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ABSTRACT

This report examines distance study for disabled individuals in Germany, the European Union, and elsewhere. The following topics are covered: current research on distance study; historical development of distance study and distance teaching universities; needs and experiences of physically, visually, and aurally disabled students at distance teaching universities; media available to help disabled students in their distance study; possible ways of structuring the personal elements in the distance study system; and practical proposals for developing the teaching-learning system so that it can enable disabled students to do independent academic work. The study concludes that, although distance education has the potential of becoming an expedient and successful means of giving individual disabled persons access to education, distance education institutions must acquire more extensive organizational and content-related competence for planning distance study for disabled students. Four levels of adapting distance study programs to the study- and learning-related needs of disabled students are identified: adapt to the individual case without systematically addressing the needs of the disabled; adapt to the individual case with systematically addressing the needs of the disabled; target group-specific, systematic development and implementation of organizational measures and aids; and target group-specific study contents. (Contains 25 tables and charts and 360 references.) (MN)

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Distance study for the disabled

National and international experience

and perspectives

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Contents

1 Studying with a handicap

> If it is impossible to bring the throngs of those thirsting for knowledge to the university, could we not bring the university to them? [...] Universities should emerge from behind their walls and seek out those who cannot come to them of their own accord. (Sewell, Oxford, 1850)

In lieu of an introduction: a successful distance student's testimony

Since the foundation of the German distance teaching university (FernUniversität) in 1975, 2-4 % of the student intake each year have classified themselves upon matriculation as "severely disabled". M. is one of the students who belongs to this group. His testimony gives an impression of the study conditions for students with special needs at distance teaching universities. M. graduated in economics and provides a report which informs us about his individual study career and gives first indications of the special conditions to be met with by disabled students. He writes about the meaning of distance study for him, his disability, face-to-face versus distance education, the study material, the potential of distance study with regard to media and communication, the course of study, the study centres, the facilitators and the dangers and risks of distance study for the disabled:

"In the following report I would like to tell you, reader, something about "disabled students in distance education". I am strongly convinced, though, that I possess neither the right nor the ability to write about how other disabled students think and feel, like for instance how they cope with written exams, what distance study means to them etc. Generally reliable figures about "disabled people in distance study", on the other hand, may be useful and interesting to university administration, but what will they tell you, reader, about the individual? I shall therefore choose another path and tell you about my distance study, report on my personal experience.

Let me first introduce myself: I am now 25 years old. At some point, when I was still a baby, my muscles started to develop defectively. I shall spare you, reader, medical terms and reasons for this defective development. This weakness of my muscles means, however, that I can neither walk nor stand upright, but have to be pushed in a wheel-chair; that I can neither wash nor dress on my own, but must be washed or bathed and dressed by my parents, with whom I live; that I cannot reach out on my own for a book or a sheet of paper, but need somebody to give the book to me and open it for me.

I hope I have made you understand my disability. Each movement that is self-evident to you - scratching your head, say, or dialling a telephone number - is beyond my powers, the power of my muscles does not allow it. Regular exercise may stop further muscle decline - or it may only delay it.

With this in mind, you will understand, why in 1975, after obtaining my high-school certificate at an ordinary school, not one for the disabled, I began to study at a distance. FernUniversität (the German distance university) which opened its post box, if not a lecture hall, in 1975 did unfortunately not offer the subject which I would most have liked to study: geography. But my parents and I did not know the answer to the problems posed by traditional on-campus study: who shall take me to the university; who shall push me from one lecture room to the next; can my mother do all this; and anyway: am I myself up to the physical demands of face-to-face study? I cannot sit in my wheel-chair for more than 5-6 hours, then I have to lie down to let my spine, which is not supported by my muscles, stretch. The high school, which was only 200 metres from home, already made great physical demands both on me and my mother, even though lessons only took place in the morning. So we did not feel we would be able to cope with a traditional university study. Of course there was also the fact that I did not want to leave my parents and my usual surroundings, did not want to be looked after during my study by a stranger, for instance somebody doing community service. And my parents, on their part, were equally reluctant to let me in to stranger's hands. So the FernUni in Hagen was a way out.

So I applied for a place at FernUniversität at the central agency for the distribution of university places. I was really proud when I obtained one of the first 140 places in economics on the merit of my marks alone, not as a hardship case.

Some time in October 1975 the postman brought the first study package. I opened the first unit and began to read. From then on, my day - and to a certain extent that of my mother, my father and my aunt - was centred around reading the units, doing the for submission and preparing for the written exams. Drawings had to be made: I explained to my father, which way the curves had to run and he produced real masterworks! Glossary key-words had to be pasted onto

file cards. Above all: without my mother typing the assignments for submission on their special green paper I would have been pretty helpless in front of this mountain of green paper - I had to do 60 in my first year of study alone!

Luckily for me a research group was formed to develop electronic rehabilitation devices. In 1976 they tailored a typewriter with an especially small keyboard to my needs. With its help I could type my written tasks, my diploma thesis - and this article - myself [...]. Between Christmas and New Year 1975/76 I received the call of a fellow student: he had been studying the contact lists which contain data about all students in a certain region - if they have given their consent - and he had noticed that I studied economics like him. Did I want to study with him? You bet I did: my first attempt to establish contact with fellow students had been so disappointing that I never had the courage to actively seek such contact again. But I did not need that courage - my fellow student visited me some time after his phone call and we do not only form an effective study group, we have also become good friends.

In May 1976 I had to face my first end-of-course exam: [...] My friend and I prepared it together. We calculated and discussed dozens of problems. Several times my friend went to the study centre and then told me all about it and explained everything to me. My parents took us to Cologne, where the exam was to take place. I was terribly nervous, my friend tried to calm me by pointing out that in view of our extensive preparation nothing could really go wrong. In Cologne at the polytechnic I had to be carried up to the third floor, which did not do a lot to calm my nerves. When I then found that I could not solve the first five problems, I got more and more nervous. But later I got started and although I could not do two problems because my arm simply got too tired to put them to paper, I got a 2.7, with 1 being the best mark.

The next three exams were to be sat in Gelsenkirchen. This time I luckily did not have to overcome the obstacle of stairs. But the weather was hot and very close so that the exams put a great physical strain on me. So in spring 1977, while I was in hospital with a stomach infection, my father went to Hagen, the seat of the university administration, and asked whether it might not be possible for me to sit the exams at home, under supervision. I think I have never been so angry with my father. I did not want anybody to make an exception for me; above all I felt I had not been consulted. - Today, though, I am glad that my father went to Hagen that year. Today, thanks to Dr. Hofmann, the ombudsman for the disabled at FernUniversität, all disabled FernUniversität students who cannot travel to the places where written examinations are held, may sit them at home under supervision.

I sat the rest of my end-of-course exams at home. [...] On the dot when the exams started in the official room, there would be a ring at our door and a member of the staff of ZIFF, the Central Institute for Distance Education Research, would arrive with a sealed letter from the board of examiners containing the exam tasks. He would open the letters, hand the problems to me and I - each time as nervous as the first time - would begin to write. At the end the supervisor would take my solutions, put them into an envelope, seal it and take it to the board of examiners in Hagen. This procedure was a relief, not just for me but also for my parents. And although I think it was not an unjust relief, since the demands on me were the same, I always had a strange feeling when I thought about my friend, who, while I was sitting my exams at home in W., very often had to go from W. to the place where the exam took place.

So my studies took place mainly within my own four walls. Only at the beginning of my studies did I go to the study centre in Krefeld a few times with my parents, especially in order to prepare the exams in accounting and statistics. When I met with problems I phoned a mentor or counsellor in Hagen. Most of the time I solved the majority of subject-related difficulties together with my friend, usually after some time of searching books and doing some thinking. This was mainly out of fear to get on anybody's nerves with my stupid questions.

When I wrote the two required written papers and the diploma thesis my problems were mainly of a technical nature.

Distance study does have one disadvantage, though, that I am more aware of now: you do not learn how to discuss verbally, how to exchange arguments in a dialogue. My friend was the only one I discussed subject matter with during the whole course of my studies, with the exception of one seminar I took part in in May 1978.

Still, I am happy and a little proud to have a diploma behind my name now. And my self-confidence has certainly grown during my studies. I now confidently work on my dissertation. How to explain this apparent contradiction between this officially certified disability and my factual ability? Easy: [My current employer] does not ask me to sit at my desk at certain hours, I can work from home [...]. So nobody asks me to fill a pre-set workplace. My position is tailored to my individual abilities.

If workplaces were more often tailored to the individual abilities of the employee, nobody would have to be disqualified, discriminated as disabled. Maybe you could think about what you personally can do to make as many workplaces as possible fit for humans. I bet you can think of something - if you really want to.

With this I take my leave from you."

This very personal testimony illustrates that distance study may represent a meaningful and successful educational and professional perspective for the individual with handicaps. At the same

time it points to problems inherent in university distance study which have to be solved before we can use this type of study on a larger scale. The distance study system needs to be individualised, with the aim of taking into account the individual's specific context and the study organisation specific to distance study, in order to give the individual disabled student the chance to fully enjoy the advantages of the system.

Aims and proceeding of this study

M. is a good example for one of the target groups of distance study which are generally reached only to a small extent by face-to-face universities. At the same time he fulfils the hopes and expectations connected with the foundation of distance universities: it was hoped they would take the pressure off the traditional universities and at the same time recruit new target groups as a consequence of the possibilities, prerequisites and forms of distance study.

This study has to be seen within the context of the broader goal of restructuring teaching and learning in selected areas of distance education with a view to the communicative and social significance that distance study has for the disabled. It aims at making a variety of proposals to that purpose. Questions of methodology shall recede into the background in favour of a systematic analysis of practical conditions of distance study organisation at institutions in various European countries. By means of this analysis the study shall attempt at presenting positive ideas for developing distance education with special regard to the study needs of the disabled. As a result, the discussion of the theory and practice of "studies for the disabled in face-to-face and distance teaching" should be given new impulses. An analysis of international studies and experience shall provide an insight into the tendencies currently prevalent in that discussion. Simultaneously, the study will propose perspectives for the further development of those forms of teaching organisation that may be helpful in individualising the study processes of disabled students at distance-teaching universities.

The description and analysis of the prerequisites, forms and potential of distance study for the handicappped expects the reader to have an understanding of educational science that is not purely founded in theory. He or she should instead see in educational science a science concerned with and for educational practice. This understanding of educational science tries to share the responsibility for the practice of distance education for the coming generations of the disabled with the disabled themselves.

This study wishes to contribute to the "illumination of the sphere" (FLITNER) within which there may be a better way of making decisions of an administrative nature with regard to distance study for disabled students. Innovative strategies shall contribute to the creation of conditions suited to the disabled, or at least point the way to making informed decisions. An education system committed to the idea of equal opportunities must take into account the specific needs of this group and, as far as necessary, support them. This means that in order to change the form of distance-teaching universities, there is a need to act in many areas: that of educational science, methodology and educational planning. This need to act represents an enormous challenge for the coming decade.

The wealth of individual expererience in this area needs to be related to central areas of experience in order to give it a certain structure. These areas are the disabled students themselves as well as the forms of distance study which characterize distance-teaching universities as innovative in terms of educational policy and distance education.

The study will be conducted in six steps:

Step 1 consists in an overview of the current state of research on the subject. It is accompanied by a definition of the term "disability". I shall then comment on the international practice of distance study and the ways of adapting it to the study and learning requirements of the disabled. Individual adaptations as well as innovative measures targeted at whole groups are analysed with the help of a specially developed grid. This grid subsumes the measures under the different countries and under four steps of development. The final result shows measures that may be used to supplement the study organisation at distance universities in Europe. Three West European distance-education institutions are then systematically described, analysed and assessed according to criteria related to the requirements of disabled students. Their concepts may illustrate the potential of innovation inherent in the teaching and learning of students with special needs in the area of distance study.

Step 2 will look back on the historical development of distance study and distance-teaching universities and their constituent characteristics as an innovation in educational policy with regard to the disabled. A description of the current situation in distance education using ideal types will be the final result of the analysis. There are many indications that the distance study model allows for experimental space which may be used by distance-teaching universities to comply with two demands: to open the university to new target groups and to adapt the study system to the individual requirements of students with special needs.

Step 3 consists in a group analysis of disabled students at distance-teaching universities. The analysis will focus on three specific groups of students with special needs who, as proved by international comparisons of relevant literature and individual case studies (cf. Frehe 1986, Berning 1986; Hofmann/Ommerborn 1986; Bachmann 1994) need special assistance when studying at a distance: persons with a physical, visual or aural handicap.

Step 4 focusses on the media on offer to the disabled in their distance study. The offer is extensively described and analysed with the help of the following questions:

- Are there any indications of change towards an increased use of media when presenting contents in order to cater for the needs of disabled students?
- Do the claims put forward by the new media really present new perspectives?
- Can we make out any chances of improving distance study for disabled persons so that study processes become communicative or dialogue-oriented to a greater extent?

A summary of international up-to-date research and development studies serves to illustrate the practical relevance of the new educational technologies. Perspectives for development and new forms of media use are presented with a view to their potential for information, counselling and learning in distance study for the disabled.

Step 5 poses the question of how to structure the personal elements in the distance study system. They are analysed and assessed with focus on communication in the distance study areas of information, advice and counselling.

- Is there a potential for tailoring the counselling and tutoring system more to the proper needs of disabled applicants and students?
- Where can we identify new possibilities for presentation and development potential?

Step 6 finally discusses the results of the study so far and develops practical proposals for developing the teaching-/learning-system in such a way that it enables disabled students to do independent academic work.

So far I have consciously spoken of the "experience" (in German: "Erfahrung") this study is based upon. The term is used in its original German sense. In its etymological origins it had to do with "fahren", i.e. travelling. "Erfahrung" originally meant that which lived on in a person as a fruit, so to speak, of all his or her travels. Later the term became more abstract (cf. Reulecke 1978: 19) and acquired the following comprehensive meaning: "Experience is the sum of all knowledge and insight resulting from the practical confrontation with things and circumstances" (Brockhaus 16, 1953: 629). If we use this definition the terms denotes one of man's important categories of thinking and living. Experience is the way in which the past almost constantly and often quite visibly projects into man's daily life. It is experience which enables him or her to act meaningfully. Above all it is the base for another of man's central categories of thinking: expectation.

Experience and expectation, "i.e. the conscious or unconscious assimilation of one's memories of what has been and of one's hopes which are directed towards the future, are basic human conditions which overlap." (Reulecke 1978: 10) They render it possible to look back at something in perspective: "Experience is present past" and can be defined as the totality of man's experience in his or her confrontation with the world and with himself or herself and the knowledge he/she gathers from that. From my personal point of view, this study presents perspectives for the development of study for the disabled via distance study.

The description and analysis of present practice shall serve as a base for new insights into a possible methodological structure of distance study that is targeted more directly at the requirements of the disabled. These insights have to be seen against the background of the claims for innovation put forward by the distance-teaching universities, above all that of improving "access to an academic education" for disabled citizens. As stressed by Peters (1992: 9) and Dickopp (1992: 7), distance study is after all mainly targeted at people for whom study at traditional face-to-face universities is difficult or even impossible. The mere existence of a distance teaching university constitutes an innovation in this respect. Distance-teaching universities are characterized by the special potential of distance education and the resulting effects on the organisation of the university. Higher education reformers, educational sociologists and distance educators therefore consider the foundation of such institutions as a "true innovation" (cf. e.g. Holmberg 1979).

The term "innovation" is used here in the sense accepted in the educational discussion since the sixties: following Collingwood (1979: 8), innovation shall be taken to mean the introduction of new ideas, new methods, and new forms of organisation. The integration of an innovation should not be considered a mechanical act but a process of development. Innovation is purposeful new specific change which is expected to be more effective in reaching the defined aims of a given system (cf. Miles 1964: 14). The term innovation in this study therefore denominates the introduction of new procedures, ideas and products intended to improve the study conditions of disabled students.

Distance-teaching universities are dependent on innovation if they want to fulfil changing requirements in society. These changing requirements of society have so far hardly been looked at; there have been what could be called cautious attempts to define this area or to name objectives. There has been no real exploration of the specific problems.

