INTERNATIONAL RESEARCH FOUNDATION
FOR OPEN LEARNING

European research in distance education

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1.0 AN OVERVIEW

In the following report the major areas of European distance education research are described according to a definition of the field concerned given below. Because of the particular significance of the European Commission's support for Open and Distance Learning and of the German Institute for Research in Distance Education (DIFF, Tübingen) both of these are individually portraited.

1.1 The concept of distance education research

15 years ago the term *distance education* was a clearly defined concept in the context of mainland Europe (distance education of the second generation with written and audio-visual education materials, face-to-face elements in the form of tutorials and examinations), but since the revolutionary dissemination of new technologies in the education sector this can no longer be so precisely defined. In the meantime there are a variety of flexible teaching-learning opportunities offered by conventional universities which employ *elements* of distance education, which one cannot, however, strictly speaking, call systematic distance education. Distance education is therefore here defined as: those teaching-learning processes in which as a rule

- teaching and learning are separated in both space and time,
- bridging the distance and guiding the learning process is effected by means of specially prepared materials (media) and in the context of an organisation which steers and supports the whole process.

Distance education contains all these elements, whereas flexible teaching-learning offerings often only adopt individual parts of a *distance education system.*

On this basis, distance education research is here defined as taking its starting point from the s*ystem of distance education* i.e. as referring to the planning, development, implementation and evaluation of distance education courses in that it both investigates what is already there and also makes possible innovation in the system on the basis of

scientific results. This distance education research will thereby take into account other research which is in fact carried out in other disciplinary contexts, the results of which can, however, in individual cases also be relevant for distance education. These might be, for instance, studies on adult learning, on cognitive psychology or investigations into the effects of media. Distance education research will as a rule take these research results into account and integrate them into its fields of investigation. At the same time it becomes evident that distance education research is

- to a large extent practice-oriented as well as
- interdisciplinarily oriented and
- encompasses micro- as well as macro levels of teaching and learning, including their organisation

Given these structural characteristics, distance education research is linked with various academic disciplines and should concern itself - perhaps more intensively - with research results from these fields which are relevant for distance education. On the other hand, distance education research should also present its results outside its own peer group and use the existing fora for this purpose.

An important forum for exchange on research in the domain of adult teaching and learning and on instructional design, the results of which are also of relevance for distance education research, is, for instance, the European Association for Research on Learning and Instruction (EARLI); in the relevant journals on educational psychology, educational technology or higher education we can also often find papers which refer to distance education or can be applied to it. A considered analysis of these research activities is, however, not possible within the limits of this brief overview.

1.2 Summary

The situation of continental European distance education research can be characterised as follows:

- Parallel to the increasing importance of distance education, the field of distance education research is also growing, in particular with regard to the use of media. Apart from this field, important areas to note are (classical) formative evaluation or practice-oriented research, which are carried out in institutions of

distance education, and pedagogic/methodological research. Basic research on distance education (see the section on the DIFF), for instance on questions of knowledge acquisition in the context of self-directed learning, will as a rule be carried out in the context of traditional academic disciplines, for instance, psychology or education science, and must be linked to the current state of debate in distance education.

- On the negative side we have an unsystematic picture of the European research scene and the still rather weakly defined self-image of distance education research as a genuine strand of research, although the need for knowledge, for instance, on media-supported learning or on the transfer of knowledge, has significantly increased, not only in distance education but in the education and training sector as a whole. It is therefore necessary to establish better links between distance education research and other disciplines.

- As the only independent research institute (independent also of any institution which provides and/or implements courses), the German Institute for Research in Distance Education (DIFF, Tübingen) has a remit which covers basic research in the field of distance education, apart from the areas of research already mentioned.

- As far as we can judge, rather more resources for distance education research have been made available in the past few years, although the major trend with regard to research financing in Europe tends in the opposite direction. In particular for the field of new technologies considerable funds have been provided on both a national and international scale. The EU-Commission has made the field of multimedia and learning programs a major focus of its research funding. Distance education research will also profit from this.

Problems of European distance education research:

- The linguistic diversity in Europe limits the target groups of any research results which are not published in English, and therefore limits their dissemination and the international exchange of ideas.

- To date there is no central journal for articles and reports on distance education research in Europe outside Great Britain. For publication in the international academic journals on distance education an excellent command of the English language is the necessary condition. Other platforms for exchange are also still too few and far between. Distance education conferences are, generally speaking, organised as arenas for the exchange of experience between practitioners.

