Otto Peters on Distance Education

The Industrialization of Teaching and Learning

Edited by
Desmond Keegan

Otto Peters on distance education

Otto Peters is generally recognized as one of the world's leading authorities on distance education. His theory of distance education as the most industrialized form of education is the most original and far-reaching analysis of distance education yet produced.

This book brings together the best of Peters' work, most of which has not been previously available in English. Drawing on German sociologists and philosophers of education, Peters builds up an impressive analysis of the advantages and defects of the industrialization of education. His essays cover the historical development of teaching and learning at a distance, from the correspondence schools of the 1950s through to distance education in the post-industrial societies of today, including a fascinating account of his central role in the foundation of the Fernuniversität. Desmond Keegan has provided an introduction to each chapter and a concluding chapter which situates Peters' thought for English-speaking readers and gives frameworks for the evaluation of Peters' position.

Otto Peters on Distance Education will be essential reading for researchers and practitioners of distance education, open learning and the sociology of education.

Otto Peters is Professor Emeritus of the Methodology of Distance Education at the Fernuniversität, Hagen, Germany. **Desmond Keegan** is manager of the European Virtual Classroom for Vocational Training project at the Audio Visual Centre, University College, Dublin and the editor of the Routledge Studies in Distance Education series.

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Preface

For over 20 years Professor Otto Peters' research on distance education has been extensively cited and referred to by writers in English. His work sets out fundamental landmarks in this field of study that require consideration in any scholarly treatment of the subject or in any course on distance education.

To date most of the citation and comment on his work was from paraphrase, as nearly all the major texts were published only in German. The publication of this book enables all who work in the field of distance education to access a considerable amount of Professor Peters' work in English.

The concept of the industrialization of education is important for sociologists and educationists beyond the field of distance education and it is one of the aims of this book to bring the concept to the wider audience it deserves.

Professor Peters and I worked together on the selection of the chapters for this book in 1992. Professor Peters translated Chapters 1 to 3 and 6 to 8. We are grateful for permission to use existing translations of Chapters 4 and 5. Chapters 9 to 11 were originally drafted in both German and English and the English versions are used here.

Professor Peters wrote the introduction in April 1993. I have supplied a short abstract to give the reader the context of each chapter and the conclusion.

Desmond Keegan
Dublin, May 1993

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Chapter 3: Models of university-level distance education. In O. Peters (ed.) *Texte zum Hochschulfernstudium.* Weinheim: Beltz, pp. 2–25.

Chapter 4: Didactic analysis. In O. Peters: *Die didaktische Struktur des Fernunterrichts. Untersuchungen zu einer industrialisierten Form des Lehrens und Lernens.* Weinheim: Beltz, 1973, pp. 51–107.

Chapter 5: Distance education and industrial production, a comparative interpretation in outline. In O. Peters, *Die didaktische Struktur des Fernunterrichts. Untersuchungen zu einer industrialisierten Form des Lehrens and Lernens.* Weinheim: Beltz, 1973, pp. 162–212. Reprinted in P. Clever, W. Heßhaus, M. Lücke & G. Mus (eds) *Ökonomische Theorie und wirtschaftliche Praxis.* Herne/Berlin: Neue Wirtschaftsbriefe, 1981, pp. 47–64.

Chapter 6: Distance education: a historical, sociological and anthropological interpretation. In O. Peters: *Die didaktische Struktur des Fernunterrichts. Untersuchungen zu einer industrialisierten Form des Lehrens and Lernens.* Weinheim: Beltz, 1973, pp. 253–307.

Chapter 7: The concept of the Fernuniversität. In O. Peters: *Die*

Fernuniversität im fünften Jahr. Köln: Verlagsgesellschaft Fernsehen, 1981, pp. 11–16.

Chapter 8: The Fernuniversität after ten years. In O. Peters: *Die Gründung der Fernuniversität. Wagnis und Gelingen.* In *Gesellschaft der Freunde der Fernuniversität. Jahrbuch 1984.* Hagen: Schröder, 1984, pp. 9–30.

Chapter 9: The iceberg has not yet melted. Further reflections on the concept of industrialization and distance teaching. In *Open Learning*, November 1989, pp. 3–8.

Chapter 10: Understanding distance education. In B. Holmberg and G. E. Ortner (eds) *Research into Distance Education*, under the title 'Towards a better understanding of distance education: analysing designations and catchwords'. Frankfurt am Main: Peter Lang, 1991, pp. 48–57. Reprinted in K. Harry, M. John and D. Keegan (eds) *Distance Education: New Perspectives.* London: Routledge, 1993, pp. 10–18, under the title 'Understanding distance education'.