Education and further education for disabled students are of such tremendous importance because they do not only ensure professional but in part also personal survival. Great importance attaches to each individual's potential for knowledge and qualification which she/he can use in order

to cope with any given task: "The individualization of the chances for survival and an ordinary life increasingly creates the nescessity to get involved in learning processes and through these processes effectuate behavioural change" (Dickopp 1992: 12).

This "push towards individualization" forces the individual to involve her/his "individual self" in the "competetive discussion", to stabilize her/his identity according to the current challenges and to cope with deficits of meaning by changing her/his behaviour and patterns of thought and orientation (Dickopp 1992: 12). The reality of society - including that of one's professional and personal life - has undergone such radical change that one is forced to reorientate oneself. Education becomes a comprehensive task. It is no longer only concerned with acquiring new knowledge and new behaviour, but it must also integrate them with the individual's past and future life (Dickopp 1992: 13). Distance educators must therefore feel the obligation to exhaust the full range of methods in order to ensure the expected learning success (and ensuing qualification) for the disabled students. Our understanding of education logically must be that of a permanently ongoing process: "Education is not a static condition, but self-directed activity. Education as process is a way of living. Education comprises everything the individual has permanent need of in order to cope with his/her personal and professional life in a fulfilling way" (Dickopp 1992: 45). This understanding of the term education refers back to the European Age of Enlightenment: "[...] to learn how to use one's own reason and to act accordingly. Education in this sense is a plea against technocracy and functionality and for the prevailing of reason" (Dickopp 1992: 46).

Like any academic investigation this one starts out from certain basic assumptions and preliminary decisions. The selection and presentation of facts and experience was influenced by personal judgements, especially since parts of the text are concerned with events the author himself was involved in. For the last 15 years, the author has actively taken part in attempts by all departments concerned to organize distance study at the German FernUniversität in such a way as to make it more suited to the requirements of disabled students. His own experience thus enters into this investigation, as well as his own judgements and naturally also the fundamental motives for his own work as a distance educator. They are linked to the hope that distance study may contribute to the surmounting of obstacles barring some groups in society from education and to opening higher education to new target groups.

The objectives and procedure of this investigation are determined by the following aspects and positions:

The increasing tendency towards individualization creates the necessity of an alternative reliable support system in higher distance education. Above all, this necessity arises from the fact that more and more disabled people prefer an independent lifestyle and break with the tradition of being in exclusive care. The paradigm "self-determined living" (cf. Adam et al. 1993: 16) expresses the changed way in which disabled people see themselves, opposing incapacitation, discrimination and segregation. Today, disabled persons claim their right to share in society in the sense of self-determined choices and living, regardless of the type and gravity of their disability.

A new concept of the relationship between disbility and society is closely linked with this paradigm. New approaches to providing services for the disabled mean a change in traditional work with disabled persons. Any change of consciousness takes place very slowly and never engenders any extensive change and results overnight. Nevertheless considerable change is taking place in many areas of disabled people's lives, and this also applies to their studies. This change requires a departure from the traditional deficit-orientated concept of disability with its focus on care and its claim to represent the disabled. The new orientation must be accompanied by a needs-orientated view of disability.

The disabled need, however, a system of services and aids in order to be able to realize independent forms of studying and living. This support system must take into account their individual needs and guarantee continuous and reliable security.

The ongoing international discussion about the integration of minorities illustrates the great demands made on higher distance education in the area of education policy: all higher education institutions are expected to be ready and willing to adapt study conditions to the needs of the disabled and to actively promote their studies. For the last years, "integration" has been a central subject of discussion in education policy, methodology of higher education and education. Both the disabled themselves and their associations are highly committed to demanding integration into the higher-education system (cf. e.g. Adams et al. 1993: 17; Bundesministerium für Bildung und Wissenschaft 1993; Meister 1995).

This presupposes greater competence at the universities, including distance-teaching universities, in adapting study organization and study contents to the needs of the disabled. Some change has been visible here for some time. The European dimension of higher education is not an invention of the twentieth century of course: universities have always seen themselves as international and acted accordingly in their history and tradition. With the European Union approaching, this dimension must find its way into distance teaching. There is still considerable insecurity about the ways and means of meeting this new challenge (cf, Nighsch 1992: 11). We can safely state, however, and this is supported by a UNESCO study (cf. Berg 1990), that as a result of the common past of the European universities and a still noticeable shared "culture of higher education", there still exist many parallels between the different systems. As courses of study are internationalised at European universities, they can also be transformed into flexible training and education offers.

Face-to-face institutions in higher education also have the possibility to complement their course offer with distance teaching modules that are tailored to the requirements of the disabled.

Different forms of distance education, characteristically independent of time and location, have come to play a considerable role for disabled citizens not only in Germany with its FernUniversität, but in many post-modern industrial societies with diverging educational concepts and intentions (Keegan 1994).

International structures - including those in the areas of distance education and research - must grow close if an international distance education scene is to develop. Distance education can be an innovative part of education and training in Europe. This is an explicit aim put forward by the European Union which has started a number of initiatives supporting and supplementing the promotion of open and distance learning on a national level. A number of new initiatives have been developed to enable disabled people to participate in distance education, since distance education courses can be tailored to teaching and learning methods that are accessible to everyone, independently of any special needs he or she may have. "All learners have indivdual needs - some have special needs" (Vincent 1995).

Literature dealing with ways and means of potimizing study opportunities for the disabeld is by no means unanimous with regard to the possible advantages of distance education in this respect. Some authors consider it an "optimal solution" for the manifold obstacles and difficulties faced by disabled students in their daily study routine. Others regard distance education as a means of disintegrating disabled persons from face-to-face study, of barring them of the experience of shared study with non-disabled students (cf. Frehe 1986: 213; Meister 1995). In his remarks on distance education in 1986, Frehe lists up some problems which must be solved if distance study is to be a viable alternative for disbled persons. Amongst them is the decision about which courses of study to extend in order to cater for the needs of disabled students.

Statements from brochures, individual case studies, first-hand accounts, reports on education policy and pedagogically orientated distance-education research point to areas that need to be given special attention. They also constitute criteria in themselves for the relevance of this investigation. For distance-teaching universities, unique in the field of higher education, must conquer quite a number of problems within the framework of their teaching, study and counselling system if they want to cater for the disabled. For the solution of these problems they can only partly look to the experience of traditional universities.

Conclusions from selected research on distance study according to specific criteria

Authors	Opportunities offered by distance study	Media	Study centres	Potential for innovation and adaptation
Hofmann (1980; 1981; 1985; 1989)	Potential for individualisation, especially for the physically and visually disabled, partially for the hard of hearing	-demand for and extension of information and counselling media -demand for the further development of study material for the visually impaired	deficits	-extension of course offer -improvement of communicative structures in distance study for the disabled
Frehe (1986)	optimal solution chance and less-than-ideal solution	extension and development of media for the visually impaired		-extension of the course offer -removal of communicative barriers -extension of the offer
Hofmann/ Ommerborn (1986)	study opportunity, often the only one	continuous extension of the study offer for the visually impaired		-limited course offer -counteracting the lack of direct communication -extension of counselling opportunities
Bartz/Raters (1989/1990)	often the only chance of access to higher education	need to optimize counselling media	need to activate study centres for the needs of the disabled	need for increased search for new approaches
Haffa/Kammerer (1987)	-chance for people in special situations -"distance study in Germany serves the healthy, who do not have any problems"	very limited offer for the visually impaired	barriers constituted by	offers are not tailored to the needs of the disabled
Biesold / Hofmann / Kriegeskorte / Ommerborn (1987 ; 1990) Ommerborn (1995[2])	- favourable prerequisites - conditions of study adequate to the needs of the disabled -viable alternative for many disabled	need to develop a separate study programme for those with a visual impairment	often grave deficits	- study offer does not meet the needs of the disabled - encourage support from self-help groups

Over the last two decades, distance study has been increasingly used by higher-education institutions as a means of providing study opportunities for the disabled. It is either offered parallel

to the traditional forms of study at the university in question or as their main course offer. The first type frequently occurs in Australia, Canada and the United States. So-called autonomous distance-teaching universities may be found all over the world - there were at least 30 in existence at the beginning of the nineties (cf. Holmberg 1992: 36). UNESCO statistics tell us that about 10 million students study at a distance in nearly every country of the world (Keegan 1993[2]).

On an international level, there are a number of more or less detailed studies on the disabled in distance education. It is therefore possible to get a quite precise impression of how the different study systems are adapted to the needs of disabled students. One does have to take into account, however, fundamental differences between these institutions. These differences concern enrolment, prerequisites, the course duration and quality, course development methods and media. They may also be due to the national education system and the social, political and economic context in which the institutions are embedded, or to the organizational structures and aims specific to a particular institution. For the purpose of this study, the author will look primarily at how the institutions adapt the distance-study system to the study needs of the disabled.

On the basis of a grid developed by Haffa and Kammerer (1987: 19-20) and modified for this study, four steps of adaptation may be distinguished:

Step 1	adaptation for individuals; disabled not targeted as a group
Step 2	adapation for individuals; disabled targeted as a group
Step 3	systematic development and provision of organizational measures and support for this specific target group
Step 4	study programmes specifically developed for this target group

Step 1 refers to institutions which may be willing to meet the expectations and needs voiced by disabled students. As a rule, such institutions do not introduce any particular measures for the disabled. They address all potential distance students in general and do not specifically target the group of the disabled nor develop special study material for them. Adaptations made for individual cases are accompanied by counselling.

Step 2 refers to institutions which specifically address themselves to the disabled as a target group and refer to certain courses or material as particularly suitable for the disabled. These institutions have recognized that the disabled constitute a special target group. They use information material in order to point out to the disabled which courses may be studied by them without any greater problems. They do, however, not adapt or change study offers with regard to structure, organization or content.

Step 3 refers to institutions which, in the area of study organization, offer several adaptation measures directed at this target group.This may, for example, be a modification of the examination situation, specific support measures in order to enable students to participate in face-to-face sessions, specially adapted teaching media, specially developed teaching and learning supports as well as courses for the disabled. These institutions usually also provide a special department or contact person for the disabled students and put special teachers, counsellors or tutors at their disposal.

Step 4 refers to institutions which not only modify their organization but also change the contents of their teaching media in order to adapt them to the target group. This means that the special situation of the disabled itself is partly or completely subject of the study matter or is at least reflected by it. Such a far-reaching adaptation of the contents of distance study to the needs of the disabled is for instance made use of by the Hadley School for the Blind in the USA. At the same time this means that here are included only certain target groups in distance study for the disabled.

Adaptation measures classified according to countries and steps

Country Institution	**Target group**	**Steps**			
		1	**2**	**3**	**4**
Great Britain Open University	Physically handicapped Visually impaired Hearing impaired		**X** **X** **X**	**X** **X** **X**	**X** **X** **X**
Netherlands Open universiteit	Physically handicapped Visually impaired		**X** **X**	**X** **X**	
France Several institutions	Physically handicapped Visually impaired		 **X**	**X** **X**	
Norway Several institutions	Disabled		**X**	**X**	**X**
Sweden Hermods	Physically handicapped Visually impaired Hearing impaired		**X** **X** **X**	**X** **X** **X**	
Finland Several institutions	Physically handicapped Visually impaired Hearing impaired	**X** **X** **X**		 **X** **X**	
Canada Several institutions	Physically handicapped Visually impaired		**X**	 **X**	
USA Several institutions Hadley School for the Blind	Physically handicapped Visually impaired Visually impaired	**X**	**X** **X** **X**	**X** **X** **X**	 **X**
Germany FernUniversität	Physically handicapped Visually impaired Hearing impaired		**X** **X** **X**	**X** **X** **X**	

This overview is based on the following sources as well as the reactions to letters and telephone calls made by the author to the Open universiteit and the Open University: Haffa/ Kammerer 1987; Balli 1986; Forsyth 1967; Haagmann 1981; Karow 1980; Estabrook 1983; Berning 1986; Vinent 1988; Parsons 1990; Daniel 1992; van Enckevoort et al. 1992; EADTU 1993.

Disability, stigmatisation, integration and equal opportunities: the changed concept of disability

Disability

Within the context of this study , the term "disability" and its meaning will be of crucial importance. I shall therefore begin by explaining it. The phenomenon "disability" can be looked at from different angles and from the point of view of different disciplines:

Medical-biological approaches are mainly concernd with physiological deviances and peculiarities. The behavioural sciences analyse primarily the characteristics of observable behaviour, approaches influenced by the social sciences particularly analyse the social conditions; pedagogical approaches analyse the possibilities of teaching and learning. The last-mentioned approaches determine this study, but they do of course depend on the others (cf. Ommerborn, 1995[2]).

International agreements stress the importance of the rights of the disabled. For instance, the UN General Declaration of Human Rights of Dec. 10 1948, Art. 22, states: As a member of society, everybody has the right to social security and can claim to enjoy the economic, social and cultural rights essential to his dignity and the free development of his personality, if necessary through measures and international cooperation taking into account the organisation and aids provided by each state. Article 20 cl. 1 of the German Constitution states that everybody has the right to the free development of his/her personality. If this is interpreted extensively, it practically means a programmatic duty for the state to create and ensure equal opportunities for all disabled citzens.

The right to participate in education must also be considered a human right. Whoever fights for the full realisation of all human and civil rights does so for all groups of the population. The chances and living conditions revindicated by the non-disabled are equally owed to the disabled.

From a juridical point of view, the aspect "ability to perform" is of particular importance when defining the term "disability". A disabled person is someone whose body or mind deviate from the norm of a fully able person and his/her capacity to perform." (Kranig/Ramm 1990: 4). This definition is linked to the term "illness"; "disability" and "illness" are seen as one. The difference here is that the disabled person is not temporarily but permantently impaired in health. The law differentiates this basic concept of disability according to the consequences for those concerned. In legislation, there is no unified concept of disability. Instead, there are special terms to denote special aspects within legislation, as e.g. "inability to work", "reduced ability to work" or " reason for the disability".

From a medical point of view, rehabilitation goes beyond the traditonal role of medicine to diagnose, treat or heal acute and chronic illnesses. It embraces all endeavours to enable a disabled person to find a form of life and a position in life congenial to him/her. This concerns his/her daily life, the community in which he/she lives, and his/her profession. Necessary measures may touch the areas of medicine, schooling, profession and social concerns.

In social science or legal analyses as well as in empirical studies, the term "disability" is generally used in accordance wirh the "International Classification of Disabilities and Handicap" published by the World Health Organisation (cf. WHO 1980: 20). According to this definition, disabled persons are those with inherited or acquired permanent health problems which may have the following main consequences: "Damage or deviation from the norm in anatomic, physiological or psychological structures or functions; restricted physical, spiritual or psychological functions and abilities; social disadavantage or impairment" (Kranig/Ramm 1990: 6). From this point of view, the disabled are impeded primarily in their health and secondarily in, amongst others, their job, their

mobility, their chances to share their lives and to communicate with others. These definitions are on the whole dominated by the fact that the living conditions of people with special needs are more and more subject to legal regulations. It can be stated that (in Germany) there is no legal term "disability" in the sense of a particular legal rule or a particular law. The creation of legal terms serve the purpose of lawmaking, for instance to encourage or to protect disabled distance students. The legal definition of the phenomenon disability therefore consists primarily of a section of characteristics and delimitations serving assessment and distribution purposes and functioning as keywords ensuring claims to financial and/or other aids, compensatory benefits (e.g. fee exemption) or protective measures (cf. Thust/Trenk-Hinterberger 1989: 33). From the legal point of view, the term is the key to a wealth of benefits and aid contained in different laws that are of practical importance for the distance study of individual applicants and students.

The theory and practice of the education of the disabled is concerned with the educational encouragement of adults within the framework of an institution. It must therefore define "disability" from an educational point of view:

"In the pedagogical sense, [...] adults are defined as disabled, if their difficulties in learning and integrating themselves into society are so great that they are in need of special educational support."(Bleidick 1974: 526).