- The European funding programmes of the EU have only lately begun to give explicit support to distance education; the area eligible for support is, however, still generally limited to the use of modern technologies in distance education. Only a few programmes, such as, for instance, SOCRATES or LEONARDO also support pedagogic lines of development and explicitly include practice-oriented research. Funding for distance education research is provided within the programme "Targeted Socio-Economic Research".

- Distance education research as we have defined it so far can hardly offer prospects of an academic or other professional career - as applies similarly to higher education research in general. Research programmes relevant to distance education are therefore often to be found in the context of other academic disciplines outside distance education.

- Continental European distance education research above all draws on the English language literature, presenting results which as a rule have also been gained in institutions of the English-language commonwealth. A telling example: In the conference proceedings (more than 1,000 pages) of the 17th ICDE-World Congress (1995) the Spanish UNED is presented in just one paper, although it is a mega-university with more than 100,000 students, and, moreover, exerts a far-reaching influence, extending to large parts of South America and other Spanish-speaking parts of the world. The Portuguese Universidade Aberta does not appear in this context at all, nor does the Open Universiteit of the Netherlands, although there was a particular "European Focus" as one strand of the conference. On the other hand, a large number of papers were presented on the work of distance

education institutions from almost all the countries of the British Commonwealth, as for instance Canada, Australia, New Zealand, India, Bangladesh, numerous African countries, and also from the USA. Anglo-American research, on the contrary, seldom draws on the results of work from outside its own sphere, so there is a danger of English language distance education research being taken as representative for this kind of research as a whole (Baumeister 1997).

2.0 DISTANCE EDUCATION INSTITUTIONS WITH RESEARCH ACTIVITIES

The major distance education institutions in (Western) Europe are represented in the European Association of Distance Teaching Universities (EADTU). Of the 18 members, 15 come from mainland Europe. Of these, eight are consortia (with various organisational structures), which represent conventional universities with distance study activities. A further four members represent single-mode distance teaching universities. Two members are distance education centres. One member is purely a distance education research institute, the German Institute for Research in Distance Education (DIFF); as an institution independent of any tertiary-level provider of distance education it is probably unique. Desmond Keegan provides an overview in *Distance Training in the European Union* (1994), without, however, describing research activities ("Distance education is a vast, but little studied, EU resource.").

It is easiest to identify the institutional anchoring of distance education research in the case of the single-mode institutions (if we here leave the DIFF out of the account). As a rule they have their own department for relevant research, for instance, the Central Institute for Distance education research (ZIFF) at the German FernUniversität, the Educational Technology Expertise Centre (OTEC) of the Open Universiteit of the Netherlands, the Distance Learning Study Centre of the Universidade Aberta, Portugal or the Instituto Universitario de Educación a Distancia (IUED) of the Universidad Nacional de Educación a Distancia, Spain. At the same time it is remarkable that distance teaching universities - in contrast to traditional universities - rarely emphasise their research activities; this holds true for all the institutions mentioned, but is particularly noticeable in the case of the ZIFF and the OTEC with their considerable research activities. Neither in the presentation of its aims nor in comparison to other universities is the research of the OTEC mentioned (Enckevort/de Haan 1996). This fact can indeed be taken as *pars pro toto*. Further proof is given, for instance, by the fact that the Editorial Board of a nascent European Journal for Open Distance Learning did not mention distance education research as a field of interest in the first draft of its editorial policy. These single instances are corroborated by Moreno at a more basic level. "The rapid development and evolution of

distance education as a mode of teaching-learning has not been accompanied by an equal development of the theoretical basis which would convert distance learning into an autonomous discipline." (Moreno 1996). It is correspondingly difficult to identify distance education research and the individual actors in Europe.

The Educational Technology Expertise Centre of the Dutch Open Universiteit has, however, a somewhat special position among the institutions mentioned. Due to the networking of its research activities with research relevant to university-level teaching at other Dutch universities, it has overcome the otherwise characteristic isolation and has by this means already exercised a definitive influence on European distance education research.

In contrast to the single-mode Institutions - UNED/E, UA/P, Ou/NL and FernUniversität/D - documenting distance education research undertaken by the members of consortia is a more difficult task because this is as a rule carried out within individual departments of conventional universities and systematic summaries of the work are hardly to be found. A happy exception are the Scandinavian distance education associations such as the Danish Association of Open Universities, the Finnish Association for Distance Education and the Swedish Association for Distance Education; they document major areas of research in the context of distance education. An overview of the Norwegian situation is also available in a study by Rekkedal (Rekkedal 1993). It is difficult, however, to obtain an overview of the activities in France although here the Centre National d'Enseignement à Distance (CNED) is situated, one of the largest institutions world-wide, and maintains its own research department. (Keegan 1994).