Chapter 11: Distance education in a post-industrial society. In D. Keegan (ed.): *Theoretical Principles of Distance Education.* London: Routledge, 1993, pp. 39–58.

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Introduction

The essays and articles brought together in this book were written during the last thirty years. Most of them mirror the time in which they were prepared and worked out. This does not, however, mean that they are outdated or obsolete. They remain relevant in the current situation as they deal with fundamental problems of distance education which have not changed at all in the intervening years. If they remind us also of the dynamic development of distance education in this period, so much the better.

In this introductory section I should like to characterize the eleven chapters of the book by referring to and considering its main findings. This will be done under three aspects: the chapters will be seen in a historical context; the inception and the genesis of the concept of industrialization of teaching and learning will be made clear and many of its more important points of reference will be commented upon; some personal experiences connected to the themes and events described will also be included.

The first three chapters can be appreciated fully only if one realizes that until 1965 distance education had very seldom been an object of scientific research or scholarly work – this holds true equally for German-speaking and English-speaking countries. It was, as it were, unexplored ground. Even specialists in the methods of teaching and learning had never taken notice of it, although distance education was by no means a new phenomenon – even though it was admittedly far away from the mainstream of education. If anything had been written about it at all, it came from people who were engaged in the correspondence school business. This means that scholars who wished to deal with this subject were at a loss: they lacked reliable, impartial information about the practice of distance education, let alone theoretical explanations of its extraordinary methods and approaches with relevant empirical data. They

could, in addition, learn practically nothing about the significant role distance education had already played in educational systems abroad. In other words, they were unable to work in this field, which was so alien to the thinking of traditional experts in teaching methods.

In this situation the then Minister of Education of West Berlin, Carl-Heinz Evers, asked me to write a report about distance education. The German Congress of Municipal Authorities intended to deal with this subject. They were concerned about the fact that the educational systems of their communities were not nearly able to produce the rapidly rising number of highly qualified persons required by industry and they had just learnt that there was a close relation between the educational standards of a society and its economic growth. Therefore, they were ready to consider even unorthodox methods of teaching and learning, including programmed instruction and distance education. The report was to provide background material for their discussions.

Why did the Minister of Education ask me? At that time I was helping to establish the Berlin Educational Centre and specialized in the methodology of teaching and learning – in schools, of course. Being a product of my professional socialization I thought little of distance education. I even felt that supporting it was the last thing to do if the Minister intended to increase the efficiency of the educational system. My report was begun with the intention of revealing the obvious pedagogic deficits of distance education and of deploring its commercial misuse. However, the more information I acquired from many countries all over the world, the more I learned about its techniques, its merits in educational emergency situations, its significance in the field of continuing and adult education, the more I was attracted by the new theme. This feeling was reinforced by the conviction that I had the rare chance of breaking new ground. I felt challenged by having entered a new field of educational research.

AN INDISPENSABLE TASK: COLLECTING INFORMATION

Chapters 1 to 3 indicate that at that time first things had to be done first. They represent specimens of three books (Peters 1965, 1968, 1971) which were mainly of a documentary nature. They describe distance education in Germany and in twenty-nine other countries mainly at the secondary and tertiary levels in order to enable members of the academic community to be well informed when dealing

with the new subject. Taken together, they represent the first comprehensive international documentation on distance education.

The impact of these books was considerable. For the first time educationists in the Federal Republic of Germany became aware that in this country the number of persons learning at a distance was greater by far than assumed, and that distance education supplements and even replaces important elements of the public educational systems in quite a number of other countries. This was certainly a surprise for those who had the vague idea that distance education was essentially a communist invention developed in Russia and in its satellite states, and for those who thought that persons advocating it should be suspected of doing this for ideological reasons. Even more: a discussion about university-level distance education began and lasted for about ten years. It was stimulated mainly by the German National Union of Students, the German National Association of Students, the Federal Conference of Non-Professorial Teaching Staff, the Volkswagen Foundation, some broadcasting corporations, and the Scientific Council of the Federal Republic of Germany. Never before and never thereafter was the desirability of distance education and its function in the tertiary sector dealt with in such a lively manner, so intensively and so continuously.