This definition illustrates that the focus is not on the medically definable damage and the process of healing but on the learning or studying difficulties resulting from the disability of the adult learner. In this sense, disabled students are people with physical, psychological/emotional and mental characteristics limiting and disadvantaging them in their private and their social spheres. The description issued by the educational commission of the Deutscher Bildungsrat (German Education Council) also reflects this understanding of disability: "In the educational sense, those children, adolescents and adults are considered as disabled who are impaired in their learning, their social behaviour, their ability to communicate through speech or their psycho-motor abilities to such an extent that it is difficult for them to participate in life in their society." (German Council of Education, 1974: 32). Accordingly, disability here has an effect particularly on two levels: one the one hand, it makes life difficult for the disabled person himself or herself, and, on the other hand, it constitutes an obstacle against social interaction and social integration into public life, the work place and family life. For the purposes of this study we may deduce the following: 1. All statements purporting to define disability in a distance student are relative. 2. There is no single institutionalized way of educationally encouraging disabled students.

The relativity of the phenomenon "disability" shown above means that those concerned cannot be considered as "disabled" to the same extent in each life situation, every culture group and at every age. A visually disabled distance student once illustrated this during a FernUniversität conference with the following words: "Subjectively I do not feel disabled at all, but according to the so-called 'objective' criteria I am 'considerably disabled'. It is the values, norms and attitudes of a particular society which define who is to be considered 'disabled' and how disability is seen.

Within literature, we may also see that it is not at all self-evident what or who is to be considered 'normal'. The following imaginary report by an anonymous 18th century author, imitating the style of Swift and Voltaire, is a beautiful example: "The storytellers anongst the Red Indians tell of a place in their country which is inhabited only by ugly people and hunchbacks. It is said that once a handsome well-made stranger came to that place. Immediately all inhabitants assembled in order to admire this man's extraordinary appearance. They were unanimous in considering him deformed, they swore and jeered at this, in their eyes, ugly person. They might well have killed him, had a sage of this hunchback community who maybe had seen people without hunchbacks before, not quelled their anger. 'What are you doing, my friends! he said. Do not abuse

this unfortunate; rather be grateful to God for creating our backs with their mighty mountain, and for elevating our figure far above this unfortunate person!'" (quoted from Klee 1987: 16).

Today, disability fortunately is no longer an undisputed attribute used to characterize a human being. The act of differentiating between "disabled" and the "able-bodied persons", i.e. the attempt to put one group in society on a level different from that of others, may be questioned with a view to historical experience. This raises the question whether one should not completely discard the term "disability" and with it any sort of classification. This seems even more appropriate when one considers the terminological problems. Today "rehabilitation" is the most comprehensive international term for "helping" the disabled. All possible offers of help are subsumed under the term "rehabilitation", which is understood as a generic term for all preventive, particularly encouraging, corrective, compensatory and integrative measures with reference to disabled persons of all ages (see on this for example Hartmann 1979: 10; Bleidick 1984: 27). The Open University uses the terms "disabled" or "disabled students". In the United States such groups are classified as the so-called "exceptionals". Anthropologically speaking, the specific quality constituting a human being is indivisible: a human being is a human being. Human beings are equal in their nature and their dignity. This shared characteristic of being a human being must have absolute priority. Human beings with or without definable disabilities cannot be distinguished as far as the core of their being human is concerned. "Healthy or ill, disabled or able, all there are only variants of the 'humanum' belonging to all human beings [...] The criterion for the organisation of public education as a fundamental factor within this process of the humanization of the individual is the principal equality of the able and the disabled. " (Dickopp 1983: 353) Whether distance students are "able-bodied" or "disabled", they are all individuals with their particular expectations and wishes, and with the right to be taken seriously as an individual, of their individual freedom to self-definitions and self-fulfilment being taken seriously, which enable them to decide and act responsibly as individuals.

There is no unambiguous definition of "disability" and no precise catalogue of characteristics allowing a clear classification of each human being as belonging to the group of the able-bodied or the disabled. There is no "normal student" - so how can you clearly define a disabled student? All students differ more or less globally or in some areas of their behaviour. "Labelling" or "stigmatizing" somebody as deviating from the norm or as disabled only takes place when the institutional areas provided by society do not suffice or when the individual cannot sufficiently adapt to them. It is not possible to fully comprehend a disabled student only on the basis of his or her symptoms. Lists of characteristics leading to classification cannot be regarded as isolated phenomena to be observed in the individual. It is always the human being as a whole we must look at, with his/her relationships and areas of behaviour. If a distance student's primary damage is physical, like paraplegia for instance, this does not simply mean he or she exhibits physical symptoms; it means that he or she is changed in his/her social identity. When you speak of symptoms (disorder, disability etc.), you have by no means solved the problem of the "personal dignity of these human beings" (Hartmann). To accept somebody as a person means seeing him or her as a whole and regarding him/her as a fellow human being. Since 'damage' to the individual or an 'impairment' caused by society or a person's surroundings always has effects on the student as a whole, categorizing disabled students into classes of "primary damage" is not without danger. A distance student born deaf or with a hearing impairment is not only deaf, a visually impaired student not just blind, the physically disabled applicant is not merely somebody who is physically handicapped. Disabled students are affected by their disability not only in their whole person but ,generally, also until the end of their lives. In short: the disabled student is dependent on his or her socialization, his or her biography and the educational opportunities offered by the institution he or she approaches.

If therefore for the purposes of this study terminological distinctions have to be made, they only refer to the individual, rather than the instrumental consummation of human existence. Disability therefore is a secondary, accidental deviation. Scientifically speaking, the results of a study can only be analysed and considered if they can be described in terms allowing comparison. To put it more simply: it would be impossible to pronounce statements about distance study for the visually impaired, if the terms "visually impaired" or "blind" did not exist. In the end, these terms prove to be auxiliary labels facilitating reasonably practical communication. This study therefore abstains from using clear definitions for all disabilities occurring amongst distance students. Rather, keeping in mind the overall aim of making proposals that can be put to practical use, it shall be attempted to make precise statements on what is important for those distance students who are generally - and superficially - branded as "disabled".

Integration

At the end of the sixties, the efforts towards reforms and innovation in society resulted in the aim of integration being increasingly put forward in the discussion on educational policy, education and didactics. Integration was considered a perspective.

There are many possibilities for integration. Ideally it means mutual comprehension in action: "Integration is a process that is not directed or determined from an easily reachable finishing-line. Rather, it constitutes a framework of human relations which no longer distinguishes inside from outside. This framework of human relations can be regarded as intact when all participants treat each other in an uncomplicated, matter-of-fact way; when 'different' has the same value as 'common to all'; when different degrees and ways of living and learning together foster unity. Integration means mutual understanding while acting as a group. In this sense it always has the character of a process as well, only existing in and through its completion. Integration is an interpersonal, human event that is moulded individually, even when it is subject to systems of rules and pre-structuring controlled from outside." (Dickopp, 1992: 100)

When integrating disabled students, a distance-education institution faces the task to let them belong to the "normal" environment. To normalize relations between disabled and able-bodied students, with each other and amongst each other - this goal is not one that can be reached by just one side alone. It requires the willingness of both sides to experience each other as students of equal value and equal rights. Therefore, the institution's whole perspective must from the outset be based on an anthropological foundation: "It is the person of every individual who thinks he/she can only realize his/her existence in relation to others, to his/her fellow human beings. If this is the case, maturity, emancipation and self-fulfilment stop being subjectivistic or individualistic aims." (cf. Ommerborn, 1995[2])

The disabled individual must not only be accepted in his/her being underneath his/her "personality". The most important thing is to encourage in the best possible way "considerate behaviour despite individual differences." (cf. Dickopp 1992: 101).

The first decisive step towards realizing this maxim of education policy should be the promotion of offers targeted at both the disabled and the non-disabled alike.

It is therefore nowadays generally tried to integrate disabled children into regular schools. Thus the Council of Europe passed the following resolution on May 14, 1987: "Integrating disabled children into regular schools should be considered an essential element of the action for the integration of the disabled into the community. It may contribute to disabled children leading fulfilled lives later on as adults and in their professional lives. At the same time, non-disabled children benefit from growing up together with disabled children. Integration may trigger off generally desirable reforms." (Minister of Education and the Arts of North-Rhine Westphalia 1990: 7).

More and more disabled learners try to study at better schools and higher-education institutions. Integrating, as opposed to segregating, the disabled is seen as a humane task for a democratic society, a task which may be mastered through education and the appropriate organization. It constitutes a process of educational policy with the aim of making integration the rule, not an exception requiring special permission. The results of studies on integrative types of schooling prove that the performance of both disabled and non-disabled children is the same in integrated and in segregated teaching and that, as far as social learning is concerned, children from integrated classes fare much better than those in segregated classes (cf. Marx 1989: 1406).

Internationally it may be observed that integration has only just begun (cf. Lumer-Henneböle 1992: 1; Adam et al. 1993: 104-105). The Scandinavian countries, Italy, the United Kingdom but

also German "Bundesländer" such as Schleswig-Holstein and the Saarland count among those which, on the basis of clearly defined educational policy goals, created the legal conditions for integrated schooling as the preferred form of schooling.

The rate of disabled children and adolescents participating in education will rise in proportion to society's learning to encourage these children and to treat them naturally in public. Increasing the number of nurseries and schools for the disabled has contributed to the larger educational offer open to many groups of disabled today. This way disabled pupils may take regular school exams which in turn open up opportunities in the area of further education and qualification.

Stigmatization

To the majority of the disabled, their disability does not manifest itself primarily as a deficit of the senses, the body or the mind: neglect and discrimination often carry much greater weight. According to sociologists, being disabled is frequently accompanied by a process of stigmatization.

From a micro-sociological perspective, a 'disability' is not a person's characteristic but rather what is attributed to that person by society. If therefore somebody deviates in his/her behaviour or in one of his/her characteristics from the 'normal expectations' (cf. Wieland 1993: 28) in a given social situation; if he or she thus proves to - in Goffman's classic phrase - "differ undesirably from our anticipation", he or she may be attributed a stigma: "An individual who easily might have been accepted into ordinary social intercourse possesses a characteristic which may draw our attention and make us turn from this individual upon meeting. This breaks the claim his or her other characteristics put on us. The individual has a stigma, i.e. it differs undesirably from our anticipation." (Goffman 1975: 13). The stigma brands people - and not just those who are disabled - as belonging to a fringe group of society. Abels and Link (1993: 117-118) prove this for the stigma of 'age'. It should not be overlooked, however, that since the sixties the generally growing sensibility for the problems of until then neglected marginal groups has made the public increasingly aware of the precarious life situation of those concerned. For example, this can be seen in a changed use of language: the "cripple" has become a "disabled person" and the "old man or woman" now is a "senior citizen" (ibid.: 126). Sociological analyses have shown that stigmatization either serves as a legitimation for breaking off social relations with the stigmatized, thus contributing to his/her isolation, or it leads to a restructuring of our non-verbal and verbal behaviour towards that person (cf. Wieland 1993: 28).

In this context Wieland mentions that stigmata often become the "master status" by being transferred to other aspects or rules belonging to the person concerned. Stigmatization here means the process of discreditation: the stigmatizing society refuses to accept an individual or group in the sense of considering them normal (which is thought of as positive). In everyday language, stigmatization is very often termed "branding". Discreditation and categorization are characteristic for stigmatization and often imply marginalizing those concerned.

In the beginning of the eighties, initiatives of the disabled tried to ward off such processes. They deliberately pointed to their own disability, moved by a new self-confidence and a positive attitude towards themselves. The author Eggli, who is impeded in her movements, for instance postulates in this context that belonging to a marginal group may be a chance: "You may live a fulfilled life despite your disability, a life, in fact, that is richer than that of many able-bodied persons." (1985: 23). People in many areas of educational and general care for the disabled do not agree that general interest should be focused on the disability as an individual. To focus care on the disability means losing sight of the whole human being. This current development started when in

the sixties criticism directed against in-patient institutionswith their totalitarian character and their isolated living conditions increased. Influenced by the anti-psychiatry discussion in Italy and the movement towards normalization in Scandinavia, other West European states followed suit and introduced reforms of psycho-social care. In Germany, the Psychiatry Survey undertaken by German Parliament in 1975 gave considerable impetus to reform by calling for the first time for de-institutionalization and integration into the community supplemented by out-patient social-psychiatric care. The discussion gained a new dimension when - starting with the 'cripples movement' - the disabled themselves began to claim the right to autonomy and self-determination at the beginning of the eighties. Influenced by the Independent Living Movement, they started to promote the principles of a self-determined life also in Germany. Convinced of being experts on their own field, people with various disabilities founded their own organisations and advice centres - the so-called centres for a self-determined life. The disabled themselves determine the policy regarding the organization of these centres and the services provided. From the drop in the ocean that it constituted in its beginnings, the movement has now become a stretch of water itself (cf. Miles-Paul/Windisch 1991: 4-5).

2 Distance study - an educational innovation for disabled students

> 'Nobody should be denied the opportunity to learn because he is poor, geographically isolated, socially disadvantaged, in poor health, institutionalized or otherwise unable to place himself within the institution's special environment for learning.'
> (Wedemeier 1971)

Short Historical Overview

Over the last 30 years, a fundamental structural change has taken place in the tertiary education system in many countries. It was brought about by the foundation of large distance study universities supplementing the traditional higher-education system. Their existence and further development help to open access to universities at least partly in a way that is hard for face-to-face universities to emulate.

In the history of distance teaching, this kind of innovation in higher education is not new: the concept may be traced back to its origins. Thus the major social and economical changes during the first Industrial Revolution at the beginning of the 19th century lead to the insight that education does not end with formal education. Rather it must be conceived as a permanent lifelong process. We must turn back the pages of history even further in order to demonstrate the high status of education and comprehensive continuing education. In feudal societies it was the guilds who were given the task of conveying a behavioural repertoire to their members in addition to professional knowledge; a moral code oriented the individual members beyond the professional in their personal lives. It has to be kept in mind that academic life in medieval university faculties, i.e. the scholarly guilds, was expensive and access was linked to certain conditions, for instance legitimate birth and belonging to the male sex. Only a small privileged group of people therefore had access to the universities (cf. Ommerborn 1995, Dickopp 1992, Lück 1991).

Industrialization brought to light that there was a considerable lack of skilled workers, or rather workers suited to the new production methods and their products. This lack produced, as shown by studies in this field (cf. Ehmann 1978: 178), the need for further education or rather the re-qualification of adults.

The first institutions providing distance teaching, which developed predominantly from publishing houses, have to be seen against this social background. As early as 1856, Toussaint and Langenscheidt published the "Instructional Letters in French, for the Self-Study of Adults". They were for the first time combined with a correction service. A few years later, in 1862, a private school for further education already published the first study letters exclusively for professional further education. For Holmberg, "independent correspondence study" started in 1891 at the University of Wisconsin, when professors at the College of Agriculture exchanged letters with former students who could not stay away from work in order to attend lectures (cf. Holmberg 1985: 23).

There is a friendly dispute in the relevant literature as to what were the real origins of distance study. Some claim that they can be attributed to the invention of writing, especially since one of the purposes of written signs, i.e. to record spoken statements and make them available and comprehensible to those not present at the time, is part of any distance study activity. Others pinpoint the birth of distance study to the invention of printing in the 16th century, since that made it possible to distribute any kind of subject matter to a large group of people. Others see a particularly intelligent 19th century tutor as the ancestor of this teaching method: this teacher is supposed to have conceived the idea of putting his teachings down in writing and making them available to a greater number of pupils by means of letters. This was the invention of the "instructional letter" (cf. Laack 1916; Nigsch/Palanck 1991).

In 1888, in the United States of America, the Senate of the University of Wisconsin gave the following reasons for institutionalizing a "University Extension Department": "Up to now, a good university had the function of imparting knowledge to those striving for it in their lecture rooms - but not to all members of society [...] Now, however, it is increasingly recognized that a university must also endeavour to improve the education of all those who maintain it [...] The hope of imparting scientific matters to everybody is of course a completely utopian one, since the various fields of science extend as fast as teaching possibilities and faster than they can, as a rule, be taken in and assimilated. But today, extending university teaching programmes is no less practicable than increasing the number of people reached by a single seminar. It can hardly be less prophetic today to think about university education for the masses than it was a few centuries ago to imagine basic education for the masses." (Kelly 1970: 156-157)

This illustrates the basic idea underlying distance study: it is a question of overcoming not only social barriers but also those put up by the traditional teaching and learning patterns. Only when the range of the individual academic seminar or lecture is extended, i.e. if it begins to go beyond the normal range of the teacher's voice, more people from all groups of society will be able to enjoy their share of academic education and training.