It can be assumed that in the rest of the tertiary education sector, too, research is being done in areas which overlap with research fields of distance education and which can also be found in the relevant research documentation (for instance, in Proceedings of EARLI-Conferences).

Following the events of 1989 the existing distance education systems in the former Eastern European states almost entirely collapsed. Their educational function could no longer be applied in a system of free access to all educational systems; their task had been above all, by means of updating/upgrading measures, to balance differences between planning objectives in the context of the socialist

five-year plans and of real needs with regard to qualified personnel. At the present time the EU-Commission, above all in the context of the PHARE-Programme is making efforts to build up distance education structures. In the context of TEMPUS, a sub-programme of PHARE, distance education is also being used for teacher inservice education. Above all Hungary, the Czech Republic and Slovakia are also developing their own national activities - if only, due to tight public budgets, on a very reduced scale. As a result of this situation there are only a few isolated developments of distance education research in higher education institutions, which are confined to formative evaluations of the few courses which are actually running. As a future perspective, however, the necessity of increased research activity is mentioned (Pálvölgyi et al. 1995).

3.0 RESEARCH THEMES

For the purposes of this overview we shall adopt an artificial division into three different fields which is in fact not to be found in this form in actual European research practice. We can identify three major groupings of European distance education research:

- Practice-oriented research
- Research on questions of pedagogy or instructional design
- Use of media

These fields cover different levels: Whilst practice-oriented research (cf. 2.1) is very closely tied to concrete institutions and projects, the other two are oriented on content-based research questions and lead to transferable, generalisable insights. On the other hand, this means that research questions from educational research or on the use of media are also to be found in the context of practice-oriented research.

In the following section the individual areas will be briefly sketched; basic research on distance education will be discussed in connection with the description of the DIFF (§4.).

3.1 Practice-oriented research

No other educational system accompanies its practice with such intensive research as distance education. On the other hand, its research programme, methods and results are very closely linked to the specific institution which is carrying out the investigations. This of course limits the transferability of the results. An example: whilst the Spanish UNED or the British OU offer preparatory courses for would-be students who do not have the usual immatriculation requirements, this is not the case with the German FernUniversität; there, every interested person who has the necessary requirements is immediately accepted as a student. This has an immediate effect on the drop-out quota: this is lower at the UNED and at the OU than at the FernUniversität. The different conditions do not allow a direct comparison of research results.

Formative evaluation is primarily concerned with all aspects of planning, development and implementation of distance study offerings which are important at a particular institution. This includes studies on the following aspects:

Planning
Undergraduate programmes /Continuing education /Professional Training
Course design
Addressees
Teaching /Learning methods
Media
Combination of media
Tuition /Student support
Dropout
Costs
Organisational structures

This kind of research is carried out at practically all European institutions of distance education. The results primarily serve internal quality control, but also provide the basis for political decision-making (Palacios 1996). Of particular importance for political decision-making are questions of costs in distance education, which are also occasionally investigated in the context of distance education research (Dondi 1995). Orivel (1987) has developed a model with a sophisticated method, which goes beyond the usual approaches adopted in the context of practice-oriented research. The ZIFF in Hagen also continues to explore questions of educational economics.

It is, however, very difficult to gain a complete overview of European practice-oriented research. There is no doubt a

deficit here, which, in view of European co-operation in the field of distance study and the resulting necessity of reciprocal information on different teaching-learning systems, the question of the comparability of educational credits etc., should soon be addressed. (Harris & Dochy, 1990). Up till now the methods and results are only occasionally published and presented in an international context (see Schuemer 1991).

The most extensive practice-oriented research on distance education on the European continent is at the present time being carried out by the DIFF, which is evaluating a nation-wide programme of centrally-funded distance study projects at conventional universities and other institutions of higher education in Germany. The results serve to analyse the structural conditions of a decentralised distance study system in a federal state (Unpublished mid-term report, 1996).

International practice-oriented research was also carried out at the European level in the evaluation of research funding programmes of the EU, for instance, of the DELTA-Programme, which was intended to encourage the development of media-supported environments in distance education (see 2.3). This evaluation was, however, co-ordinated by a British institute (Tavistock).

