That messages given and received in conversational forms are comparatively easily understood and remembered;

6. That the conversation concept can be successfully translated for use by the media available to distance education;

7. That planning and guiding the work, whether provided by the teaching organization or the student, are necessary for organized study, which is characterized by explicit or implicit goal concepts.

(Holmberg 1978: 20, repeated 1983: 115-16)

Distance learning materials developed in the light of Holmberg's theory (1983) of guided didactic conversation presents the following characteristics.

- Easily accessible presentations of study matter: dear, somewhat colloquial language, in writing that is easily readable; moderate density of information.
- Explicit advice and suggestions to the student as to what to do and what to avoid, what to pay particular attention to and consider, with reasons provided.
- Invitations to an exchange of views, to questions, to judgments of what is to be accepted and what is to be rejected.
- Attempts to involve the student emotionally so that he or she take a personal interest in the subject and its problems.
- Personal style including the use of the personal- and possessive pronouns.
- Demarcation of changes of themes through explicit statements, typographical means or, in recorded, spoken communications, through a change of speakers, e.g. male followed by female, or through pauses. (This is a characteristic of the guidance rather than of the conversation.)

If a course is prepared following these characteristic then Holmberg forecasts that it will be attractive to students, will motivate students to study, and will facilitate learning. In two interesting experiments, Holmberg rewrote a Fernuniversitat postgraduate course on educational planning and a basic Hermods course on English grammar in accordance with his theoretical position and replaced the rather analytical textbook-like approaches of the originals with a more conversational style designed to
promote empathy with the student (Holmberg et al. 1982).

By any estimation, Holmberg's contribution to the field of distance education is extensive. His early preoccupation with two-way communication in correspondence education provided an impetus for the research of Baath, Flinck and Wangdahl in the 1970s.

Although Holmberg is not the only scholar to recommend a conversational style for distance learning materials he has been the only one who has developed a coherent theory from his early statement that 'a correspondence course must by definition be something different from a textbook with questions. A correspondence course provides actual teaching by itself and is thus a substitute for both a textbook and the exposition of a teacher' (1960) and then submitted it to empirical testing. In general, this position has been beneficial to practitioners in the field and has contributed to making distance-learning materials now a recognizably different genre from textbooks.

- Interaction And Independence:

  From 1973 to 1977 Sir John Daniel was director of studies at the Teleuniversite, University du Quebec, and then Vice-President, Learning Services at Athabasca University in Edmonton, Alberta, Canada. In 1980 he took up the post of Vice-Rector (Academic) of Concordia University, a conventional university in Montreal and moved to Laurentian University, a conventional university with a small distance department in the summer of 1984. He is Vice-Chancellor of the Open University of the United Kingdom at Milton Keynes.

  Daniel has thus had experience of academic management in both French and English language distance systems and his thinking about distance education is frequently from a management perspective.

  He sees the emergence of distance education systems as coming from three sources: a long tradition of independent study; modern developments in the technology of education; and new theoretical interest in open learning. The fusion of these elements has produced new educational enterprises, which teach at a distance and fulfill important economic and political needs of societies.
Considering the two-way communication in education at a distance both Holmberg and Baath envisage constantly a situation in which the major part of the communication will be by postal correspondence.

Daniel (writing from the start from a university perspective) sees distance systems as comprising activities in which the student works alone and activities, which bring him into contact with other people. The first grouping of activities he labels 'independent activities' and the latter 'interactive'. He provides a listing of possible activities in the two groups as in Table 7. A major function of distance systems is to achieve the difficult synthesis between interaction and independence - getting the mixture right. A balance between the learning activities the student carries out independently and those, which involve interaction with other people, achieves all learning in a distance system. The balance between the two is the crucial issue facing distance study systems.

The balance chosen between the interactive and independent activities in a distance system has extensive repercussions on the administration and economics of the system. According to Daniel Independent activities, have great possibilities of economies of scale since the marginal costs of printing extra copies of texts or broadcasting to more students are low. However, the cost of interactive activities tends to increase in direct proportion to the number of students (Daniel and Marquis 1979).

Increasing the proportion of interactive activities improves student performance, but it does so at a price. The cost of interactive activities is broadly proportional to the number of students involved. There is little opportunity for the economies of scale which characterize independent activities, and which are responsible for the overall cost advantage of distance education.

He states that there are two economic structures for distance systems: one for the independent activities in which economies of scale are possible; and one for the
interactive activities in which they may not be (Snowden and Daniel 1980).

He believes that courses should not be designed that are entirely independent. Socialization and feedback are the main functions of the interactive activities and whereas the importance of socialization in education is less vital for adults studying part-time than for children and those involved in compulsory and full-time education, the feedback role of interaction is of crucial importance. Students want to know how they are doing in relation both to their peers and to the criteria of mastery set by the course authors. Distance students are only weakly integrated into the social system of the teaching institution and feel low involvement with it. Therefore they are at risk and the importance of interactive activities is enhanced.