Chapters 1 to 3 are sections of the introductory chapters of these three books providing the reader with informative overviews.

Chapter 1 deals with correspondence schools. Its function in the book is to remind readers of the traditional basis of distance education. Indeed, private correspondence schools had been pioneers in establishing this unusual way of teaching and learning. They had handed down unique methods of dealing with great numbers of students scattered widely across the country. And they had accumulated a number of practical experiences which turned out to be useful for the amazing and unpredictable developments in the last three decades.

The chapter describes correspondence schools under the perspective of the teaching and learning process. A first definition is given in order to characterize distance education as offered by correspondence schools. Then, the students are described, stressing a feature which is characteristic of many distant students. Very often they are, for several reasons, denied the opportunity to attend regular schools to acquire the desired qualification. The main reasons are that they are poor and socially disadvantaged. This reminds us of the fact that it was the very process of industrialization which created many new

situations in which individuals could be disadvantaged. It was the function of correspondence schools to help to compensate for these limitations of opportunity. We have to admit that the correspondence schools catered to many groups of students, including those who were in poor health or institutionalized, who were neglected and even ignored by the public school system. Finally, the teachers and their typical activities are characterized as well as the special qualities they should possess as authors of course material and as correctors of assignments.

It might be appropriate to mention that there is already an allusion to the industrialization of education in this early publication. When describing the particular role of the teacher in distance education offered by correspondence schools, the intensified application of the principle of the division of labour is reflected upon. This, indeed, was the starting point of trying to understand distance education as a way of teaching and learning which differs structurally in many ways from face-to-face instruction, as it adopted the ways and means of industrialization.

Furthermore, it should be noted that these correspondence schools were related to the process of industrialization in two further ways. First, it is certainly significant that they were founded in industrialized countries. It was industrialization that created the demand for many new qualifications for many new jobs and caused the geographical, vocational and social mobility unknown in an agrarian society. And even more, it also provided the means of transportation necessary for the delivery of distance education. Second, the production and distribution of printed teaching material is an industrialized process itself. Thus, instruction has become a commodity and an object of trade. It is true that private schools are also paid for their services. But they only raise 'fees', and this is basically a pre-industrial mode of rewarding someone. The correspondence schools, however, profit from the mass production of the printed material, which is to be 'bought' by as many students as possible in order to make the highest profit. This is a convincing proof of how far functions of the teaching–learning process and of the industrialized production process have intermingled and even merged.

Chapter 2 makes the reader aware that another development of distance education concentrated on higher education. This feature in particular was at that time virtually unknown in the Federal Republic of Germany, as until then no university or other institute

of higher education had ever considered making use of this method of teaching and learning.

When the book on university-level distance education was published, German readers were amazed to learn that there were sixty-two universities in the United States which regularly ran courses in distance education, that the University of South Africa, of good repute, catered exclusively for distant students, that the USSR had established seventeen all-union universities for applied sciences teaching mainly at a distance, that about 25 per cent of the students in East Germany were distant students, and that rough estimates of the number of distant students all over the world amounted to 2.3 millions. The descriptions of the achievements of well-known universities in distance education helped to dispel some of the deep-rooted doubts about distance education caused by commercial misuse of correspondence schools. In those years the image of distance education seemed to be improving so much that the idea of establishing some form of university-level distance education in the Federal Republic of Germany could be advocated without any opposition worth mentioning.

The perspective of teaching theory that this chapter represents is a description of three types of distance students and their different motivational situations as well as of five types of distance teachers with their different tasks. The affinity to the industrial production process is suggested again by the functional specialization of teaching activities described, and by pointing to the necessity of managing the complex organizations of large institutions of university-level distance education which must be established in order to be able to teach great numbers of students at a distance. Not only was the term taken over, but also the very procedures and techniques it denotes.

Chapter 3 is a short section of the introduction to the book *Texte zum Hochschulfernstudium* (Essays on university-level distance education) which stresses the international perspective of distance education by presenting descriptions of models of university-level distance education in nine countries. The authors of these contributions were well-known specialists in their countries, among them Gail B. Childs, Charles Wedemeyer, Börje Holmberg, F. E. Rädel, Howard C. Sheath, David Hawkridge, as well as Horst Möhle, Ludwik Bandura, Frantisek Singule, A. S. Zav'jalov, and Mitoji Nishimoto. At that time these names were entirely unknown in the Federal Republic of Germany.