Practice-oriented research has been given fresh impetus in the past few years with the introduction of the term *Quality Assurance*, - this is connected with the almost universally positive connotations of the word *quality*. Practice-oriented research and quality assurance are not synonymous; studies on standards and quality mark a threshold where the institutional or project-based practice-oriented research reaches the level of generalisation. Overlap with the areas described in 2.2 and 2.3 therefore occur here too. The weakness of this approach lies in the fact that there is no absolute yardstick for *Quality*, insofar as anyone is in the end free to define their own quality standards ("But sometimes this concept of quality as 'excellence' is not easy to identify, and even less easy to measure, in particular in areas as, for example, education." Palacios 1996). In this respect classical practice-oriented research has not lost its relevance.

An altogether difficult problem in the field of distance education is the application of practice-oriented research results in day-to-day practice; here there is no detailed knowledge available. However, the statement "Quality is better ensured by practitioners than by researchers" (Kuomi

1995) is likely to meet with wide approval. In the individual distance study institutions guidelines or manuals are often published, which, in the form of recipes, are intended to facilitate the application of definitive results of the institution's internal practice-oriented research to the production of study materials. Similarly, in the recent past, various Guidelines for Quality Control have been published (e.g. Ljoså/Rekkedal, SATURN, Robinson).

A comprehensive and generally available Manual was published by the DIFF in 1995, which also describes procedures for formative and summative evaluation in detail (Rottländer et al, 1995). Further information about the research literature can also be found there.

3.2 Educational research, research on instructional design

In the context of this approach investigative studies are carried out which are concerned with the effects of the media and methods used in distance education with regard to supporting learning. Apart from the actual design of written and audio-visual study materials adequate to the needs of the addressees, questions of motivation of adult learners and their learning strategies would also fall into this category. In the context of pedagogic/methodological research, insights from practice-oriented research are frequently combined with results from other academic disciplines.

The term *Didaktik/didactique etc.*, found in many continental European languages is in the first place a term stemming from a particular pedagogic tradition, one which is not to be found everywhere in Europe. In many traditions *educational technology* or *instructional design* is the preferred term. Research programmes in this context have been given a strong impetus by the paradigm of learner-oriented distance education. "There is a particular need to avoid an excessively 'supply-led' concept of provision -- courses and opportunities need to be sensitive to the needs and desires of learners, and not be based simply on new technological possibilities, the ideas of suppliers or their institutional interests." (OECD 1995a).

An overview of the current state of research in this field as a whole is given by Peters (1995) and Elen (1996). One must, however, note that they document only very few instances of non-Anglo-Saxon literature and that emphasis for pedagogic research lies in the field of instructional design and cognitive psychology; in this respect we can here see overlap with basic research. Elen's article has the advantage of close proximity to the practical demands of distance education, therefore providing an important (but rare) contribution to the transfer of pedagogic research in various academic disciplines to concrete applications in distance education.

Indirectly one can also conclude from the overviews of Peters and Elen that European distance study institutions or their research institutes – if one disregards the DIFF – must invest more effort in this field.

3.3 Use of media

Research on the effective use of media in distance education have always constituted a major area of research in the distance education sector, which is easily explained, given the definition and characteristics of distance education. Through the current concentration of the discussion on modern technologies, above all on the net-based telematics, it is easily forgotten, that it is print-based material which is still employed as the main medium for individualised teaching-learning processes in distance education. It is therefore necessary to point out that the use of media in distance education is as a rule to be understood as a media mix and that in this context the so-called new technologies often still make only a limited contribution to this mix and are still very much at an experimental stage. This is particularly true for two reasons; first because the realisation that computer-based materials should be developed by interdisciplinary course teams is only gradually gaining acceptance and secondly because the not insubstantial costs for the development of pedagogically sophisticated materials and the investment costs, particularly on the part of the students, must be taken into account (Elen 1996). On the other hand developments in the multimedia sector are leading to a situation in which the classical audio-visual study materials such as audio-cassettes and videos are losing importance in distance education and will be subsumed increasingly in the telematic-supported multimedia development.

A comprehensive overview of learning with media can be found in the textbook *Learning with multimedial learning environments in vocational further training* (Friedrich et al. in press). The title ("*vocational further training* ") could, perhaps, be misleading, but the publication extensive contributions on learning with media, which are based on the analysis of current research results, in particular also from the European region. Considering the frequent narrow use of the term media to mean only the new technologies, this overview is particularly valuable. Even if it is concerned, in the first instance, with learning with media in general, independent learning, as it is typically to be found in distance education, is very much in the focus of attention.