The thrust of Daniel's thinking on distance education comes through his attitude to pacing (Daniel and Shale 1979). He suggests that the more freedom a learner has, the less likely he is to complete the course. He is of the opinion that distance systems can either give students the dignity of succeeding by pacing them or the freedom to proceed towards failure without pacing. Holmberg, on the other hand, claims that students should be free to pursue distance courses without the pressure of pacing.

Where Moore, Wedemeyer emphasize autonomy and independence of the learner studying at a distance, Daniel looks for a balance between interaction and independence in the structuring of the system and shows how this affects the pacing of students and the cost structures.

- **Continuity of Concern**:

  David Sewart joined the Open University of the UK in 1973. After a period in the Manchester regional office he moved to the university's central site at Walton Hall near Milton Keynes where he had managerial responsibilities for the provision of support services to students. In 1980 he returned to Manchester as regional director and then returned to Milton Keynes, where he is at present director of Regional Tutorial Services.

  Sewart has tried to trace distance education back as far as the epistles of St Paul but sees a rapid development in the last two decades. This he attributes to the new communications techniques, which have been perfected in the twentieth century, the increasing costs of conventional education, and the rapidly expanding range of
knowledge.

His theoretical approach to teaching at a distance can be summed up as a continuity of concern for students learning at a distance (1978). Teaching, he tells us, is a complex matter. It is an amalgam of the provision of knowledge and information plus all the advisory and supportive processes with which this provision is normally surrounded in conventional education.

He is unhappy with the notion that the package of materials in a distance system can perform all the functions of the teacher in face-to-face education. He shows that, if it could, it would become an infinitely expensive package as it would have to reflect the complex interactive process of the teacher and each individual student.

In many of his writings, he discusses the efforts of course developers in distance systems to produce the 'hypothetically perfect teaching package'. He finds this unrealizable and seeks to prove this with his view of the role of the intermediary in complex civilizations. He argues that just as in most complex bureaucracies an intermediary is necessary (a social worker, a hospital orderly) to bridge the gap between the individual and the institution, so in distance systems an intermediary is necessary between the individual student and the teaching package (Figure 9). The intermediary is employed by the institution but works for the individuals in the system and individualizes their problems when confronted with the bureaucracy.

Sewart's emphasis on the needs of students learning at a distance, demands an interactive mode in distance systems which can hardly be supplied by the learning materials, how-ever well they are developed. Failure to recognize this has, he considers, led to the almost universal lack of esteem for distance systems which he judges to have been the norm until quite recently. He considers that advice and support for students in a system of learning at a distance pose almost infinitely variable problems and this creates the need for an advisory and supportive role of a distance institution in addition to the provision of a teaching package.

**Figure 9. Role of the intermediary (Sewart)**

<table>
<thead>
<tr>
<th>System</th>
<th>Intermediary</th>
<th>Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government bureaucracy</td>
<td>Social Worker</td>
<td>Citizen</td>
</tr>
<tr>
<td>Hospital</td>
<td>Orderly</td>
<td>Patient</td>
</tr>
<tr>
<td>Distance Institution</td>
<td>Student services</td>
<td>Student</td>
</tr>
</tbody>
</table>
Sewart states the differences between conventional and distance education and presents both the advantages and disadvantages of education at a distance. The advantages are such as:

- Freedom from the 'strait-jacket of the lecture hall';
- Ability to study whenever and wherever desired;
- Freedom inherent in the individuality of the distance students' situation;
- Student not bound by the learning pattern of a learning group; and
- Distance students' needs are not subservient to the needs of a learning group.

Presented Sewart's writings (1981):

- No measure of progress available;
- No framework of study for the distance student;
- No peer group clarification or pressure; and
- No benchmarks on progress or failure.

He considers the situation of the student learning at a distance to be quite different from that of conventional students because of the absence of swift feedback and because the learner's peer group does not act as a benchmark.

Whereas the infant school class and the university lecture have easily discernible differences, they are generically similar in offering a group learning situation with a face-to-face teacher/student contact, and the subsequent possibility for instant 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.

Sewart concludes that 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 (1980: 177).

The differing study patterns of distance students, the need for intermediaries in complex processes, the absence of the learning group against which the distance learner can measure himself, and the infinite variety of individual problems all lead him to the conclusion that the introduction of the human element is the only way to adapt a distance system to individual needs. This provision should ideally be available whenever and as often as the student needs it and is part of the richness and variety of a system that can adapt to the needs of individualized, independent study. Unlike
Peters, however, he clearly sees all education provision as a continuum with forms of distance education fusing into conventional provision.

Sewart's views provide an effective counterbalance to those who see distance education merely as a materials production process. He claims that it is the continuity of the institution's concern for the quality of support in a distance system that has been the Open University of the UK's success in solving the age-old problem of distance systems - the avoidance of avoidable drop-out.