As a result of their role in realizing study reforms and their appearance as a new type of academic studies, international distance education research regards distance-teaching universities as a "great innovation within the framework of traditional higher-education institutions" (Rathore 1989: 36). Shale (1987: 39) stresses the innovative tasks inherent to the enterprise of "open learning". These tasks force distance-teaching universities, as it were, to become innovative - much more so than is normally the case for face-to-face universities.

What do these innovations with regard to educational policy consist of (also as opposed to those offered by face-to-face universities)?

For one thing, they consist of "distance study eo ipso" and an "adequate university organisation" (cf. Peters 1981; Holmberg 1985: 17-20). They are characterised by certain constitutive characteristics (cf. Peters 1976 and 1981; Holmberg 1979; Keegan 1995) which at the same time present the main innovative characteristics of this teaching and learning system.

- Contact between students and teachers is primarily an indirect one.

- Distance study is based almost exclusively on a course developed in advance according to the didactic principles of distance education and presented with the support of various media (print media, videos, tapes, radio, television etc.)

- Systematic mediated communication takes place between students and the distance teaching organisation. This may be in written form, via the phone or with the help of the so-called "new" media.

- Distance study is an individualized form of teaching and learning, with adults constituting its main target group.

- Since distance-teaching courses may be put within reach of a large number of learners at low cost, distance study often appears as a form of mass communication.

- Developing such programmes for mass communication makes it necessary to use industrial production methods such as planning, division of labour, rationalisation, mechanisation and controlling. Distance study may therefore be characterized as an industrialized form of teaching and learning.

- The technological working methods provide for written, telephonic, computer-mediated or personal two-way communication. Distance study therefore mainly constitutes a special form of mediated communication.

- The distance-study process is complemented by, for the most part non-compulsory, face-to-face sessions.

- This requires an institutional organisation that is especially structured in order to fulfil all these expectations.

It is the specific conditions of distance study that, as demonstrated by its innovative features, constitute the particular quality of distance study for the disabled. Education and further education thus take place over a distance between the disabled students and the distance teaching institution.

The particular aims that distance-teaching universities should pursue with regard to disabled people are expressed in the following description which of course constitutes an ideal type:

The disabled adults follow courses answering the special needs, interests and requirements arising from their individual life situation. They are not on their own, however, while pursuing their studies. They are in constant touch, at a distance, with the distance-teaching organisation that informs, counsels, corrects and directs them.

These organisations aim at individualizing learning for this target group through educational and didactic measures. But what is it that turns the disabled student into an "autonomous" participant fully in command of the distance-study process? In order to answer this question, a few remarks must be made on the structure of distance-education systems.

For the individual, individualisation begins with the decision to study at a university and the choice of a particular distance-study programme. This decision and this choice have to be made taking into account - self-critically and autonomously - one's own abilities and interests.

The applicant is supported by the distance teaching organization through mediated personal consultation which is an integral part of distance study. Distance study is in the following chapters defined as a "procedure for imparting knowledge, skills and aptitudes which is characterised by rationalisation and division of labour. By making extensive use of technology and organisation techniques it can mass-produce objective and optimal learning material. This in turn means that a large number of students may at any moment in time study at a particular university without, however, having to leave their individual home towns." (Peters 1981, 1995).

The higher-education institution must therefore endeavour to offer disabled students study programmes taking into account their disability and their life and living situation. It may, in doing so, pay heed to the specific contexts in which the disabled live, or their expectations. One might say that the didactical and methodical approach employed by that institution is the way in which university study is made possible for many of the disabled. The institution takes into account the normative base underpinning the concept of education and continuing education in our post-modern industrial societies.

This base lies in the human rights which in Western European countries are, as a rule, guaranteed by the constitution:

- the dignity of man
- the basic right to education and training
- the right to the free choice of one's profession employment and place of employment.

These rights are valid without reservation, regardless of a person's social or employment status, age or sex. Distance-teaching universities should strive to achieve this high standard and serve the heterogeneous target group of the disabled with regard to study contents, didactics and organization. This also means developing concepts apt to improve the specific conditions of distance study for all groups of the disabled. When doing so, they must take into account the different forms of disability on the one hand and the requirements of the study programmes on the other hand. The immediate study situation may be improved step by step by adapting the actual institution buildings to the requirements of the disabled. The development of suitable forms of tutoring and counselling and decisions on the use of media should always be oriented towards the specific needs of the disabled (cf. Ommerborn 1995[2]).

For the disabled, learning is a crucial element of their lives and living situations, since the demands with regard to the individual's flexibility and readiness for innovation have risen over the last years. At the same time, the central idea that the social life of man is based on human dignity, is now a matter of consensus in our societies. This central idea also implies that the social life of man must be characterised by constitutional principles aiming at integration and participation on the one hand and offering space for differentiation, individualization and plurality of life styles and aims on the other hand. (cf. Buck 1986: 205-206; Zapf 1987: 2, 44-46; Deutscher Bundestag 1990: 18, 479-481; Jarvis/Pöggeler 1994: 61-63). Since distance students may study at a time and a place that suits them, no matter whether they are disabled or not, the main advantage of distance study therefore lies in autonomous learning. The individual gets the opportunity to combine his/her personal life and distance study in a way that makes sense to him/her and he/she can choose between different forms of distance study. In the case of the disabled, this means that they can choose from the courses

offered by the distance-teaching universities without having to disregard their individual needs and living conditions, especially their own particular learning prerequisites and educational aims.

The particular characteristics of distance study mean that university life, the way the teaching and learning system functions, and the methods employed by teachers, counsellors and administrators differ substantially from those typical for face-to-face universities. At distance-teaching universities, the so-called operating system and the technical processes are of far greater importance than at traditional universities. The same goes for mediated ways of imparting knowledge. The fact that teaching takes place almost exclusively via media means that it is systematized didactically. It also creates new types of university staff. These phenomena are innovative indeed: taken as a whole they revolutionize the traditional academic view of teachers, students and other university staff which developed over the last two hundred years.

The relatively new target group of the disabled presents a challenge to distance-teaching universities, since they must adapt study conditions to the lives and living situations of disabled adults. In this context, "quality is never an accident. It is always the result of high intention, sincere effort, intelligent direction and skilful execution." (The Hadley School for the Blind). These often extraordinary learning conditions will result in obstacles and difficulties in the learning process. The organisation will therefore have to find adequate forms of teaching and learning, mainly through media, to overcome these difficulties.

Tutoring and counselling services, especially the study centres offering personal information, counselling and advice, help bridge the distance between disabled students and the university as well as between fellow students. For the group of the disabled, the distance teaching university has a special position amongst other higher-education institutions: it has no campus life, its - still fairly unusual - target groups are people in employment and fringe groups of society who cannot attend a face-to-face institution, and open, transparent forms of transfering knowledge via media.

Opening higher education to the disabled

Opening higher education to new target groups was stressed above as a constitutive characteristic of the concept of innovation. In contrast to a linear extension of existing offers, the term "opening" denotes a complete area of action for educational policy (cf. Shale 1987; Open University 1977).

Opening higher education first of all means identifying new target groups. Opening the university to disabled potential applicants in differing living situations will give them the chance to take up university studies and to sustain them up to the point of graduating. Opening university studies, however, also means reducing and overcoming the traditional restrictions of time and place through the use of multimedia, thus allowing disabled students true autonomy and responsibility for themselves.

This book looks at studies for the disabled as an innovation in distance teaching. In this context, the following thesis is put forward: many factors point to the distance-study model providing space for experiments. This space makes it possible to satisfy demands for

1. 'university extension', i.e. opening universities to new target groups, and

2. adaptation of the study system to the individual needs of heterogeneous target groups.

In the English-speaking world, "university extensions" have played an important role for a long time. They were inspired by the idea of providing access to academic research and teaching, exams

and diplomas outside the traditional time grid and organisation (cf. Sommer 1987: 17-18; Nigsch/Palank 1991: 14-15). The expression "university extension" originally referred to any plan of extending university teaching to greater numbers of students - whether through admitting associate students not having to live in colleges, or through opening new colleges, either at existing universities or in large industrial cities. As early as in the Oxford of 1850, Sewell had asked in a report: "If it is impossible to bring the throngs of those thirsting for education to university, could we not bring the university to them?" (cf. Peers 1963: 73). According to Sewell, the universities should become what they should be: "A source and focus of the transfer of knowledge to the nation [...]. They should offer the chance of a career to those genuinely gifted; they should emerge from behind their walls and seek out those who cannot come to them of their own accord" (Peers 1963: 74).

So when the institution defines its target group it must not forget that for more than 100 years distance study has been "part of those ideas about change in education, that combine democratic hopes, social claims, industrial prerequisites and technical fascination searching for an organisation valid for all of them. It is a peculiarity of its history which may be considered tragical that, time and again, initiators and target groups, and with them distance study itself, were successfully made outsiders." (Ehmann 1978: 100).

This reference to the target groups being outsiders deserves special attention, since in the public mind it is indeed the marginal groups that characterize the distance universities. Such concepts assign this form of studies the role of compensating for different kinds of individual educational disadvantages, like inhabitants of areas far from any higher-education institution, severely disabled persons or rehabilitation cases.

Distance study is, at times patronizingly, assigned a marginal function. In this, people always consider that the system "higher-education institution" to a large degree fulfils all demands and may as well offer a bridge of this type to "social cases" (cf. Palank/Nigsch 1991: 105).

It is true that members of groups with great disadvantages constitute a sure and by now large clientele for the distance-teaching universities, with a view to the possibilities of access. They may be farmers, seamen in deep-sea shipping, wheel-chair users, prison inmates in prison study centres or senior students in a regional study centre.

Already in the sixties, analyses by Dohmen and others in Germany stressed the potential importance of distance study for target groups like those in employment, housewifes and others who may not simply leave their home towns and professional and private obligations (cf. Dohmen 1967: 11). In the fifties, distance study was seen as a substitute made necessary by need for the direct contact between teachers and learners. Meyer names professional continuing educationther education, teaching those ill and in prison as potential areas (cf. Peters 1973: 33). Internationally, experts also concur in the basic tenet that the constitutive characteristics of distance study, i.e. flexible organisation of time, independence of place and its teaching methods make the distance-teaching universities an ideal institution for special target groups like the disabled, senior citizens, prisoners, those doing community service, army personnel etc. (cf. Rathore 1988: 36-37; Peters 1992; Open universiteit 1992: 8-9; Daniels 1992).

3 Disabled distance students - the international experience

The world has become a "global village" and this constitutes one reason for the growing offer, internationally, of distance studies for students with special needs.

A first section in this chapter describes those types of adaptations to the needs of the disabled that are of practical relevance to distance-teaching universities. A second and third section provide a detailed analysis of three West European distance-study systems, since a study of the relevant literature and visits to the Open universiteit (NL) and the Open University (GB) lead the author to the conclusion that these institutions may serve as models to many distance-teaching universities in some aspects pertinent to the disabled.

Scandinavia (Denmark, Finland, Norway, Sweden)

The state dominates the whole education system, and therefore also distance teaching, in these four countries. Private distance teaching institutions also come under the jurisdiction of the Ministries of Education. In addition to private institutions, there are a great number of public, semi-public and state-controlled institutions (Keegan 1994: 36; European Association of Distance-Teaching Universities 1993: 10-12). In Norway, distance teaching institutions offer courses to the disabled from primary to tertiary level. "Distance education has an integral position within the Norwegian education system. It originated in state recognised private distance teaching institutions, and gradually, over the latter years more and more conventional state institutions began to offer such courses." (EADTU 1993: 26)

Thus Norsk Korrespondansekole (Norway), Folkets Brevskole (Sweden) and the NFU (Finland) offer distance education to the Saami (the Laps) as part of a large project. In this context, special teaching media for the disabled were developed. In Norway and Finland, the disabled may, as a matter of principle, participate in all distance courses, disability being no reason for exclusion. The distance teaching institutions try to attend to the needs of disabled individuals and to make it possible for them to study at a distance. To this purpose, they cooperate with associations representing the disabled. These may have suitable text books and other teaching material and learning aids, such as audio material or books in Braille, which they contribute to the course. The institutions also seek the advice of these associations where special problems of the disabled are concerned. All courses use a text book, several exercises, video and/or audio tapes and are accompanied by TV and/or radio programmes (cf. Haffa/Kammerer 1987: 115; EADTU 1993: 32-33): "The main medium is written study material; also (partially) audiocassettes and videocassettes are used. Audio conferencing, audiographics and video conferencing are becoming popular in some courses." (EADTU 1993a: 13).

In Sweden, the high quality of distance teaching has lead to a positive status and image for this form of teaching and learning, with large numbers of participants. "Post-secondary education was offered on an experimental basis in 1973 and is now a well established university undertaking." (EADTU 1993a: 32).

Private distance-education institutions form an integral part of the public education system. Thus they constitute a central element of the teaching organisation in public adult education. Due to the often great distances to centres of education and universities, distance teaching in Sweden also plays a special role as a substitute for the ordinary educational institutions. As shown by the existing analyses (cf. e.g. Haffa/Kammerer 1987; Karow 1980; EADTU 1993a: 32-33), all disabled persons may on principle pursue distance studies. Nobody may be excluded because of his or her disability. Explanations and brochures on distance courses offered by the Swedish Distance Teaching Association and Liber-Hermods, the largest and oldest Swedish Correspondence School

in Malmö, address the disabled specifically as a target group. The advantages and chances distance study offers particularly to the disabled are pointed out. Applicants are asked to seek individual pre-enrolement counselling. There are no general course adaptations, special learning aids, or standardized organisational services. The individual disabled person is however supported in every possible way so that he or she can pursue his/her distance studies (cf. Ommerborn 1995). "A ruling and statutory principle of Swedish higher education is that all institutions of higher education are to be organised so as to ensure a fair geographical and social distribution of educational opportunities and to further recurrent education." (EADTU 1993: 32) Thus Liber-Hermods offers, in cooperation with the Swedish Ministry of Education, a complete secondary-school education, a number of programmes at university level as well as numerous courses of professional training and continuing education and general courses for adults. There are individualised special regulations for the physically handicapped, the blind and those with a hearing impairment. These regulations may be adapted in each case in talks with the teachers and tutors. The regulations are geared towards the different disabilities. They concern for instance the amount of work to be done, organisation of time, the form of the exercises, support for face-to-face sessions and for examinations.

In Denmark, it took until the beginning of the eighties for distance teaching to gain the same amount of importance as in other Scandinavian countries. It was the foundation of the Jysk Åbent Universitet Jutland (Jutland Open University), the Danish Open University, in 1982 which, as a joint venture between the face-to-face universities of Aarhus, Aalborg and Esbjerg, created a distance study system with 750 students in 1987 and about 5,100 in 1994. Student characteristics: "approximate average age - 35 years, Female - 60 %, Male 40 %, Employed - 75 %, Unemployed - 20 %, others (from other institutions) - 5 % (EADTU 1993: 10; Keegan 1994: 86 and 38). "JOU is a non-independent institution. It offers extra mural, part-time courses of study at a distance, based in the fields of study dovered by three institutions. (EADTU 1993b: 33).

The author's own investigations and older available analyses (e.g. by Karow 1980: 198 and Haffa/Kammerer 1987: 127) show that so far there is no distance teaching especially adapted to the needs of the disabled in Denmark. The institutions concerned merely try to adapt themselves to the expectations from one case to the next. In Finland, conditions are similar. The Finnish distance teaching institutions cooperate via the Finnish Association for Distance Education (FADE), with ten of its members higher-education institutions. They do not offer any special courses for the disabled, but there are disabled persons amongst their students and the institutions try to cater for special needs in individual cases. Disabled students also, as a rule, pay a reduced fee (cf. EADTU 1993b: 35-39).

Canada

In Canada, distance teaching has since its beginnings in the twenties been more than a supplement or alternative to traditional teaching and learning. For many Canadians, this form of teaching often is the only chance to obtain school education, professional training and higher education in a large and extremely sparsely populated country. The larger part of Canadian distance teaching institutions are state-owned, partly state-owned or state-approved.