In the domain of text-based learning, Ballstaedt (1993) has developed guidelines for the design of written teaching texts,

which are based on an evaluation of the relevant international research. In the past, the DIFF has itself made a considerable contribution to this research and plays a leading international role in this field (Peters 1995). Ballstaedt`s volume will be extended in 1997 by including guidelines - similarly grounded in theory - on learning with pictures and diagrams.

Stimulated as it is by various European and national funding programmes for the field of the new technologies and their use in education generally, there is an impression of intensive scientific work especially in this field. And indeed there are also numerous *developments* in the field of distance education, which are, however, as regards their approach, generally based on plausibility and above all introduce new hardware and software developments into the practice of distance education. The only comprehensive field study in this sector to date, the evaluation of the DELTA-programme of the EU, therefore concludes that the use of new technologies is still insufficiently co-ordinated with other elements of the *system of distance education*: "A particular weakness of the applications studied was the low level of integration between on-line and face to face learning. In addition, the functions of management, presentation, moderation and animation of on-line learning, and the new, emerging teaching and tutoring roles associated to them appeared very under-developed." (Frade, 1995). In considering the relevant European *research* activities one must therefore differentiate between the general (and extensively sub-divided) research on the use of new technologies for teaching and learning with computer based technologies and research which is specifically geared to distance education.

Overviews of European studies with these specific orientations are given by Frade (1995), Zimmer (1995), Ficer (1995), Wedekind et al. (1996), Tergan (1996) and distance education Volder (1996). Considering the fact that distance education is a form of mass education, it is to be lamented that definitive field studies in this domain are still lacking (Hesse & Schwan 1996). The Manual "Staff Training in Media Use for Learning and Teaching" (Tergan & Wedekind 1994), developed in the context of a European workshop applies relevant research results to the practice of distance education. Apart from the ubiquitous Anglo-American research in this domain, it also takes European studies into account.

4.0 INTERNATIONAL CO-OPERATION ON RESEARCH

Apart from the actors and major fields sketched above, European distance education research in the context of the research funding of the EU is gaining in profile. The 4th Research Action Programme foresees explicit distance education research, in particular in the field of the utilisation of new media. This major area of research will also be continued in the coming 5th Action Programme.

This new emphasis was prepared by a Memorandum of the EU-Commission on the future functions of ODL in the EU. The legal basis for the extended support for ODL in Europe is given in Art. 126 of the Maastricht Treaty, in which the member states are specifically obliged to support the development of ODL.

Standards are also set by publications of the EU-Commission such as "Multimedia and learning programs" or the White Paper "Teaching and Learning: On the way to a cognitive society", in which future themes for distance education research are also described. Since the programmes of research funding based on such papers are often financially much better provided for than equivalent national programmes, these initiatives are also influencing national activities to a considerable extent: "It is also clear that the support of EU programmes of action for ODL has offered the Commission the opportunity on an extended scale to influence educational activity within and across the member states." (Tait 1996). In other words: The agenda for future distance education research in Europe is very largely defined in Brussels. On the other hand this again documents the fact that national activities should be considerably intensified and better co-ordinated.

The areas under discussion, which should give the impetus for increased research activities are the following

- encouragement of co-operation between users and producers,
- improvement of the competence of the teacher, trainer and those responsible for the application of the relevant techniques,

- improvement of the quality and user-friendliness of the products,
- encouragement of the recognition of qualifications gained by distance education,
- identification and facilitation of the transfer of innovative practices in the integration of learning programs and multimedia in teaching.

Pure research projects are granted funding through the "Targeted Socio-Economic Research" programme; in particular in Area II. "Research on education and training" one can find fields of research, which help to support innovative studies which look to the future.

In the meantime, one of the largest European research-funding programmes in the field of distance education, namely DELTA, has also been evaluated (see 2.3). That the results of the programme were on the whole disappointing was caused, according to the evaluators, above all by the fact that a top-down-policy was adopted: programmes were designed on the drawing board, in a technology-oriented environment, without asking in any detail about the needs of the learners. Uppermost in the minds of the project partners was the will to do what was technically possible. This was not, however, accepted by the students (Frade et al., 1995).

As a major consequence, the EU-Commission has in its new lines of action put great emphasis on including the users in the design of learning environments and apart from this to take pedagogic considerations as the starting point in developments in the field of distance education, which implies the inclusion of relevant research and its results. (SOCRATES-Guidelines). Although one should in fact be able to take the latter consideration for granted in the (further) development of education systems generally, as also in distance education, the Commission's emphasis on this point shows that there are still deficits to be made good here.