In the introduction I tried to categorize the models of distance

education described and found distinct differences between a typical western and a typical eastern model. In consideration of the fact that even today very little is known about the eastern model of distance education and its variations, one can say that its description should still be of interest – even if we can assume that the eastern model will undergo considerable changes if a market economy is introduced in these countries. Maybe this model will then be only of historical interest. For theoretical reasons, however, it will remain important as an example of university-level distance education which is heavily subsidized by the companies employing the students.

A second theme highlighted in this introduction is the importance that educational technology might have in the further development of distance education. Reading this part of the chapter today is a little embarrassing as it is inspired by the *Zeitgeist* of those years. Educational technology had a wide appeal and was seen as a kind of panacea with the help of which many difficulties could be overcome and many new tasks could be solved. Flechsig proclaimed the 'technological turn' of didactics. And I expected much of this new way of dealing with problems of education as well. Today, I am certainly less enthusiastic about this approach as I see it more critically and distantly.

Nevertheless, the impact of educational technology in those years was just another indication of the fact that the industrialization of education was on its way. Methods were applied which had proved to be successful in projects of industrial research and development. Instruction was to be constructed, perfected and optimized in the same way as industrial products, and it was no longer to remain the creation of the teacher as an artist or artisan. The seductive assumption behind this thinking was, of course, that the success of such technologically constructed instruction would be also as extraordinary as that of industrial production processes.

The increased use of modern technical media such as, for instance, television, radio and computers in distance education, which were already noticed at that time – the Open University of the United Kingdom had just been founded – is another feature of educational technology and reminds us strongly of the extensive and more sophisticated mechanization of working processes in industry. This could be considered another decisive step towards the industrialization of teaching and learning. It was precisely this feature which induced me to foresee the advent of the third model of distance education, the technological model, which would supplement both the western and the eastern model in the years to come. According

to this model, the institutions of distance education would use technical mass media and begin the era of mass education – just as industry developed techniques of mass production. Such a development was discernible in 1970. Time has shown that I was, as it were, a prophet of an unbelievable development. It is true, such a technological model of distance education was already vaguely discernible in 1970, but who could foresee that about thirty open universities and distance teaching universities patterned after this model would be founded all over the world in subsequent years? And who could imagine the wide range of technical media which would become available for them, among them the information carriers – audio cassettes, video cassettes, discettes, compact discs – as well as the information channels – telephone (conference call), telefax, viewdata, teletex, telex, datex, video conference and the already rather conventional radio and television (Wurster 1989: 9)? Indeed, the technological model of distance education assumed an overriding importance. It changed the whole field and the outlook of distance education. Garrison (1989: 8) is right when he considers the emergence and adoption of new communication technology as 'the most important and visible change of distance education'. And I am with him when he thinks that this change is so important that it is justifiable to take it as the main feature of a new period in the development of distance education which he calls 'the modern era'.

TRYING TO EXPLAIN THE REAL NATURE OF DISTANCE EDUCATION – TWO FAILURES

Having finished the documentation of distance education I proceeded from description to explanation. I felt that this task was important as there were quite a number of questions I could not answer in spite of having described distance education at great length and in great detail. What is its characteristic feature? Is it distance? correspondence? the socially disadvantaged students? the student studying on his or her own? Why was distance education ignored, disdained and neglected for about 100 years although it managed to provide instruction in many cases in which face-to-face teaching was unable to help? How far does it differ from other mediated forms of imparting knowledge? Today one might add: what are the reasons for the wide appeal distance education has had during the last two decades?

The circumstances in which this kind of work was done had

improved immensely after I joined the German Institute for Distance Education at the University of Tübingen in 1969, where I was charged with comparative distance education research. Here, I analysed the university-level distance education systems in many countries, starting with the Open University of the United Kingdom which was founded in the same year and had a spectacular impact on educationists over the whole world. In this way, the theoretical interpretations of distance education worked out in those years were not just lofty speculations, but were based on the study of practical experiences. Furthermore, it was certainly pleasant to work in an institute devoted entirely to the research and development of university-level distance education and which was funded amply by the Volkswagen Foundation.