The Open Learning Institute in British Columbia is comparable to the British Open University. It offers university-level programmes for the disabled. The target group is addressed quite specifically and informed about the educational opportunities offered by distance study. There is, however, no standard programme for the disabled.

The Independent Learning Center (ILC) in Ontario is directly controlled by the Ministry of Education and offers general education and professional training programmes for people with special needs. The ILC tries to adapt programmes individually to the needs of the physically disabled. The blind and the visually impaired may receive study materials on tape and do their exercises for submission orally, if they wish. According to ILC studies, many of its visually impaired students already use computerised writing (Braille-conversion). Tutors have established a connection service including modem computer links.

USA

Distance education in the USA can look back on a history spanning 100 years. Today the USA boast a comprehensive and varied distance-study system with a predominantly positive image and status. It is well established as one of several forms of study. University Extension Departments are of special importance within the United States education system. They offer many diverse study opportunities to all those interested in higher education. The University Extension Departments not only offer all the degrees available at face-to-face universities, but a large number of other courses and programmes. They fulfil the role of both open and distance-teaching universities, providing general and continuing education to academics and non-academics alike.

According to research done by Kammerer and Berning, the University of Illinois and the Hadley School for the Blind offer distance courses making special provision for the disabled. These are the two institutions which have gone furthest in adapting courses and programmes comprehensively to certain target groups. Their concepts confirm the following statements made by Dichanz (based on the transcript of an interview) "Studies for the disabled do not pose any particular problems in the USA. All North American universities have adapted their buildings and campuses to the needs of the disabled. They also meet these needs as far as study organization and institutional practice are concerned. The American public does not perceive the disabled as a special group but as fully integrated fellow citizens. At their universities they are treated accordingly and may live on campus without any transport problems arising. For those students dependent on constant care and support from others, there are specially equipped higher-education institutions that do, however, often offer only a limited number of programmes. Most universities have established procedures enabling students from their catchment area to pursue university studies even if they cannot attend personally. This may be through distance study, or by university staff teaching seminars, colloquia etc. in various regions."

The concepts of the two institutions mentioned above shall therefore receive special attention in this section.

The University of Illinois enjoys an excellent reputation in the United States, both with regard to face-to-face and to distance study. Disabled applicants must fulfil the same prerequisites as their fellow applicants. Special provision is made for exceptional cases, for instance for applicants with deficits due not to their disability but to incomplete or incorrect advice given by their school or local community.

Disabled students sit all regular academic examinations together with their fellow students. An exception is made when students with special disabilities need electrical or Braille type writers, tape recorders or other special equipment, the use of which would disturb other examinees. This ensures that it is students' knowledge that is tested, not their communication skills. Disabled students take their exams in the Rehabilitation Education Center at the same time as the other students sit theirs.

The university offers comprehensive support to its disabled students, bearing in mind the different types of disabilities. When a student cannot attend seminars for a while because of temporary illness, special support measures ensure that he/she may continue his/her studies. When planning the time and place of seminars the University also takes into account students' therapeutic appointments, like physiotherapy, for instance. A counsellor employed by the department for professional rehabilitation may constantly be addressed by the disabled. He/she has the following tasks:

- advising students on their rights and claims to benefit from the state programmes
- helping them in claiming their rights or benefits
- supporting students in their efforts to receive medical care and prosthetic aids.

Readers, writers, sign-language interpreters and taped or Braille books are available upon request.

Numerous psychological tests and advisory talks are available to students in order to help them make realistic choices with regard to their studies - especially if they are dissatisfied with their chosen programmes - or their future profession. A 'functional training program' for the disabled takes place one week before the regular orientation phase. During this programme, faculty and administration staff are available around the clock in order to facilitate integration into university life. The disabled applicants are acquainted with all aspects of day-to-day university life, both with regard to face-to-face and distance studies. They receive intensive training enabling them to be as autonomous as possible in their daily life (getting dressed, moving around in and with their wheelchairs, using the toilet without help by others etc.). This training programme takes place before the regular orientation phase so that the disabled beginners can prepare themselves for their studies without being distracted by family obligations or the actual study work. They can get used to their surroundings before thousands of other students crowd the campus. They can profit from the encounters with other disabled students. Very often mutual motivation and learning takes place. The blind are offered a general orientation and mobility programme which involves finding buildings, getting to know the available technical equipment and services. During the orientation phase organized for all beginners, special events for the disabled continue to take place. This means, for instance, courses

- aiming at evening out learning deficits
- teaching study techniques
- preparing students for future examinations through various simulation techniques
- practising communication techniques suited to the different disabilities
- informing about health care
- training the rational use of the time available for studies.

Students also discuss their social skills and abilities, how to accept or refuse help, how to ask for help.

After World War II, some universities in the United States, one of them being the University of Illinois, acted as pioneers with regard to university study for the disabled. Their achievements may in turn influence the further development of studies for the disabled in other countries. They overcame 'attitude barriers' by creating optimum opportunities for disabled persons wishing to study at university. In the beginning, the main difficulty did not consist in having to solve technical or architectural problems, but rather in the need to counteract the diverse attitude patterns prevalent within the population and imparted by society. In 1948, most faculties and administrators at American Universities still opposed the integration of severely disabled persons into the ordinary study process. Their main argument was that studies for the disabled were a pure waste of time, not worth the effort, since the disabled would not be able to enter a profession after graduating. This kept many potential applicants from taking up university studies at all. Contrary to the prevalent public opinion, the University of Illinois put forward the view that disabled students were not in any way different from any other students. With this is already expressed the gist of what was later to be laid down in § 504 of the Rehabilitation Act. Considerable political pressure after the end of the Vietnam War brought about the Rehabilitation Act of 1973. Educational policy discussions in the United States have shown that this Act was of major consequence to disabled persons and their studies at higher-education institutions (cf. Ellio 1984: 73-75). The Act explicitly guarantees certain rights to the disabled in the United States. These are to ensure that physically and mentally disabled persons are completely equal to all citizens with regard to profession, health services, aid for senior citizens, social and welfare services and all other public or private services subsidized by the Federal Government or funded in any other way. No person fulfilling the requirements for admission to higher education may be barred from university studies on the grounds of their disability. This principle is laid down in Paragraph 504 (Section V) of the Rehabilitation Act of 1973 (Public Law 93-112) under the heading 'No Discrimination under Federal Grants': "No otherwise qualified disabled individual in the United States shall solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal assistance." (United States Government Printing Office 1974: 394)

The Act defines as 'handicapped' every physically or mentally impaired person who is considerably restricted in one or several of the following: ability to walk, to see, to hear, to speak, to work or to learn. In April 1977, the Department of Justice ruled that alcoholics and drug addicts were also to be considered disabled and therefore may claim the protection of § 504, Rehabilitation Act and the regulations for its implementation issued by the Department of Health, Education and Welfare at the end of the seventies (cf. Racine/Turner/White 1984: 55).

The regulations for the implementation of § 504 describe what discrimination of the disabled in the US tertiary-education system might entail. The organization of studies, buildings, examination procedures, accommodation and social services must be conceived for use by all students without excluding or disadvantaging disabled students because of their disability.

An international survey of distance study for the disabled is not complete without mentioning the Hadley School for the Blind. It served as a model, amongst others, for the FernUniversität offer of studies for the visually impaired and the blind. This institution, situated near Chicago, Illinois, "is exemplary for this type of establishment and may justly be considered one of the most interesting educational experiments in history" (Forsyth 1967: 18). The school has an annual intake of about 1,500 blind persons from all over the world. Already in the sixties its students numbered 11,000 in

54 countries on all continents. The study offer spans more than a 100 different subjects of general education and/or professional training. This distance-education institution for the blind was founded because one individual reacted against the stigma put on his disability. Hadley, a high-school teacher, had lost one eye as a child. In 1916, after forty years of teaching, he lost sight in his remaining eye due to an illness. He was thus forced to cope with life as a disabled person. Welfare officers for the blind advised him to become a broom-maker or brushmaker, a typical example of stigmatization and limiting a disabled person to certain professions. The almost sixty-year old Hadley, however, began to teach himself Braille. Supported by his family he succeeded in translating into Braille the textbooks he had used for teaching before going completely blind. He then divided this translation into individual lessons, duplicated them and mailed them to other blind persons seriously interested in further education. In the first year of its existence, this "school", at first located in the teacher's living-room, already counted 90 students. In 1920 it took on its current name, Hadley School for the Blind. Two years later it was awarded charitable status. And today, it receives 1,500 new students each year, imparting 'knowledge and new life' (Forsyth) to them via distance-education.

According to Haffa and Kammerer (1986: 160), in 1986 5,000 visually impaired students participated in courses offered by the Hadley School. At that time it offered 161 courses. Courses are adapted not only by creating and using media suited to the needs of the blind and partially sighted, but also by selecting curricula and distance-education material likely to help students realize their personal and professional aims.

The only face-to-face teaching periods take place in order to acquaint the blind with the Octagon, a machine changing black-and-white print into tactile print. Upon registering beginners must present a medical report on their individual disabilities. This is used to determine the media used by the individual student for the duration of his/her course. Students may begin courses at any time and themselves decide on the date of their examination. Most courses are available both in a Braille and a taped version. Great stress is placed on individual counselling and intensive communication. There is an eight-hour toll-free telephone service within the United States which may be used by students to consult their subject teachers or personal tutors. Lessons are corrected individually and accompanied by tutors' comments addressing students personally and giving them individual advice on their further progress (cf. Ommerborn 1995[2]).

Teachers, instructors, tutors and administrators at the Hadley School for the Blind, 40 % of whom are visually impaired or blind themselves, constantly strive to optimize communication between the blind and the seeing by developing new media and computer programmes. The use of computers is considered crucial for the development of distance study in the future.

France

In 1947, the Sorbonne began to broadcast lectures. These broadcasts, which still exist unchanged today - lectures are recorded live in the lecture hall and then broadcast - may be considered the beginnings of university-level distance education in France. In 1963, four other universities - Bordeaux, Lille, Nancy and Strasbourg - began to broadcast programmes in the Arts. Since radio programmes soon proved to be insufficient for distance study, the majority of the distance-study departments still in existence today were soon afterwards founded by decree of the Ministry of Culture.

The state-owned distance-teaching institute C.N.T.E. (Centre National de Télé-Enseignement) was founded in 1939 under the name of Centre National d'Enseignement par Correspondance,

C.N.E.C. (later for some time called Centre National d'Enseignement à Distance, C.N.E.D.). From the start it specialized in helping students in secondary education, who could not attend school due to a long-term illness, to go on with their lessons and returning to their class without any problems.

The discussion on distance education in West Germany in the fifties concentrated mainly on this aspect, as a result of a paper by Hilker reporting on the French experience in 1959. He pointed out that the Centre National d'Enseignement par Correspondance in Vanves gained "importance during and after the War primarily through children with disrupted school attendance". For 1959, he paints the following picture: "of the 4,500 pupils, 1,500 live in geographic isolation in France or abroad, 300 are seamen's children, the rest are ill or adolescents and adults with a late desire for education." (Hilker 1959: 278). His detailed statistics illustrate the special target groups of this institutions: "113 of the children were in hospital, 86 paralysed, 32 suffered from poliomyelitis, 312 were living abroad and 295 in the French overseas dominions. Of the adults, 767 had an occupation, 328 were in hospital, 146 were paralysed, 10 suffered from poliomyelitis and 133 were prisoners." (Hilker 1959: 279).

Today the French distance-education model is considered the most advanced substitute procedure in Europe for building up distance education. "France is a world leader in distance training" (Keegan 1994: 40). About 60,000 students in France study at a distance. In 1987, 26,000 students studied at one of the 23 traditional universities with distance-study departments or centres organized in the Fédération Interuniversitaire de l'Enseignement à Distance (FIED) in Nanterre. In 1992, these students numbered 32,000. They may be characterized as follows: "Average Age 30 years, Age Range of Students: 18 to 74 years, Number Employed - 72 %, Female Students - 80 %, Male Students - 20 %" (EADTU 1993a: 14). Information on the number of students differs - Keegan (1994: 40) mentions 34,000 students, by 1996 numbers had risen to 38,000 (Guillard 1996). Even though talk about an autonomous French distance teaching university has never completely ceased, the development so far is dominated by substitution: 23 French universities offer distance study in certain faculties - for instance education in Toulouse, sociology in Clermont-Ferrand or economics in Grenoble (cf. Guillard 1988; EADTU 1993b: 51-52).

Written course material and tapes constitute the main media in the French system. Course units reflect the contents of the lectures and are especially written for the distance students by staff of the university concerned. The authors also tutor students: "They set home work, correct it, answer questions in writing or on the phone; three or four times a year they organize work groups for those able to come to university" (Guillard 1998: 33). The 23 French distance-study departments all serve the same purpose, namely providing education for those who cannot attend a face-to-face university: "Those in full-time or part-time employments, women looking after their children, residents in other countries, the sick, persons doing military service or prison inmates." (Guillard 1988: 25).

Distance-study departments which are not autonomous but part of a traditional university constitute one of the main characteristics of the French system. It is the university that awards academic degrees, programmes are the same in face-to-face and in distance study. Not every university in France offers distance studies, the 23 FIED members being part of the overall number of 71 universities (cf. Guillard 1988: 21). The FIED was founded in 1987 by those face-to-face universities with distance-study departments between 1963 and 1980 with their decentralized course offer are an integral element of the regular university structure.

Both the administration and counselling of students within the French distance-study system is dominated by centralized structures. The system is supervised by the Ministry of Education. Students' age ranges from 18 to 74 years. The following subjects are on offer: art education; the arts (classical and modern literature, philosophy, psychology, sociology, education, history, geography,

languages, applied linguistics); law; natural sciences (mathematics, physics, chemistry). Each university offers different programmes leading to a degree; depending on its policy. Two years of study are necessary to acquire the DEUG (Diplome d'études universitaires générales).

After a third year the "Licence" (first academic degree) may be acquired. "Entry requirements are the same as for regular students in the university, namely, the baccaleuréat or equivalent" (EADTU 1993 b: 58). Students register the same way as for a face-to-face university (cf. EU Commission 1991: 32; EADTU 1993 b: 58).

The printed study material allows individual pacing of one's studies. Self-checking exercises and audiotapes supplement the course units, as well home experimenting kits for physics and chemistry, videos demonstrating experiments and supervised group work. Radio and television broadcasts also constitute integral elements of the system. Interactivity is achieved by correspondence and the use of computer systems.

While the curricula are the same for all universities, development and production of study material is carried out autonomously by each university. By now there are 2,000 different courses offered by FIED, with about 80 % of the media being print media.

Current studies and the author's own investigations in France in 1996 show that the proportion of disabled students studying at one of the FIED-universities is relatively high, and thus comparable to that of other European distance-study systems (Guillard 1996: 1). Thus, there are for instance 2,241 distance students registered with the distance-study centre of the Université Paris X Nanterre. 87 of these declare themselves to belong to the group of ill or disabled students, with the follwoing detailed information being provided:

1st year		2nd year		3rd year		Total	Reason for enrolment
Male	Female	Male	Female	Male	Female	Male + Female	
13	13	2	5	1	4	38	Health (cared for at home)
13	17	5	7	3	4	49	Health (hospitalized)

On the basis of FIED statistics and estimates provided by Guillard (1996), it may be stated that of the 38,000 distance students in France, about 1,500 are chronically ill or disabled (about 4 %). These figures largely tally with those valid for the British Open University, given to the author at a European conference on "Disabled people in distance study" in Milton Keynes in autumn 1995. The term 'disability' is broadly defined, as illustrated by the information brochure published by C.N.E.D. It lists a great number of disabilities to be taken into account in distance teaching: motor or sensory disorders, paralysis and poliomyelitis, scoliosis, hip dislocation, missing or deformed limbs, heart diseases, visual impairment/blindness, hearing impairment/deafness, speech handicaps, kidney dialysis patients, epileptics, psychological problems (e.g. phobias, general difficulties to adapt etc.).

In distance teaching for the disabled and sick, C.N.E.D. has specialized in the following target groups:

- learners with severe, permanent physical disabilities living at home in their families or in special homes;

- learners unable to move for a longer, though limited, period of time (e.g. sport accidents) and who have to remain at home or in hospital;

- disabled or chronically ill persons who live in geographical isolation.