Sewart represents his views in an article published in 1987. There is a continuum, he tells us, between a face-to-face dialogue between one teacher and one student and a 'pure' method of teaching at a distance. There is another continuum between teaching with the complete integration of preparation and presentation by one individual at one end/ and the total separation of these functions at the other. The problem is to locate on this continuum the position of the particular distance system that one is analyzing or designing.

- **An Integrated Mode**:

  When the University of New England, Armidale, New South Wales, Australia began teaching externally in 1955 it adopted a system of integrating external and internal teaching by the full-time faculty of the university. External enrolments were limited on the basis of a staff-student ratio similar to that already existing in the traditional lecture situation so that staff bore responsibility for teaching both student groups as part of their normal duties.

  This system (which came to be known as the 'Australian integrated mode') has had two able proponents, Howard C. Sheath (1956-72) and Kevin C. Smith (1973-84). It would be too much to say that the writings of Sheath (1965, 1973) and Smith (1979) contain a theory of distance education; rather they present a series of heartfelt beliefs on how external studies should be administered.

  Smith feels that institutions planning external studies must come to terms with an educational dilemma. The dilemma lies in the fact that external studies depend essentially on an independent learning situation and must be designed so that motivated mature-age students can plot their own path through a particular course with a minimum of outside assistance. On the other hand, systems which rely solely upon the stamina, perseverance, and intellectual capabilities of students to survive the rigors of
external studies without assistance do not fulfill their academic responsibilities. The compromise is to provide a core of independent learning material but to add compulsory provision for staff/student contacts and regular student group activity.

In contrast to Peters' theory of industrialization, Smith advocates dividing the work of the university faculty equally between on-campus and off-campus students. For the distance education students the lecturer performs all those functions, and more, that are performed for normal students: the design and presentation of courses, the marking of assignments, the conduct of residential and weekend schools, final assessment and examination of students. The external students enroll in the same courses, follow the same syllabus, are tutored by the same lecturers, sit for the same examinations, and are awarded the same degrees as the conventional ones. Smith bases this structure on the following ideas (1979: 31,57):

• External teaching should not be done by part-time tutors but by the full-time university faculty;
• By being part of a normal university a distance system remains in the educational mainstream;
• A university has only a small pool of outstanding staff; external students should be in contact with them, not with what he calls 'part-time recruits';
• A university is a community of scholars and all distance students must become part of this community by attending compulsory residential schools;
• Concentration on the 'learning package' can lead to a dehumanizing of the learning process, as this is a social experience;
• Distance education must not depend solely on correspondence methods. Some degree of interaction not only with materials but also with other students and the teachers is essential.

Smith also has listed eight beliefs about how a distance education system should be justified (1979:54):

1 Legitimacy: continuing education and external studies are legitimate functions of universities.
2 Mainstream activity: distance teaching should be undertaken by full-time academic staff as part of their normal teaching responsibilities so that it will receive the scholarship, resource allocation, and status it deserves.
3 Commitment: commitment is likely if the whole process remains the responsibility of the academic staff and is not divided; personal contact
between academic staff and students is required; quotas are imposed to reduce external numbers to the same ratio as on-campus allocations.

4 Parity: parity of esteem for degrees can best be achieved if the same staff of the university teach and assess both categories of students.

5 Interaction: group discussions between staff and students and between students themselves are beneficial.

6 Variety: variety of teaching methods is recommended because of the diversity of students.

7 Independence/pacing: pacing of students is a characteristic of successful systems.

8 Communication: a distance system requires an adequate administration.

A critique of Smith's position is that he frequently puts forward the particular solutions of his own institution as normative for other institutions. The Australian integrated mode as it evolved at New England is certainly of interest as a model for a small system of less than 5,000 students, but even in other Australian universities which teach both at a distance and on-campus it has by no means been followed in all its details. Far from being in the mainstream of university studies as Smith (1979: 33) claims, the distance departments of many integrated systems appear to be well on the periphery with little influence on university budgets or planning (Rothe 1987).

There is the constant problem that when a lecturer's time is divided between the demands of conventional and distance education, both functions are done less than perfectly (Short 1983).

If an institution is offering full degrees or diplomas in a non-traditional way it does not seem appropriate that such provision should be located amongst the continuing education and extramural departments, which do not normally offer full university degrees (Townsend-Coles 1982: 29-37), yet this is where one normally finds integrated distance departments.

Nevertheless, Smith's contribution is a refreshing one. It is of value to find a thoughtful basis for rejecting concepts of mass production, cost effectiveness, and industrialization in distance education, especially when one finds emphasis placed on bringing the distance student into continuous contact with the best brains of the university and, second, the admission that the education of a distance student should be just as costly as a conventional one.