In a first approach to explaining distance education, presented in Chapter 4, I analysed distance education by trying to relate it to other forms of imparting knowledge which are all accepted and of good repute and have proved successful both in education's past and at the present time. I found no less than ten forms of distance education: teaching using writing, teaching using printed material, teaching by means of periodicals, teaching using learning and work aids, audiovisual lessons, communication of knowledge by radio and television, programmed instruction, computer-aided instruction, individual tuition and independent work. Even more: twenty-seven didactic forms were identified which have been taken over from indirect teaching and incorporated into distance education. Consequently, distance education could be explained as being composed of some or more, or even all, of these elements. Seen from this angle, distance education is shown to be clearly rooted in a long tradition of indirect teaching, and profits from the experiences of modern ways of imparting knowledge as well. It is by no means the extraordinary, queer form of instruction that many people think. One could even be astonished and ask why a form of instruction which is composed of these well-known, widely used and well-reputed elements has been ignored and criticized for such a long time.

This structural analysis is certainly an interesting one and, so to speak, reassuring, as it integrates this rather singular and isolated method of instruction into a wide range of practices of imparting knowledge. It helps to discern important elements of teaching which could and should be investigated further. On the other hand, the question arises whether such a composite picture, such a mosaic of methods, helps to identify the specific structure of distance edu-

cation. Does it answer the questions raised? I have to admit that this is not the case.

Therefore, I made a second approach (Peters 1973: 110), which is not included in this book, but is mentioned here in order to refer to yet another effort to understand distance education. This time I proceeded from a more pragmatic level to a level of theoretic reflection and described distance education with the help of categories taken from Heimann's structural concept of instruction which claimed to be applicable to all forms of learning at all levels and for all age groups. He postulated that all instruction consists of six structural elements: aims, contents, methods, media, the human beings involved, and the socio-economic conditions. From this statement it can be concluded that if one or more of these elements is lacking one cannot possibly speak of instruction in a proper way. I intended to find out whether distance education would comply with these prerequisites. If not, it could not be considered as instruction at all. This question suggested itself in view of the disparaging disdain of its critics.

The findings were that according to this concept distance education could be principally considered a complete method of teaching and learning, that it was, indeed, instruction in its own right. A few restrictions, however, had to be noted: not all intentions can be achieved, not all contents can be dealt with, not all methods and media can be employed, not all human factors in the teacher and the student can influence the instructional process. If one, in addition to that, considers the spontaneous dialogue between teacher and taught as an indispensable element of instruction, one cannot but define distance education as a reduced and denaturalized form of face-to-face instruction.

Such a concept of distance education was unsatisfactory as it did not answer the questions, did not lay open the true nature of distance education and could not explain the enormous teaching potential which at that time had already been proved by the Quadriga-Radio-College in the Federal Republic of Germany and the Open University in the United Kingdom. I became aware that it might be futile and misleading to try to analyse distance education with categories of traditional teaching theory. Therefore, I looked for categories which are inherent in distance education, categories which maybe are lacking in face-to-face teaching entirely and which may answer some of the unanswered questions and the enormous impact of distance education all over the world. In doing so I arrived at

categories which so far had not been seen, let alone reflected upon, by experts in teaching theory.

GETTING A DIFFERENT PERSPECTIVE ON DISTANCE EDUCATION

Chapter 5 reveals that distance education has quite a number of structural features in common with the industrialized production process. The findings were, indeed, amazing: both processes are decisively determined by the principles of rationalization, the most important ones being the division and subdivision of labour, specialization, mechanization and automation. Both processes have to rely on careful planning, intensive preparatory work, adequate organization (bureaucracy, management approach), regular evaluation (quality control) and permanent optimizing. Both processes profit from the increased emphasis on research and increased cost-effectiveness, and both of them suffer from increased depersonalization.

In evaluating these findings, the questions raised can be answered as follows. First, *What is the characteristic feature of distance education?* After having read Chapter 5 it should be apparent that it is its high degree of industrialization. Hence, distance education can be defined as the most industrial form of teaching and learning. This definition points to a general characteristic of the new form of teaching and learning, it illuminates its structural peculiarity, and separates it sharply from all conventional forms of face-to-face instruction. It applies to all forms of distance education as it can be more or less industrialized – just like the production process. It is useful as it conveys a sense of direction and proportion and clarifies the typical approach of distance education to politicians responsible for education, planners of education, managers of distance teaching systems and their staffs as well as to teachers and students. This is an important task as nothing can be more counter-productive than not acting according to the principles of the system one is working in. Two examples are given as illustration:

- A Minister of Education accepted the idea of establishing an open university, but suggested that one should begin with a small unit which might grow, if successful, in subsequent years.
- A professor of a distance teaching university rushed to the nearest study centre as often as he could in order to tutor the students personally after he had learnt that most of his students had failed their tests. Both of them had certainly not understood the

> structural peculiarity of distance education. As it is an industrialized process based on division of labour, a high degree of mechanization and on the economy of scale, it is absurd to plan a small beginning. And the professor fell back to an artisan mode of teaching and met a small number of students instead of improving the teaching material in such a way that all students could profit from it.