The institute tries to adapt its teaching programme as much as possible to the needs of the different disabilities. These adaptations are of an organizational or didactic nature. Staff members visit learners at home or in hospital, for instance, in order to discuss teaching contents or exercises. Teaching programmes and pacing are made more flexible. In the course of time, the media were adapted to the different disabilities. The result is a media unit consisting of written material, records, tapes and slides. Course material for the blind is provided on audio tapes. Innovative measures have been taken in the area of the print media. They were modified to suit the different disabilities - printed on "stronger paper, for instance, with larger line spacing, larger letters, one-sided print (no need to turn the page), printing only on the upper half of the page (no need to push the page upwards, no need for head movements), more images and illustrative graphics" (Haffa/Kammerer 1981: 90). French distance teaching institutions aim at extending their range of specially developed and adapted teaching and learning material with regard to new media and electronic communication techniques in order to offer their target group a variety of education and further education options in an up-to-date system. "They [i.e. the target group] are usually salaried workers [...] but may also be mothers at home, sick people, detainees, young servicemen or

professional sportsmen. In fact, anyone who for one reason or another is unable to attend regular classes in a traditional university setting" (EADTU 1993: 58).

The Netherlands

The Open universiteit is an autonomous distance-education institution and at the same time part of the Dutch higher-education system consisting of 13 universities and 80 further-education institutions. The Open universiteit was opened as a state-controlled distance-study institution on September 26, 1984. As a so-called "autonomous" distance-study institution, it is financed by the government, has its own administration and academic staff and runs an autonomous examination system. It is the only public institution for higher distance education in the Netherlands. The Charta coprises the following aims:

- "to provide adults with a 'second chance' to enter higher education;
- to offer an alternative form of higher education to people who are not attracted by the traditional forms ('second route');
- to create a cheaper form of higher education;
- to encourage innovation in higher education, both as regards content and methods." (Open universiteit 1991: 2)

In 1996, more than 30,000 Open universiteit students were able to choose from more than 200 courses. Its seat is in Heerlen, with 20 study centres all over the Netherlands. Since 1993, some of these have co-operated with German study centres on all tutoring and counselling matters regarding Dutch and German study applicants and students.

The Dutch distance teaching university has developed a strong potential for innovation, using the international experience and models, with obvious parallels to the British distance-study system. The main characteristics of the Open universiteit are:

- "open toegang" (open access)
- "openheid van paats en tijd" (flexibility of time and place)
- "vrijheid van tempo" (no pacing)
- "vrijheid van programmering" (no set programmes)

(Ommerborn 1995[2]).

Disabled Open universiteit students may study in their own individual surroundings and determine their own study pace and course of studies. The university offers so-called "accompanied self-study". As at other distance-study institutions,course contents are taught in modules, each with its own learning aims. This system aims at encouraging students to develop a feeling of responsibility for their own learning progress and at promoting their independence. The course offer is conceived as a credit system. Courses may be studied as a small study programme leading to an exam or they may be integrated into larger study contexts. Studies are not linked to terms or enrolment periods, so students may start at any time they wish to. The average study time for one module is 100 hours, with the time being spent on an individual course ranging from half a module to three modules, i.e. 300 hours (cf. Open universiteit 1991: 4-5).

Disabled students may study the following disciplines: law, natural sciences, economics, business and management, technical science, social science and cultural science. Great importance is attached to interdisciplinarity with regard to single courses and to larger study programmes. The Open universiteit distinguishes between three study levels, beginning with the introductory level and ending with the top level. If a course is studied successfully, the student is awarded credits which count towards the degree to an extent determined by the length and level of the course. The university offers simple forms of further education as well as diploma and PH.D. studies.

In preferring written study material and study centres to audiovisual media and the Summer Schools established successfully in the U. K., the Dutch follow the German policy for the multimedia teaching and learning situation. The courses themselves are developed by a course team, similar to practice at the British Open University. It consists of course authors, experts in didactics and media researchers. Lay-out specialists are involved in course production rights from the start: "It is not the teacher but the learning material which is at the centre of teaching. Course development is a matter of team work, with different experts, subject specialists, educationists, specialists for visual and audio material, artists and photographers, all working together." (Open universiteit 1991: 4).

The interdisciplinary concept allows each course to be integrated into different curricula.

The Open universiteit student population may be characterized as follows (cf. Pronk 1992: 72-73; EADTU 1993 b: 102):

Student Characteristics/Student Profile	
Median Age	31 years
Female	39 %
Male	61 %
Employed	76 %
Unemployed	18 %
Others	16 %

Amongst the different disciplines, these students are distributed as follows:

Disciplines	
Business and Administration	28,7 %
Cultural Science	12,6 %
Economics	8.8 %
Physical Science	6,6 %
Law	14,9 %
Social Science	15,9 %
Technical Science	12,5 %

Courses are developed by seven teams and are distributed amongst the disciplines as follows: Business and Administration 26 + 8 split courses; Cultural Science 21; Economics 32; Physical Science 31; Law 34 and 1 Flemish Course; Social Science 33 and Technical Science 26 (cf. EADTU 1993 b: 102).

In addition to printed course material, its main teaching medium, the university increasingly makes use of interactive simulation programmes and computer-aided learning programmes. These are used when necessary in order to reach specific study goals. In order not to be inconsistent with the principle of free pacing, television programmes are used only for information, public relations

and counselling purposes. The university's research and development programme focuses on the use of information technology for teaching purposes. The Centre for Innovation in Educational Technology was founded between 1989 and 1990 with this purpose in mind. It receives additional public funds (cf. European Commission 1991: 43).

A comparative analysis of the distance-teaching material both of the FernUniversität and Open universiteit was undertaken by members of the Faculty of Psychology and Education at the University of Geneva in 1993. This study shows that both universities make use of audiovisual and interactive media in order to optimize the performance of print media. They both spend considerable sums on the development of non-print media. A closer look at the courses on offer, however, shows the supplementary role played by audiovisual and interactive media so far, with more than 80 % of course contents contained in printed material. The two universities differ in their approach to the integration of the media into the course. At the FernUniversität, audiovisual or electronic media are only developed after a course already exists in the form of printed material, whereas at the Open universiteit, a course is conceived with all the media to be used from the start (cf. Peraya/Hässig 1993: 69).

According to Gastkemper (1990: 51), four criteria determine the choice of media when a course is developed at Open universiteit. These are, in hierarchical order:

- the flexibility and availability of the media with regard to the independence of time and place;
- their didactic function with regard to learning aims and learning content;
- their pragmatic function, especially with regard to learner motivation;
- the costs estimated for development and use.

The concept applying to the 20 study centres resembles the concept of the FernUniversität: individually or in groups, students receive subject-related counselling on the self-instructive study material and advice on general study matters. Course-related advice is given by mentors who are members of the production teams.

For the most part, terrestrial communication networks (telephone, computer etc.) have been established. For instance, these alsone serve the about 10 interactive teaching programmes produced in the Netherlands in the second half of the eighties. The Open universiteit has also produced ten rather extensive programmes on video disc particularly for use in the study centres. The study centres are equipped with audiovisual teaching and learning materials including some interactive media and computer networks. Three times a year, written examinations are held in the study centres which are supervised by staff members from the main seat in Heerlen. As part of his cooperation with the director of the Sittard study centre, Mr. Ressort, the author had the opportunity to observe the computer-aided examination of a disabled student of information science. About five minutes after finishing his exam, the student received the computerized evaluation confirming that he had passed successfully.

The more than 700 Open universiteit disabled students, constituting about 1.4 % of the whole student body (van Lang 1995: 9) confirm the conviction held by this institution that its teaching system is particularly suited to people who cannot, or only with difficulties, study at one of the traditional universities (van Enckevoort et al. 1992: 1). According to information passed on to the author by the Open universiteit Advisory Service for the Disabled (Kluytmans Nov. 1995), the actual number of disabled students is probably much higher. This larger figure comprises all students for whom further adaptation to their special needs is necessary.

In 1985, the Open universiteit created a programme stressing its commitment to the disabled and explaining its intentions with regard to distance study for the disabled (cf. van Enckevoort et al. 1992: 12). In close cooperation with associations representing the disabled, the Open universiteit

endeavours to organize forms of access and learning structures as much as possible with a view to having disabled persons participate fully in distance study. There is increased tutoring and counselling in the form of "central provision by the Department of Student Support and Market Relations, especially for target groups, i.e. disabled students, and by counsellors at 18 study centres." (EADTU 1993 b: 104).

Enckevoort et al. qualify their statements by stating that distance study has advantages and disadvantages, bearing its own risks and "handicaps" (cf. van Enckevoort et al. 1992: 4).

The 700 disabled Open universiteit students mention the following disabilities:

Disabilities	**Number**
Visual impairment	79
Hearing impairment	115
Impairment of mobility/dexterity	152
Disorders of inner organs	98
Students confined to bed	27
Psychological disabilities	209
Multiple disabilities	6

About half of these students are between 26 and 45 years old, a quarter is older than 55 (van Lang 1995: 9).

Between 1984 and 1993, 1,419 disabled students registered at the Open universiteit. This number constitutes 0.95 % of the overall number of Open universiteit students (149.822) for this period. The following table illustrates the different disabilities (van Lang 1995: 12):

personal circum-stances	blind	partiall y sighted	deaf	hard of hearing	wheel-chair	mobilit y pro-blems	internal disorder	confine d to bed	psycho-logical	total
man	14 1.0 %	80 6,0 %	11 0,8 %	115 8,6 %	51 3,8 %	78 5,8 %	99 7,4 %	19 1,4 %	194 14,4 %	661 49,1 %
woman	10 0,7 %	58 4,3 %	15 1,1 %	72 5,4 %	56 4,2 %	92 6,8 %	86 6,4 %	56 4,2 %	139 17, 8 %	684 50,9 %
total percentage	24 1,8 %	138 10,3 %	26 2,0 %	187 14,0 %	107 8,0 %	170 12,6 %	185 13, 8 %	75 5,6 %	433 32,2 %	1345 100 %

Recent Open universiteit information and analyses on study success show that success rates among the disabled students are neither better nor worse than those of the other students.

The following table shows the proportion of courses enrolled for to those finished by the group of the disabled students:

disabled	1 course	2 course	3 course	4 course	5-7 c.	8-10 c.	11-15 c.	16-20 c.	>= 21 c.	total
courses began	746 53.8 %	240 16.9 %	97 6.8 %	64 4.5 %	116 8.2 %	61 4.3 %	46 3.2 %	15 1.1 %	16 1.1 %	1419 100 %
courses finished	175 38 %	72 15.7 %	52 11.3 %	30 6.5 %	57 12.4 %	38 8.2 %	21 4.6 %	4 0,9 %	12 2.6 %	461 100 %

(van Lang 1995: 14)

Individual case studies from the Netherlands show the importance of distance study for the disabled. The students quoted below gave permission for the publication and analysis of their statements on the advantages of the Dutch system.

I. van W. from Brabant, who has hearing problems, has been successfully studying psychology and education at the Open universiteit for a few semesters now. She states that even with the help of a "telephone for the hard of hearing" and with hearing aids reenforcing her remaining hearing ability, she was unable to follow lectures or seminars at the traditional university any longer. "Following lessons is impossible for people like me. More than four years ago I saw publicity for the Open universiteit on television and thought, this is what I am looking for. To study at home at my own pace, from written material, whatever suits me from the large choice offered. Also I can put together my own study programme." (Open universiteit 1992: 7).

In her distance study she is supported by a 'study companion': "I need her because she puts down for me on paper all questions and answers from the group meeting so that I can study them at home at my own leisure. And when there are exams I may sit in front in order to be able to follow the supervisor's remarks."

One of the special advantages of the Dutch distance-study system consists in the fact that even in oral exams, questions and answers may be written down. ("All questions and answers were put down on paper ...")

In a year Mr. G. from Gelderse/Hengelo (NL) will, with a little luck as he puts it, take his kho-diploma "Personeel en organistic" (Personnel and Organization). Mr. G. is severely visually disabled and works in the personell and organization department of a large Dutch enterprise. "I never harboured any fear or doubts that I might not be up to university study. I enjoyed it from the start and still do. Because of my disability I have to be very disciplined in my work, since I cannot always use the ordinary study material. I study course contents with the help of audio tapes. Since it takes time to speak the texts on tape, I must always choose my next course when I am only halfway through my present one. " (Open universiteit 1992: 13).

The fact that all the necessary technical aids (computer, magnifying aid and Braille reader) are available to him at his workplace makes it easier for him to study under conditions adequate to his needs.

Ms. D. from Dordrecht (NL) talks almost enthusiastically about her studies at the Open universiteit. She is a young, physically disabled ("she walks permanently on crutches and uses a wheelchair outside her own home", Open universiteit 1992: 17) woman with a four-year old daughter. "In view of my impaired mobility the Open universiteit was the obvious choice. I regularly go to the Rotterdam study centre because I want to get my degree as soon as possible. Recently, this study centre has been made accessible to wheelchair users. Staff there is particularly helpful. By now I have successfully mastered Social Psychology, Introduction to Psychology Ia and Ib and the Foundation Course in Social Science. At the moment I am working on Philosophy, Organisation Ia, Introduction to Sociology, Education and Statistics I a ." (Open universiteit 1992: 17).

She has been studying Social Science at the Open universiteit since August 1990. She also works in a "Centre for lonely people". She talks about this work with a new perspective for her future profession in mind: "This comes out of my philosophy of life. I hope to convey this philosophy of life to other disabled persons and to help them later as a psychologist. You see, many disabled persons do not feel understood by psychologists or psychiatrists who cannot put

themselves into their position. It's different with me, I've got a right to speak. I can bring across my belief that disability is relative and lies above all in yourself." (Open universiteit 1992: 17).

An elderly gentleman with severe health disorders explains that he has always been interested in juridical questions and problems. The existence of the Dutch Open university offers him a real possibility to study law. "I started at the Open universiteit in 1986. I can study at my own pace. Studying has also become my pastime because it allows me to become engrossed in legal matters." (Open universiteit 1992: 11).

Mr. Q. is satisfied with the Open universiteit study material and has successfully completed about 10 courses. He identifies with the institution, talking about "our university": "My studies have helped me to gain insight into various everyday matters. For instance I am not impressed any more by threatening registered letters. As long as my health permits it, I shall go on studying law at *our* Open universiteit." (Open universiteit 1992: 11).

A 1990 evaluation study comes to the conclusion that at first Open universiteit goals could be subsumed primarily under the heading "second chance". It gradually became apparent, however, that its target group more and more regarded it as a "second route": "an alternative or supplementary route through higher education [...] for various reasons" (Visiting Committee 1991: 8).

The Open universiteit indeed constitutes a second chance for target groups with special needs, such as older or disabled students. They wish to study at university but do not fulfil formal entrance requirements. There is, however, a growing number of disabled persons who consider distance study a second route, since, because of their disability and their negative experience with the traditional higher education system, distance study represents to them an alternative route towards higher education and a degree.

The Open universiteit adaptations to the special needs of physically disabled students primarily aim at improvements in the organization. A catalogue of possible measures was developed after registering systematically and in detail examples of disadvantaging. It contains proposals (cf. Open universiteit 1985a and 1985)

- for improving study centres with regard to access for the disabled and to equipment and furnishing suited to their needs;

- for the extension of the number of courses available to students with visual impairments, since so far they can only enrol for relatively few courses;

- for taking into account the special needs of the disabled when organizing examinations.

There is a permanent working group, comparable to the "Department for Disabled Students" at the Open University. It has, amongst others, the task to find out in detail about difficulties met with by the disabled in the course of their studies and to develop suggestions for improvement on the basis of their findings. It develops clear, short-term measures enabling the disabled to study at a distance even in areas where this has not been possible - or at least very difficult - so far. In 1994 this working group published a study with some points relevant for all distance-teaching universities both with regard to theory and to practice. The following grid illustrates these points (Boon, Janssen, Poelmans 1994: 29).