These deficiencies stem from the fact that educational research in particular has, in the past, scarcely occupied itself with such a modern form of education as distance education (OECD 1995b). Here, however, the use of modern technologies for teaching functions at traditional universities is leading to a certain change of views; this can be seen in the large number of relevant congresses and conferences. In this respect one can expect that distance education research and pedagogic research will take some steps towards one another.

5.0 THE WORK OF THE GERMAN INSTITUTE FOR RESEARCH IN DISTANCE EDUCATION (DIFF)

Distance education research as an independent research discipline is only carried out in Europe at the German Institute for Research in Distance Education (DIFF; Tübingen) in a systematic framework; this research is *both application-oriented and basic*. Apart from this it is also particularly characterised by interdisciplinarity. The DIFF structures its research activities in three-year research plans. The themes for the years 1994-1996 were defined thus:

- Learning with media

Under this heading innovative uses of electronic media are investigated, in particular uses of new communication technologies and multi-media learning environments for the initiation and support of processes of individual and co-operative knowledge acquisition. The analysis of learning processes and of how they are supported by educational design measures are investigated in an integrated way in the context of applied cognitive science research.

- Theoretical foundations of distance education

The emphasis here lies on investigations on the design, development, implementation and evaluation of teaching-learning models in distance education under the global perspective of the interrelationships between content, media, teaching methods and target groups. An essential point of reference is orientation on student needs, in order to design learning environments which allow more individualisation of learning. Research questions pertaining to student needs refer both to individual factors and to the socio-cultural framework in which they study, including differing forms of socialisation in education and continuing education systems in an international context. A major area of work is the study of gender-specific teaching and learning in the context of distance education and continuing education.

- Practice oriented transfer of knowledge and interdisciplinarity

Problems relating to processes of selection, structuring and teaching of learning-content are investigated with the aim of optimising these processes so that they are adequate to support the effective transfer of what is learned into vocational practice. To this purpose, continuing education models are developed and tested in which distance education elements are integrated with real vocational tasks. Since business, industrial and educational practice often demand thinking in interdisciplinary frameworks, an area of particular interest pertains to methods of interdisciplinary teaching and its realisation in distance education offers

Co-operative research projects can be found in national as well as in international contexts; in the international field the DIFF has also initiated co-operative European research, for instance with French or Dutch partners. Particular emphasis is placed on combining the scientific studies with important feeder disciplines in the higher education sector. This approach is also particularly important for the basic research of the Institute in distance education. Through a dense co-operative network of partner institutions which are actually providers of distance education and continuing education the results of the Institute's research work are tested and evaluated in practice.

In the context of an extensive field study the DIFF is at present evaluating the construction and workings of a decentralised distance education system at university level in Germany. This work on the one hand stimulates the application-specific character of the research work; on the other hand it is of great importance for the development of decentralised European co-operative models for distance higher education, such as often form the basis of the EU-Commission's deliberations on European distance education (distance study network).

Bibliography

Ballstaedt, St.-P. (1993). Richtlinien zur Gestaltung von Lehrtexten. Werkstattbericht Nr. 2. Tübingen: Deutsches Institut für Fernstudienforschung.

Baumeister, Hans-Peter (in press). Germany's Place within the International Discussion about Standards and Quality in Open Distance Learning. In Tait, A. (Ed.). International perspectives on Quality Assurance in Distance Education.

Bergler, Martha (Hrsg.)(1996) *Didaktik des Fernstudiums aus erwachsenenpädagogischer Sicht.* Dokumentation zum Symposium am 6./7.11. 1995 in Tübingen. Tübingen: Deutsches Institut für Fernstudienforschung.

Calder, Judith (1994). *Programme Evaluation and Quality*. A Comprehensive Guide to Setting up an Evaluation System. London: Kogan Page.

Deutsches Institut für Fernstudienforschung (Ed.) (1994). *Mittelfristige Forschungs- und Entwicklungsplanung 1994-1996*. Tübingen: Deutsches Institut für Fernstudienforschung.

De Volder, Maurice (Ed.)(1996). *From Penny Post to Information Super-Highway: Open and Distance Learning in Close-up*. Leuven/Amersfort: Acco.

De Volder, Maurice (1996). Telematics in open and distance learning. In De Volder, Maurice (Ed.). *From Penny Post to Information Super-Highway: Open and Distance Learning in Close-up*. Leuven/Amersfort: Acco. pp. 205-222.

Dondi, C. (1995). Increased quality at decreased cost: dream or reality? Paper presented at Online Educa Berlin International conference on distance education.