In view of the difficulties I had to face when trying to define distance education in more pragmatic and more theoretical educational terms – as just mentioned – and in view of Garrison and Shale's remark that 'a definition of distance education has long been something of a Jason's Fleece for those working at the enterprise – tantalizing, much sought after, but ever elusive' (1987: 7), such a definitory characterization of distance education is already a step forward. But there is more to this definition as it provides us also with essential principles which help us to explain also the peculiar structural pattern of distance education. I refer to only five of them: rationalization, division and subdivision of labour, mechanization, automation and depersonalization. There is no doubt that they are at work in distance education in a very developed way. Everyone working in and for systems of distance education should be aware of them.

It can be easily seen that such a definition is a real definition which characterizes a structure common to all objects to which this term should be applied, and that it is not merely a nominal definition which – like most designations – takes into account such distinguishing marks as, for instance, the correspondence between teacher and student, the distance which is to be overcome, the relative independence of the learner, or the fact that this kind of instruction usually takes place in the home of the student. Such definitions simply explicate a meaning that the term happens to have according to existing verbal usage, which is quite often not logical.

Similar objections can be made with regard to the definitions of writers who select and highlight other characteristic features of distance education, as, for instance, 'independent study' (Wedemeyer 1971: 36), 'apartness and autonomy' of the self-directed learner (Moore 1977, 1983), the support model 'continuity of concern' (Sewart 1981: 8), the 'helping organization' (Delling 1991: 61) and the 'guided didactic conversation' (Holmberg 1981: 30). In my view these definitions are not as precise as they should be as there are also forms of independent learning, of apartness and autonomy and

support models at our schools and universities, and face-to-face instruction is even the model of the 'guided didactic conversation'. I also feel that all these definitions do not reflect the everyday practice of distance education, but try to improve it by underlining its desirable features. In this way they reveal a rather optimistic view of distance education.

The second question to be answered is this. *How much does distance differ from other forms of mediated teaching and learning?* The definition of distance education as the most industrial form of education helps to relate it to other forms of indirect or mediated forms of imparting knowledge, as they can be distinguished by their relative degree of being industrialized. Obviously, instruction by writing lacks most of the specific marks of industrialization – with the important exception that the teaching is objectified in the form of a letter which can be read again and again and by many persons. Teaching by printed material requires careful preparation, mechanical reproduction and some sort of organization for the distribution of the material to a great number of readers. Here, the process of industrialization of teaching and learning is far more advanced. In teaching by television the complexity of this process can hardly be surpassed, and the mass education effects are evident. But it is surpassed by distance education. In this case industrial production processes with regard to printed course material and radio and television broadcasts merge with developmental procedures and the systems approach of educational technology in a unique way in order to reach as many students as possible. It is clearly unbelievable how complicated the technical processes are which have been designed just to substitute the simple dialogue between teacher and student.

The third question is this. *What is the reason for the almost universal lack of esteem for distance education?* The comparative interpretation might lead us to assume that distance education was suspected and rejected for such a long time just because of its industrialized structure. It is true that this was not seen clearly and understood in the beginning, but it was certainly sensed. There was a vague but strong feeling about its being different. People did not accept the breakup of personal links between teacher and taught, they disliked the obvious depersonalization which took place as a result of mechanization, and they queried the artificial way in which the gap between the teacher and student was to be bridged. Above all, they rejected the idea of producing and marketing education just like a commodity. These may also be the reasons why this

particular method of teaching and learning was normally not adopted by traditional schools and universities, and, hence, did not belong to the mainstream of education for a long time.

The fourth question is, *What are the reasons for the world-wide appeal distance education has had during the last two decades*? The attractiveness of distance education for educational reformers and politicians responsible for education as well as for millions of students all over the world can be also explained by its industrialization. It is the principle of mass production the application of which enables distance teaching institutions to supply high-quality instruction at comparatively low cost for great numbers of students. The teaching of only a small group of excellent teachers can be duplicated *ad libitum*. It is the industrialized mode of education which makes it, above all, possible 'that an increase in the number of educated people in a nation can be achieved *faster* than in any other way' (Perry 1986: 17).