	Visual impairment	Hearing impairment	Motor disability	Internal disorders	Confined to bed	Psychological problems
Enrolment	filling in forms without help			doubts about ability to fill in forms	doubts about problems filling in forms	doubts about ability to fill in forms
Presentation of material	time-lag for new adaptations	info transcripts not clear			adaptation not clear	
Meetings		inability to understand teacher		written info	written info	small groups
Tutoring/ Counselling		communication awkward / directed more towards writing				permanent contact person / purposeful information
Examinations	oral examinations also in the evening	inability to understand teacher	modified table	regular examinations more often during the day		preference for a specific locality
Access	help with getting to Den Bosch study centre		entrance to Groningen study centre			
Proposals for the future	easier access to information and studies	specific information for this target group			specific information for this target group	

True to its name, the Open universiteit has opened access to academic studies for the disabled by not requiring formal entry qualifications and entrance examinations: "Education in any modern society needs an approach that not only makes use of new technological possibilities, but also acknowledges democratic principles of individual freedom and opportunities for personal development" (De Wolf 1988: 22). As pointed out by Peters (1992: 27), distance-teaching universities in Great Britain, Israel, Canada, Pakistan and Japan act the same way. Apparently, they assume that these heterogeneous target groups have acquired their aptitude for university study by other than the usual means and that this aptitude will be proven by their success in their studies. For Peters, this regulation constitutes considerable progress in the area of educational policy since these distance-teaching universities at least in this aspect serve the needs of adult learners.

Great Britain

In Great Britain, further academic education is part of a long cultural tradition. The university extension movement started already in the mid nineteenth century (cf. Peters 1963: 73-74). Its aim was to let a larger number of students profit from university teaching, whether by enroling students without obliging them to live in halls of residence or by opening new colleges at the existing universities or in the industrial cities.

This was the tradition the Open University could build on when the "University of the Air", as it was originally called, was started as an experiment in the sixties (cf. Scheible 1975). In 1971, the Open University established itself as an autonomous university in Bletchley, Milton Keynes. 20,000 students registered in its first year (cf. Peters 1992: 18; Keegan 1994: 75).

The Open University is 'open' in various ways: open with regard to entry requirements; open, by now, not just to students from the United Kingdom; open to new principles of presenting contents made necessary by the use of media; open to many methods of conveying teaching contents effectively, with all media being fully integrated into the teaching and learning system.

The Open University describes itself as a successful distance-study institution: "Founded in 1969, the British Open University has been one of the most exciting educational opportunities ever available in the UK. Taking students without prior qualifications, we use a variety of teaching methods, including printed materials, correspondence tuition, personal face-to-face tutoring, TV and radio in a mixture which is demonstrably successful and which has been copied all around the world." (Daniel 1992: 3)

Internationally, its programmes enjoy a good reputation, with distance educators particularly appreciative of its work in the continuing education sector (cf. Bates 1990: 7-8 and 285-286; Nigsch/Palank 1991: 15-16; Peters 1992 . 22). "All in all, the Open University has done pioneering work [...] in continuing education and set high standards for others. It has become a model for distance-teaching universities founded at later dates all over the world - because it is uncompromisingly open to applicants without university entry qualifications; because it uses radio and television, develops its courses professionally, provides intensive tuition and counselling to its students and has made further and continuing education a focus of its work." (Peters 1992: 22).

Recent publications confirm this statement and have given information on the number of graduates produced so far: "Since it was established its undergraduate programmes have produced 12,000 graduates and the number produced each year is now as many as 6,000." (Needham) At the beginning of the nineties, the quality of the Open University study materials were evaluated several times by British and overseas institutions. "The UKOU's quality assurance processes were reviewed by Britain's Higher Education Quality Council in 1992. The report praised the 'outstanding quality of (instructional) material' and 'the many excellent practices for quality assurance'" (Daniels 1993: 14). It was also stated that "the students displayed dedication, commitment and enthusiasm which were unprecedented in such a group in the team's experience." (Daniels 1993: 14).

By now, there are 122,721 Open University students. 84,556 of these are degree students, 12,197 associate students, 8,308 postgraduate students, and 17,660 study short courses (Keegan 1994: 80). About 4,000 have declared themselves to be disabled. They mainly use printed study material, but also radio and television broadcasts, in some subjects carry out experiments with home laboratory kits and attend meetings for study or counselling purposes in 260 study centres. They study, amongst others, sciences, arts, management, education, mathematics, health, and social welfare and community education, social sciences and technology. They mainly study the following OU programmes:

- the Associate Programme (certificates for single study activities, creditable towards a degree),
- the Higher Degree Programme (Bachelor, Master and Doctor of Philosophy),
- the Undergraduate Programme (Bachelor of Arts),
- the Open Business School (Master of Business Administration).

The Open University is a public university and as such fully integrated into the British higher-education system. Within this system the majority of students only take a Bachelor degree - thus, the university can provide graduate studies to a large number of adult learners. The university has 'almost unlimited legal authority' (Peters 1992: 18) for developing continuing education in its widest sense, since its Royal Charter contains the remit "to promote the educational well-being of the community generally" (Perry 1976: 184).

Applicants, like those to the Open universiteit, do not need to present formal proof of their previous education and must at least be 21 years old. In 1993, the openness of the university was redefined: "The Open University is committed to providing equal opportunities for study. We welcome applications from all sections of the community, from any background, regardless of race, gender, sexual orientation, age, occupation, marital status, sensory or physical disability, religious or other beliefs, or previous educational experience." (Open University 1993: 1).

Open access on the "first come, first served" principle is characteristic. Fixed quotas are meant to ensure that courses are not 'overbooked'. Newly-registered students confirm their registration after a two-month introductory phase. The course structure is characterized by strict pacing, and courses end with three-hour examinations. There is flexibility of time and place, even if for many courses attendance at face-to-face events (e.g. summer schools or week-end seminars) is compulsory.

Like the FernUniversität and the Open universiteit, the Open University mainly teaches with the support of printed material, followed by television and videos in second place. In addition to this, the following media are also used to a relatively large extent (Ommerborn 1995[2]):

- home computers,
- computer-aided communication (e.g. computer conferences, electronic mail, "notice board" etc.),
- audio conferences, radio, interactive media, and
- satellite television.

Students can obtain the Bachelor of Art (B. A.), the B. phil., M. Phil. and Ph.D. as postgraduate degrees. Students in continuing education receive a certificate if they successfully complete their studies by passing an exam.

The Open University particularly tailors its course offer to the large number of students who did not complete their secondary education. First-year courses, the so-called foundation courses, therefore slowly introduce students to new areas and do not require any previous knowledge. The Open University insofar accommodates students' individual interests as it does not ask them to complete set study programmes. Rather, they may freely choose from all courses on offer and assemble their own programme.

The Open University uses both apersonal and personal learning elements, the so-called teaching channels. By using these elements in combination with different learning activities and attributing different amounts of time to them, the study process is set in motion.

Printed material, other media, course-related radio and television broadcasts and the Summer School constitute the direct learning elements. Indirect learning elements or 'feed-back'-systems are represented by computer-corrected and tutor-corrected assignments. Direct support is provided by face-to-face tuition. "The prime role of the course tutor is teaching [...] The main purpose of the tutorial classes is to remedy academic weaknesses or deficiencies of understanding in students" (Open University 1990: 6).

All three forms of distance study offered by the Open University (graduate studies, postgraduate studies and continuing education) are also particularly suitable for disabled persons: "Open University study is particularly suitable for many people with special needs, who may find it difficult to take courses elsewhere. At present the Open University has about four thousand students with a disability of some kind." (Child 1993: 1).

This statement by Derek Child, the Open University Adviser on the Education of Students with Disabilities, confirms the author's own experience. When visiting the Open University in 1983 and 1995, the author observed that learning and study conditions for disabled students at the Open University in many ways resembled those at the FernUniversität. In an interview given to the author at the beginning of the eighties, Derek Child explains the main difficulties encountered by the students as well as the Open University at that time:

> Problems occur when we try to provide sufficient tactile support to blind students, for instance diagrams, illustrations and similar material in Braille. This applies above all to the mounting number of applicants interested in mathematics, natural sciences or technical subjects. Supplying large numbers of large-print material also puts great strain on the Open University's finances and administration. Putting a sufficient number of aids at the disposal of students with hearing impairments for use in the study centres creates considerable difficulties. In addition, we lack a sufficient number of interpreters for this target group for tutorials and summer schools. For a few years now, the Open University has offered special support weeks for students with hearing impairments, enabling them to study basic courses. There are ad hoc-student groups as part of the summer schools, where students with hearing impairments are offered limited help from interpreters. Students complete courses at different levels in the form of individual lessons. This service has been extended to the tutorials taking place in the study centres. We cannot guarantee, however, that sufficient financial means for these special tutoring and counselling services will be available in the future. For wheelchair users, access to one of the local study centres may sometimes be difficult. The number of individual tutorials available to students with severe physical disabilities, who are restricted to their homes, is also limited.
>
> The future possibilities for providing individual aid to disabled students must be viewed with concern as far as financial resources are concerned. The central government has considerably cut its annual grant. In the future, this will inevitably lead to fewer forms of individual counselling being offered to our disabled clients. There will be more group tutoring and counselling.

The difficulties pointed out by Derek Child largely correspond to similar problems encountered by the FernUniversität at that time.

According to Mary Kirby, who is on the staff of the Open University Office for Students with Disabilities, 213 disabled students took part in one of the Open University summer schools in 1984, accompanied by voluntary helpers. The university paid board and lodging as well as travel costs for these helpers.

Like some of the FernUniversität mentors, tutors in the summer schools have the task of tutoring and counselling the disabled students. This is to help students to profit as much as possible from the summer school courses. The tutor answers questions referring to the improvement of study at the Open University in general as well as to information about it and to study processes. Summer-

school staff is responsible for the distribution of equipment and ensures that disabled students are given all possible aid.

The Open University has a very positive attitude towards helping disabled students - this fact emerged from several talks the author had with professors, tutors and senior counsellors in 1995. It will, according to Tait, continue to try and meet the educational needs of its disabled students:

- it will continue to give special attention to disabled applicants in its admission policy;
- it will make provisions for the special needs of the disabled students by regularly giving relevant information and advice to its full-time and part-time staff;
- it will take all the possible steps towards enabling disabled persons to fully participate in all areas of academic life;
- it will treat them as equal members of the university, no matter which study programme they are assigned to, and make special arrangements only when and where these are necessary in order to help them participate in university life under the same conditions as all other students;
- it will look at job opportunities for disabled Open University students and graduates, and
- it will dedicate part of its institutionalized research programme to the educational needs of disabled persons.

The official Open University statistics give the following figures for disabled students in 1984, 1988, 1989, 1993 and 1995 (cf. Open University 1991: 9; Child/Mottram, 1995: 153-154):

	1984	1988	1989	1993	1995
Disabled students					
Undergraduates	2,018	2,527	2,751	3,966	5,003
Associates	-	235	224	476	596

According to Derek Child and David Mottram, 6,500 students with special needs were registered at the Open University in 1995, making it the leader in providing higher education to the disabled in Europe. "In the case of the Open University, special support for disabled students has been provided from its first year of operation in 1971. In 1984 the Open University provided support services to 4,765 students with disabilities, representing 3.18 % of all registered students" (Child/Mottram 1995: 153).

A 1993 Open University survey breaks student figures down to the different disabilities:

1993 student totals by disability (Undergraduate and Associate Students)	
Arthritis	585
Visual impairment	430
Hearing impairment	464
Cardiac conditions	342
Polio/spinal injury	250
Neurological disorders	358
Cerebral palsy	39
Asthma, bronchitis	128
Diabetes	154
Phobia/mental illness	478
Kidney/blood disorders	300
Epilepsy	145
Muscular dystrophy/atrophy	35
Stroke/brain disorders	192
Dyslexia	278
Disorders of muscles, joints	809
Other	312
Total: 4,442 students with 5,299 disabilities	

"The Open University plans to move away from this medical model of disability. Future disabled student data will specify disability only in terms of requirements for additional services for facilities to enable students to overcome barriers of access to study." (Mottram 1995).

Since its foundation the Open University has shown a special commitment towards disabled persons. It has therefore developed a broad range of support services tailored to the needs of the disabled. Disabled applicants can receive pre-enrolment counselling at any of the thirteen Open University regional centres (the Open University has divided the United Kingdom into thirteen regions, with regional study centres in London, Oxford, Bristol, Birmingham, Nottingham, Cambridge, Leeds, Manchester, Newcastle, Cardiff, Edinburgh, Belfast and East Grinstead). Responsible for disabled students are also the Office for Students with Disabilities and Derek Child as the University's Adviser on the Education of Students with Disabilities at the university's main seat in Milton Keynes. His staff takes on tasks of coordination and further development in cooperation with other central services in the different regional centres.

In order to tailor studies to the needs of the disabled individual, every disabled student is requested to state the nature of his/her disability, as well as details which might be of relevance to the organization of his or her studies. This is followed by a consultation with a tutor at the regional centre which serves to discuss details of future studies. Every disabled student is assigned to a local counsellor who advises him or her on general questions and puts him or her in touch with the course tutors and, if necessary, with the main seat as well. The counsellors also support the disabled students in planning their studies.

Course tutors comment on written assignments and provide telephone and face-to-face tutorials. If required, additional tutorials may be provided for students with special difficulties. These tutorials may also take the form of home visits. It is the telephone tutorial though which is used to a large extent by many disabled students. Telephone conferences have been possible since the mid seventies. They enable the tutors to communicate with several students in different places at the same time. They are a valid substitute for personal information and counselling and thus constitute a great help particularly to severely disabled students and to those living in remote areas (cf. Pinches 1975: 39-41).

Students with a hearing impairment are offered different types of aids for communication in face-to-face events in the regional centres, as e.g. signers, writing aids and induction loops.

The regional centres take care that disabled students are assigned to a study centre with facilities suited to their individual conditions and requirements.

Once a year there is a preparatory seminar for students with visual or hearing impairments. This seminar pursues the aims of familiarizing new students with the study system and teaching them some basic study techniques. Though this not a compulsory event, it is regularly attended by a great number of students. Costs are born by the university.

Alternatives to ordinary study material have been developed in order to take into account the disabled students' special requirements (Open University 1995; Ommerborn 1995[2]):

- audio tape versions of print media;

- transcripts of radio and television programmes as well as audio tapes and videos;

- course videos with subtitles - this measure was incorporated into the programme in 1992. Students with a hearing impairment may borrow video versions of television programmes which are provided with subtitles free of charge;

- comb-bound course material - this is a special type of binding put at the disposal of students for whom, due to the nature of their disability, course material with conventional binding would not be suitable.

Each regional centre may make its own special provisions for written and oral examinations, organizing them according to the nature of the students' disabilities. If necessary, disabled students may be accompanied by a helper writing for them, or they may use a typewriter or word processor. They may also be allowed additional time or breaks for written examinations. Material for written exams is also available in large print, on tape or in Braille. Examinations may be taken at home or, if necessary, in a hospital or an institution for the disabled. The Open University keeps a pool of specific equipment for the disabled which may be borrowed on demand. Such equipment may consist of radio microphones for use by students with a hearing impairment in tutorials and at conferences, or of computers for persons with a visual impairment.

Child recommends participating in residential summer schools if the nature of a students's disability allows this. Students are given personal and mediated support, as the author witnessed when participating in a Summer School in Norwich. Mrs. M, who was one of the wheelchair participants in this one-week residential school, describes her study situation:

"While I was being trained as a psychiatry nurse, I was made a paraplegic as the result of a spine injury. This brought my professional career to a sudden end.

I first got in touch with the Open University when I registered as an Associate Student for the course 'The disabled in the community'. This course turned out to be of great personal value to me, since it helped me gain new insights and enabled me to identify both my abilities and my weaknesses. In 1982, I registered as an undergraduate in Social Sciences. At the moment I continue my studies in psychology. My main difficulties at the beginning were financial ones. My income as a disabled person barely covered the cost of living. It therefore proved extremely difficult to pay tuition fees. Thanks to the support lent by my counsellor, the major part of my fees is now financed by an Open University financial relief fund.

The Open University 'Educational Trust' provides a variety of aids for disabled students, for instance special typewriters or special equipment for blind or deaf students.

Additionally, every student who, for whatever reasons, is unable to produce his/her own written papers, may be assigned a 'personal writer'.