Elen, Jan (1996). Didactical Aspects of Self-Study Material. In De Volder, Maurice (Ed.). *From Penny Post to Information Super-Highway: Open and Distance Learning in Close-up*. Leuven/Amersfort: Acco. pp.75-97.

Enckevort, Ger van & Haan, Bauke de (1996). Funding of an Open University: Changing Relations with the Government. A Case Study. In Fandel, Günter, Bartz,

Rolf & Nickolmann, Friedhelm (eds.)(1996). *University Level Distance Education in Europe. Assessment and Perspectives*. Proceedings of a Workshop Jointly Initiated and Organised by FernUniversität and EADTU in Hagen, December 1994. Weinheim: Deutscher Studien Verlag. pp. 155-160.

EUDISED *European educational research yearbook* / Council of Europe. - München etc.: Saur ISSN 0947-5826

European Association of Distance Teaching Universities (EADTU) and European Open University Network (EOUN). (Eds.)(1996). *Annual Report of Activities 1995*. Heerlen: EADTU.

Fandel, Günter, Bartz, Rolf & Nickolmann, Friedhelm (eds.)(1996). *University Level Distance Education in Europe. Assessment and Perspectives*. Proceedings of a Workshop Jointly Initiated and Organised by FernUniversität and EADTU in Hagen, December 1994. Weinheim: Deutscher Studien Verlag.

Fischer, Stefanie (1995). Multimedia Teleschool: Fernlernen mit neuen Technologien in der Praxis. In Issing, Ludwig J. & Klimsa Paul (Hrsg.). *Information und Lernen mit Multimedia*. Weinheim: Psychologie Verlags Union. pp. 353-363.

Frade, Carlos, Marsh, Jesse & Contargyris, Thanos (1995). Case Studies on Learning Configurations. An Appraisal of the Education & Training services Piloted in the EU's DELTA Programme on Telematics for Distance & Flexible Learning. ARTICULATE Deliverable 15. London: The Tavistock Institute.

Friedrich, H.F., Eigler, G. Mandl, H., Schnotz, W., Schott, F. & Seel, M. (Hrsg.)(in press). Lernen mit multimedialen Lernumgebungen in der betrieblichen Weiterbildung. Neuwied: Luchterhand.

Friedrich, Helmut Felix & Ballstaedt, St.-P. (1995). *Strategien für das Lernen mit Medien*. Tübingen: Deutsches Institut für Fernstudienforschung.

Harris, D. & Dochy, F. (1990). 'Theoretical considerations and practical pitfalls: the use of perfomance indicators'. In Dochy, F., Segers, M. & Wijnen, W. (eds). *Management Information and Performance Indicators in Higher*

Education: An International Issue. Assen/Maastricht: Van Gorcum.

Hesse, F.W. & Schwan, S. (1996). Learning in a "Virtual Seminar" - Metaphor and Virtuality in Computer-mediated Communicative Learning Settings. In Fandel, Günter, Bartz, Rolf & Nickolmann, Friedhelm (eds.). *University Level Distance Education in Europe. Assessment and Perspectives*. Proceedings of a Workshop Jointly Initiated and Organised by FernUniversität and EADTU in Hagen, December 1994. Weinheim: Deutscher Studien Verlag.

Holmberg, Börje (1995). The Sphere of Distance-Education Theory Revisited. Hagen: Zentrales Institut für Fernstudienforschung der FernUniversität Hagen.

Issing, Ludwig J. & Klimsa Paul (Hrsg.)(1995). *Information und Lernen mit Multimedia*. Weinheim: Psychologie Verlags Union.

Kommission der Europäischen Gemeinschaft. Task Force Human Resources, allgemeine und berufliche Bildung, Jugend (1991). *Offener Fernunterricht in der Europäischen Gemeinschaft*. Brüssel, Luxemburg. 1. Offener Fernunterricht in der europäischen Gemeinschaft. Memorandum vom 12. Nov. 1991. 2. Offenes Lernen und Fernunterricht auf Hochschulebene in der Europäischen Gemeinschaft. Bericht vom 24. Mai 1991.

Ljoså, Erling & Rekkedal, Torstein (1993). From external control to internal quality assurance. Background for the Development of NADE's Quality Standards for Distance Education. Oslo: Norwegian Association for Distance Education (NADE).

Lowyck, J., Elen, J., Proost, K. & Buena, G. (1995). *Telematics in open and distance learning: Research methodology handbook*. Leuven: Center for Instuctional Psychology and Technology.