One might want to test whether the other definitions quoted could contribute to the answering of questions like these. Obviously not. This shows the interpretative power of the definition of distance education as the most industrialized mode of teaching and learning.

Chapter 6 deals with some of the theoretic underpinnings of distance education in order to prove that there is more to it than just a new label or a more or less attractive catchword.

The findings of the first approach – a historical interpretation – are that the process of industrialization is not such an alien element in education as many people think. Rather, it is the result of a long historical development and perfectly in line with six dimensions of change. Thus, it is in harmony with historical tendencies to become more egalitarian, more profane, more determined by the students, more mechanized, more accessible for larger groups of students, and less tied to special persons, places and times. The decisive difference between industrialized education and traditional instruction is not due to unusual exterior influences, but originates basically from the slower development of the latter along the same lines. Judged in terms of this historical model, distance education is more advanced in the categories given, and traditional instruction is lagging behind.

A second approach deals with socio-cultural and intellectual preconditions of distance education. Here, the findings indicate clearly that distance education is a genuine product of the era of industrialization, as it requires motivations, attitudes, social experiences and dimensions of consciousness which could have developed in this

period only and never in former periods in the development of mankind. In other words: people in the industrialized society are prepared in very special ways for this particular mode of teaching and learning. This, by the way, explains also the tremendous difficulties of developing countries which hope to profit from industrialized learning and, therefore, have established institutions of distance education.

The third approach – a sociological interpretation – contributes to the further clarification of the concept of industrialized education. With the help of categories developed in order to describe relevant structural changes of institutional subsystems which were caused by industrialization it is possible to characterize distance education as such a subsystem. It can be conceived as a subsystem of action determined by rational means–ends thinking, whereas traditional face-to-face teaching appears to remain a subsystem of communicative action. It could be shown that they, indeed, differ with regard to seven pairs of categories. Whereas in face-to-face teaching as a subsystem of communicative action the students' and the teachers' actions are predominantly determined by social norms, the intersubjectively shared everyday language, reciprocal behaviour expectations, the internalization of roles, the aim of preserving the institution, the punishment of the students by conventional sanctions and the goals of emancipation, individuation and the extension of dominance-free communication, it appears that distance teaching as a system of educational action determined by rational means–ends thinking is predominantly determined by technical rules, a context-free language, conditional prognoses and imperatives, the learning of skills and qualifications, the attainment of objectives by applying means-to-an-end principles, the students' failing because of their inability to cope with the reality of learning at a distance, and the goals to increase and to extend the teaching system. It may be deduced that face-to-face instruction and industrialized instruction are, therefore, two structurally distinct and separated forms of education.

The fourth approach tries to interpret industrialized education in anthropological terms. It reveals that technology and being human have the same origin and that technical activity belongs essentially to the distinguishing marks of man. Seen from this angle, it appears only natural that this technical activity is developed in education too and that man uses industrialized education if no other way of providing instruction is possible for all the students asking for it.

These four ways of looking at distance education as industrialized

education underline the relevance of the new concept. They make clear that it is theoretically substantiated and that it helps us to see important structural patterns and elements which remain invisible if treated in terms of conventional theories of teaching and education.

This does not, of course, mean that the current theories of teaching and learning are to be replaced by this concept. Here, I have to oppose a misconception caused by speakers and writers who, in a somewhat careless use of the word 'theory' continue to refer to 'the theory of distance education as industrialized teaching and learning'. This phrase suggests or even implies that the concept of industrialized teaching and learning could become instrumental when goals, contents, methods and media of instruction are to be discussed and decided upon. Nothing could be more absurd. Quite the contrary: all theoretical approaches which reflect critically, for instance, the pedagogical value of given teaching and learning goals or relevant content, and justify and legitimate it, naturally apply to distance education in the same way as to all other forms of instruction in spite of its being highly industrialized. Obviously, too little is done in this respect. And the classical teaching–learning models can also be very helpful in analysing and constructing distance education. The practice of distance education has shown that some versions of educational technology are widely used – probably because of its definite affinities to distance education and to industrialization as well. It is telling and symptomatic that most distance teaching universities have established centres of educational technology which help to design, construct, and operate instructional systems. Together with a pragmatically orientated curriculum theory they provide the theoretical background and framework for the analysis and construction of distance education. They can be used according to the philosophical outlook and theoretical approach preferred by those in charge of and responsible for this kind of instruction.