Montero Montero, Pilar (1996). Introduction to Open and Distance Learning. In De Volder, Maurice (Ed.)(1996). *From Penny Post to Information Super-Highway: Open and Distance Learning in Close-up*. Leuven/Amersfort: Acco. pp. 11-17.

OECD (1995a). *Learning Beyond Schooling*. New Forms of Supply and New Demands. Paris: Organisation for

Economic Co-operation and Development. Centre for Educational Research and Innovation.

OECD (1995b). Educational Research and Development. Austria, Germany, Switzerland. Paris: Organisation for Economic Co-operation and Development. Centre for Educational Research and Innovation.

ORAVEP (1994). Formations ouvertes et à distance: la situation en France. Paris: Observatoir des Ressources pour la Formation.

Orivel, F. (1987). *Analysing costs in distance education systems; a methodological approach*. Dijon: Université de Bourgogne, Institut de Recherche sur Économie de l'Éducation (IREDU), mimeo.

Palacios, Samuel Gento (1996). Towards a Model of Quality for University Distance Education. In Fandel, Günter, Bartz, Rolf & Nickolmann, Friedhelm (eds.)(1996). *University Level Distance Education in Europe. Assessment and Perspectives*. Proceedings of a Workshop Jointly Initiated and Organised by FernUniversität and EADTU in Hagen, December 1994. Weinheim: Deutscher Studien Verlag. pp. 205-218.

Pálvölgyi, Mihály, Pápay, Péter & Tonai, László (1995). R & D activities to create adequate infrastructure for distance and flexible learning in western Hungary. In Sewart, David (Ed.)(1995). *One World Many Voices: Quality in Open and Distance Learning*. Selected papers from the 17th World Conference of the International Council for Distance Education, Birmingham, United Kingdom, June 1995. Milton Keynes: The Open University.

Peters, Otto (1995). Die Didaktik des Fernstudiums. Erfahrungen und Diskussionsstand in nationaler und internationaler Sicht. Hagen: Zentrales Institut für Fernstudienforschung der FernUniversität Hagen.

Rekkedal, T. (1993). Distance education research in Norway - with some reference to the other Nordic countries. In Scriven, B. et al. (eds). Distance education for the twenty-first century. Selected papers from the 16th World Conference of the International Council for Distance Education, Thailand, November, 1992. International Council for Distance Education and Queensland University of Technology. pp. 361-66.

Robinson, B. (1992). Applying quality standards in distance and open learning. EADTU-News, 11, pp 11-17.

Rottländer, Elke, Baumeister, Hans-Peter & Hauck, Peter (Hrsg.)(1995). Planung, Entwicklung, Durchführung von Fernstudienangeboten. Eine Handreichung. Tübingen: Deutsches Institut für Fernstudienforschung.

SATURN (1992). SATURN quality guide for open and distance learning. Amsterdam.

Schuemer, Rudolf (ed.)(1991). Evaluation Concepts and Practice in selected Distance Education Institutions. Hagen: Zentrales Institut für Fernstudienforschung der FernUniversität Hagen.

Sewart, David (Ed.)(1995). One World Many Voices: Quality in Open and Distance Learning. Selected papers from the 17th World Conference of the International Council for Distance Education, Birmingham, United Kingdom, June 1995. Milton Keynes: The Open University.

Tait, Alan (1996). Open and distance learning policy in the European Union 1985-1995. In Higher Education Policy, 9, pp. 221-238.

Tergan, Sigmar-Olaf (1996). Hypertext/hypermedia. In De Volder, Maurice (Ed.). From Penny Post to Information Super-Highway: Open and Distance Learning in Close-up. Leuven/Amersfort: Acco. 195-204.

Tergan, Sigmar-Olaf & Wedekind, Joachim (1994). Staff Training in Media Use for Learning and Teaching. Study Book. Tübingen: Deutsches Institut für Fernstudienforschung.

Wedekind, Joachim, Tergan, Sigmar-Olaf & Harms, Ulrich (1996). Introduction to new media. In De Volder, Maurice (Ed.). From Penny Post to Information Super-Highway: Open and Distance Learning in Close-up. Leuven/Amersfort: Acco. pp. 187-194.

Zimmer, Gerhard (1995). Mit Multimedia vom Fernunterricht zum Offenen Fernlernen. In Issing, Ludwig J. & Klimsa Paul (Hrsg.). Information und Lernen mit Multimedia. Weinheim: Psychologie Verlags Union. pp. 337-352.