It must be stressed that the concept of distance education as an industrialized mode of teaching and learning surely cannot perform these functions. On the other hand, this concept is relevant to other factors. It can draw educationists' attention to the fact that industrialization, which has thoroughly changed our lives in most areas, has done so in the realm of education as well. It can convince those who up to now preferred not to see this process or even indulged in denying it. It can make them see clearly what is different in distance education and induce them to act accordingly. Whatever the readers' attitudes to this process may be – amazement, optimistic confidence, sceptical interest, profound contempt or even sharp

rejection – the industrialization of teaching and learning has taken place in spite of them. And chances are that it will develop further if the industrialization of society continues to grow so rapidly and irresistibly. Is such an extension of distance education to be desired? My personal views on this issue are ambivalent.

On the one hand I would certainly advocate it if the industrialization of teaching and learning continues to enable us to offer education to deprived adults who were previously denied opportunities. This is basically a moral question. One cannot keep distance education from the disadvantaged on the grounds that the further spreading of industrialized forms of teaching might be a menace to humanity. We have to realize that this can also be a matter of social justice.

Furthermore, I envisage that industrialized forms of imparting knowledge will, by and by, also permeate and finally partly substitute for face-to-face instruction on all levels. In other words, the importance of industrialized forms of teaching and learning will increase in the industrialized world civilization of the future. Will this be harmful to men and women? I do not think so as I believe optimistically that people – anthropologically speaking – will continue to change and adapt to the new structures of industrialized education of the future. They may then differ from us as we differ from agrarian peoples. They may change to such a degree – also with regard to their values – that they will not understand our present fears and doubts.

On the other hand I am pessimistic and join those critics who are convinced that the continued process of industrialization will finally destroy the foundations of life on this planet. As distance education is a part of this powerful process it is more than likely that it will contribute to the disintegration of society as it isolates people from one another, reduces the forms of shared learning, and keep learners away from personal interactions and critical intercourse. This may remain true even if post-industrialism will try to mitigate these more obvious weaknesses of the industrialized mode of teaching and learning – as is described in Chapter 11. Seemingly, such a sense of uncertainty, such a splitting of consciousness, is typical of times of transition.

Finally, in order to defend myself against the reproach that I have developed a theory which is not related to pedagogical theories, I should like to mention that I never claimed to have developed a theory of distance education at all. Rather, I, very modestly, interpreted distance education only with the help of the metaphor of

the industrialized production process and found similarities. Later I understood that distance education is not only similar to an industrialized production process, but is itself thoroughly industrialized. This is a special way of conceiving distance education – and nothing more. Therefore, I prefer to speak of the concept of industrialized teaching and learning. It helps us to see a number of criteria which distinguish distance education from all forms of face-to-face instruction. It is not an approach of general teaching theory, but rather a sociological analysis. Will the findings ever be integrated into general teaching theories? I am doubtful about this as didactic theories, indeed, lack the categories for grasping this strange phenomenon.

PUTTING DISTANCE EDUCATION TO THE TEST

The establishment of the Fernuniversität by the *Land* North Rhine-Westphalia in 1974 was not the first initiative towards introducing distance education in the Federal Republic of Germany. The preceding ten years had seen the foundation of the *Telekolleg* of the Bavarian Broadcasting Corporation, the *Funkkolleg* of the Hessian Broadcasting Corporation, and of the *Deutsches Institut für Fernstudien an der Universität Tübingen* (German Institute of Distance Education at the University of Tübingen), which was to conduct research into distance education and to develop distance teaching material. But the establishment of the Fernuniversität was a major thrust forward in the development of distance education in the Federal Republic as, and this was new, a whole university was founded in order to provide new opportunities for acquiring degrees and for university-level continuing education. I was involved in it as I served first as a member of its Founding Committee and then as its Founding Rector (vice-chancellor).

Why did I accept the new job which called for such a great effort and so much time mainly spent on administrative affairs and which would keep me away from my scholarly work? There were, among others, mainly three reasons. First, I was challenged by the sheer importance of the new university. I had the idea that after the implementation of universal *primary* education and universal *secondary* education the general trend in highly industrialized countries would eventually lead to universal *tertiary* education, to which distance education would have to contribute a great deal. With regard to the future I considered the adult student studying at a distance no longer as exceptional, but rather as normal and even typical. In other words, I could not imagine universal tertiary education without