Whenever I take part in a summer school, the Open University provides the service of a voluntary helper who will, for instance, accompany me to the different buildings so that I can join in all activities and fully enjoy everything on offer. Rooms at residential schools are provided with equipment for the disabled, for instance bath seats, shower stools, various types of alarms etc. Individual counselling on my performance in the summer schools has proved particularly helpful to my study aims. I can, of course, ask my study counsellors or subject tutors for advice on courses, health problems or problems related to visits to the study centres. When my health prevents me from attending a study centre, I either receive counselling at home or via the phone. I have, though, always preferred to actually attend the study centre, since I always get very valuable feedback from fellow students there.

I hope that I shall be able to take a B. A. in psychology, maybe even a higher degree recognized by the British Psychological Society. I would like to work in the area of educational psychology, particularly with the disabled. This may, however, be unrealistic in view of the current economic situation. Still, I am determined to fight my way through."

All Open University courses are open to the disabled. Providing higher education for people with physical or sensory disabilities is a constitutive element. The basic idea of "equal opportunities for all students" related to an "open university" led to special measures being taken with regard to the didactics and organization of the distance studies. A large amount of research is being done on ways and means of making all courses, if possible, available to disabled students. The individual impairment is to be compensated for by adequate teaching and learning material, by the appropriate use of media and the use of didactic measures tailored to the requirements of the target group.

The Open University Office for Disabled Students mentioned above is relatively well provided with staff and financial means. It looks after the disabled students, registers and analyzes their problems and has the task of revising or adapting teaching materials to the requirements of the disabled.

Judging from the studies published by the Open University, it has largely succeeded in presenting its courses in a way which is also suited to disabled students. Thus, of the 134 courses of the Undergraduate-Studies Programme, only 30 % are marked as unsuitable for disabled students. Some of these are newly developed courses which have not yet been adapted. Only some courses are on principle unsuitable for students with specific disabilities, such as e.g. practical training courses in design or chemistry which would be unsuitable for those with visual impairments.

The course description contains a category "students with disabilities". This contains specific notes or pieces of advice for disabled applicants or students, such as for instance "not suitable for students with visual impairments", "a competent helper is necessary for this course", or "suitable for students with physical disabilities". In any case, the disabled students are asked to get in touch with

the Office for Disabled Students so that - if possible - provisions may be made for them to participate in the desired course.

Addressing the target group and its requirements as well as specific adaptations of the organization constitute an important help to the disabled. Thus, their motivation and self-confidence is strengthened and possibilities for successful studies are being opened up. The study guide informs the students which special learning aids are available to them:

- study material in Braille,
- transcriptions of radio and television programmes,
- computer-aided learning programmes and exercises (the Open University has made the use of computer disks compulsory for several foundation courses; students who do not have a PC at home may borrow one),
- special tutorials in the study centres.

Study centres are located in 13 regions (some 250 spread throughout the UK, [...] each with a director and a staff of academics and administrators. Their role is largely concerned with the provision of teaching and counselling services to students: they appoint and supervise approaching 7000 part-time tutors and counsellors, arrange tutorials, and work with central colleagues on the complex organisation of residential schools and examinations. Based at local colleges, study centres offer in addition meeting facilities, direct contact with fellow students, and the use of computer terminals, equipment and face-to-face tuition where required (cf. EADTU, 1993b: 130).

The Open University's media offer meets disabled students' requirements. Subject matter is taught via the following media: printed study material 65 %, radio and television 10 %, personal counselling, tutorials (study centres, summer schools) 15 %, examinations and preparing for exams 10 %.

Since the second half of the eighties, several Open University projects have attempted to evaluate the importance of the computer as a teaching and learning aid for disabled students, to develop suitable hardware and software, and to offer adequate preparation and support to the students (cf. Vincent et al. 1988: 157-159; Keegan 1994: 78-80).

Just as at the German FernUniversität, all adaptations to the needs of the target group "disabled students" aim at compensating for disadvantages resulting from a disability, not at creating special advantages for the disabled: "But do remember that the University makes the same academic demands of students with disabilities as all other students. Whilst there is some flexibility in the way you study, there is only one academic standard for all students." (Child 1990: 1). The university therefore tries to offer a range of standardized learning or study aids which is as comprehensive as possible (cf. Keats 1992: 1-3; Child 1993: 5-6; Open University 1992: 1-3; Haffa/Kammerer 1987: 48-49; EADTU 1993b: 129-131; Open University 1995: 1-3).

Newly admitted blind and visually impaired Open University students are for instance invited to a one- or two-day preparatory course in their regional centre. The course helps them test their skills, strengths and weaknesses. These so-called "Study Skills Weekends" also inform students about the special aids and equipment offered by the Open University. These weekends are regularly subjected to summative evaluation. In 1992, for instance, the Office for Students with Disabilities organized two such courses for newly registered blind students and those with a hearing impairment centrally and in the regional centres. Evaluation results pointed to a positive reception by the participants: "Delegates were asked to complete a questionnaire for each course. On the hearing impaired course 63 % of those responding said their overall impression of the course was 'excellent' while 37 % considered it 'very good'. 15 % of respondents on the course for visually impaired

students considered it 'good', 47 % 'very good' and 38 % 'excellent'" (Open Links 1992: 6). By now, most of the course material is available on tape and in Braille.

Examination rules are the same as at the German FernUniversität: disabled students may sit their exams at home, supervised by an Open University member of staff. There still are some difficulties for severely disabled students, who need a lot of time or have to make great efforts for any kind of oral, written or typed communication. The solution chosen by the University is to use technical means of speeding up communication rather than having examinations taking an unjustifiable amount of time.

The conditions created by the institution make social integration into distance study possible for every student: "The Open University certainly provides an extensive network of around 250 study centres and requirements on some courses of week long residential schools and/or weekend schools; and all students have a tutor and counsellor. Beyond this the OUSA provides a network of self help groups, a democratic structure for student representation with students on every decision making body within the University, and a network of social events." (Needham 1993: 3)

Daniels, Open University Vice-Chancellor in 1992, gives a clearly positive answer to the question whether and under which conditions a disabled person may study at the Open University: "The Open University helps you to participate as fully as your circumstances allow in all aspects for study. For instance, we might arrange for you to have audio cassettes instead of printed courses materials, or transcripts of broadcast programmes. Some students with disabilities attend a special weekend school on study skills. Our services are adapted to your needs at residential schools, in tutorials or in examinations." (Daniels 1992: 11).

The expansion and the diversification of the Open University student population in recent years has been accompanied by a requirement to clarify the University's priorities and purposes. The current Strategic Plan includes as a strategic aim "To provide students with teaching and assessment which is appropriate to the course, responsive to student needs, and of recognised quality". This is, as stressed by Child and Mottram (1995: 154), entirely consistent with the work undertaken to integrate disabled students by developing an accessible curriculum and high-quality student support.

His talks with Liz Dawtrey, Derek Child, Tom Vincent and David Mottram at Walton Hall (Milton Keynes) in November 1995 led the author to the conclusion that it is not only distance-teaching universities which can learn from the Open University's many years of experience, but also traditional European universities. The Open University Aims, Objectives and Principles from the beginning of the nineties outline the potential for the next millenary (cf. Taylor 1990: 1):

The Open University aims to create the conditions whereby students and staff are treated solely on the basis of their merits, abilities and potential, regardless of gender, colour, ethnic or national origin, age, socio-economic background, disability, religious or political beliefs, family circumstance, sexual orientation or other irrelevant distinction.

The declared objective is a University which is truly open to all sections of the community, and in whose activities all individuals, whether staff or students, are encouraged to participate fully and equally.

The commitment to an Equal Opportunities policy is embodied in the following principles:

1. Discrimination, direct or indirect, based on a person's gender, colour, ethnic or national origin, age, socio-economic background, disability, religious or political beliefs, family circumstance, sexual orientation or other irrelevant distinction, is unjust and immoral.

2. In addition to being unjust, such forms of discrimination represent a waste of human resources and a denial of opportunity for individual self-fulfilment.

3. Notwithstanding its significant contribution to the widening of educational opportunity, the University acknowledges that, as a community, it still reflects patterns of inequality that are widespread in society at large. It

is therefore determined through programmes of legally acceptable positive action to increase the level of participation as students, staff and clients of those groups that are currently under-represented.

4. A successful Equal Opportunities policy requires the active support of the University community. The University therefore intends to seek the commitment and involvement of all sections of staff and students in the implementation of this policy.

5. The University intends to encourage good practice in equal opportunities with those external organizations with whom it works.

Germany

Since the German FernUniversität aims at being innovative and catering to new target groups, the number of disabled students is registered separately. For the last years, the percentage of disabled students at the FernUniversität has found its level at 2 %. This percentage cannot be considered valid in an empirical sense, since, as the author has been able to establish at many conferences for the disabled, many students keep their disability a secret. This is because they fear disadvantages. Hofmann has observed the same phenomenon: "We must reckon with quite a large number of unreported cases. Many students fear some kind of stigmatization if they state their disability. Therefore, they do not say anything. To me, this is not only an unfounded fear, it is also short-sighted. For - if somebody is not known to you, you cannot help him or her." The available data on disabled FernUniversität students contain only a limited amount of information. Based upon well-grounded estimates and on various surveys, we may assume the number of disabled students to be 1,200 in 1994/95. In the eighties, many surveys and studies were carried out as part of the policy to expand and develop the FernUniversität study system with a view to adapting it to the needs of disabled students. The central points about this target group made by these studies may be summed up as follows (cf. Hofmann/Biesold/Raters 1992; Hofmann/Ommerborn/Kriegeskort/Biesold 1992; Bartz/Raters 1991; Hofmann 1994; Ommerborn 1995[2]): about 20 % of the disabled students are older than 52, whereas this age group only represents 3 to 4 % of the overall FernUniversität student population. The proportion of associate students also is higher amongst the whole student population (35 %). The proportion of students under 32 is 30 %, compared to 50 % for the whole student population. For the group of disabled students who have left an active professional life or not yet in gainful employment, distance study may constitute a chance of improving their social situation, of integration of rehabilitation, i.e. reintegration into professional life. The main reasons for taking up distance study stated by disabled FernUniversität students are flexibility of time, the chance to decide individually on the amount of strain one is going to be subject to, and the possibility to study while in gainful employment and to study at home. The group of disabled FernUniversität students, for whom distance study is the only way of participating in higher education, is not congruent with the group of disabled face-to-face students (except in the case of those pursuing a second course of studies at the FernUniversität). The proportion of female students does, at 20 %, not represent their proportion of disabled persons in general. The majority (60 %) of the disabled FernUniversität students live in cities. About 30 % of the disabled students study in the department of educational sciences, social sciences and arts. Disability has primarily been caused by illness (more than 50 %), accidents (20 %) or war (7,5 %). More than 40 % of the disabled consider their disability to be a crucial factor in their decision for distance study as opposed to face-to-face study. Roughly 40 % take part in the pre-enrolment counselling offered by the study centres or get into touch with the central administration in Hagen by letter or by telephone. 26 % took part in one of the introductory seminars in one of the study centres, 21 % attended counselling and tutoring offered by mentors.

Group-specific analysis

Classifying students into "special groups" holds many dangers. A "special" anthropology risks continuing disabled students' status of being different, thus stigmatizing them (cf. Bleidick 1984: 26). Bleidick is right in postulating that a "special anthropology" if disabled students should only be considered to the degree that it ensures study aids, protective measures and the disabled students'

rights in distance study: "If [the special anthropology] stresses the difference of human being, it assumes inhuman traits" (Bleidick 1984: 27). If the author therefore makes terminological distinctions to the extent that they are necessary for this study, they only refer to the individual, more instrumental realization of their potential as a human being. The distance study system can only adequately be adapted to the needs of individual students, if the type of their disability is known and suitable didactic, educational and counselling measures can be taken.

The way language deals with these terms of classification is a different matter. The human problem of stigmatizing others can certainly not be eliminated simply by eliminating the expressions contributing to discrimination. In this context, Goffman (1974: 160) has shown that stigmatization processes are "a constituent element of society" and occur wherever "identity norms" are in force. They thus constitute a general social function, with the role "stigmatized" and the role "normal" having to be considered elements of one and the same complex (cf. Speck [4]1980: 61).

At the same time, the content or the definition applicable to a term of classification determines the extent of social stigmatization: a look at history shows that "mental deficiency" was termed a "hereditary defect constituting a burden on the people" and led to "compulsory sterilizations", it was termed "worthless life" and led to killing, it was called "lack of aptitude for education" and led to the "loss of one's right to education" (cf. Speck [4]1980: 61). The defining factors determine the status the person deviating from the norms is attributed. This example illustrates why so many attempts at finding clear, i.e. unambiguous terms and definitions for the different human disabilities remain inadequate.

Today, "disability" is fortunately no longer an undisputed label for human beings. Separating one group of society from society's other members, i.e. differentiating the "disabled" from "able people" can be questioned with a view to stigmatization: should we not renounce the term "disability" and with it any kind of classification? Is the damage with regard to stigmatization not greater than the comparable instrumental use? The answer can only be that any attempt at classifying human beings requires a sound explanation. Whoever attempts such a classification must be able to answer for it.

During a conference at the beginning of the eighties, the disabled students present considered it particularly important that the differences in disabilities do not allow for a general categorization. Distance study, as well as face-to-face study, must take these differences into account when identifying and using suitable measures for countering difficulties resulting from a disability. Somebody with a hearing impairment faces quite another study situation than a blind person, the latter in term faces study difficulties and needs support measures which differ considerably from those necessary to somebody with damage to his/her inner organs or somebody conventionally termed physically disabled.

The same applies within the different groups of disabled: it is a truism for those concerned that the procedures and modifications for day-to-day study life are different for every individual disabled person and that the general conditions of university study are irregular.

The main groups constituting the overall population of distance students at the FernUniversität are the physically disabled, those with damage to their inner organs, the blind, those with a severe visual impairment, the deaf, those with a severe hearing impairment and those with psychological impairments.

This list is the result of a study carried out in cooperation with the author at the FernUniversität in 1988 (cf. Hofmann 1989: 1). The main question was, how many disabled students were

- wheelchair users,
- had other physical disabilities,

- had suffered damage to their inner organs,
- were blind,
- were partially sighted,
- were deaf,
- had severe hearing impairments, or
- were psychologically disabled.

This very rough categorization only refers to disabled students and merely served the aim of getting an overview. Those students with other physical disabilities, with damages to the inner organs and with psychological disabilities were also asked about existing or developing study difficulties due to their disabilities. Since several answers could be ticked, the number of students with multiple disabilities can be deduced.

The survey was carried out anonymously. This may be assumed to be one of the main reasons for the high return rate for the questionnaires: of 465 questionnaires, 261 (= 56.3 %) were returned. The list below sums up the results. Figures in brackets refer to the different groups of the disabled. The categories were formed by subsuming students with multiple disabilities under the other groups, according to their own statements. The sum for this category is naturally higher than 261.

- wheelchair users	26	(36)
- other physical disabilities	106	(159)
- of these with study difficulties due to their disability	66	(96)
- of these without any study difficulties due to their disability	40	(63)
- damage to the inner organs	33	(58)
- of these with study difficulties due to their disability	27	(42)
- of these without any study difficulties due to their disability	6	(16)
- blind	13	(16)
- severe visual impairment	9	(17)
- deaf	4	(5)
- severe hearing impairment	7	(17)
- psychologically disabled	8	(23)
- of these with study difficulties due to their disability	5	(19)
- of these without any study difficulties due to their disability	3	(4)
- multiple disabilities	55	

Expressed in percentages, this means that 10.5 % of those who returned the questionnaire are wheelchair users, 40.6 % have other physical disabilities, 12.6 % have damaged inner organs, 5 % are blind, 3.5 % suffer a severe visual impairment, 1.5 % are deaf, 2.7 % suffer a severe hearing impairment and 3.1 % are psychologically disabled. 21.1 % have multiple disabilities.

A few years prior to that study Hofmann answered a question about types of disabilities amongst distance students during an interview as follows: "[...] this is difficult to say. No data about the type of a possible disability are collected upon enrolment. A survey about disabilities [...] has indeed shown that there are physically disabled students, blind and partially sighted students, deaf students and those with a hearing impairment, students with damages to their inner organs and students with psychological disabilities. The survey has also shown, however, that many of these do not have any study difficulties as a result of their disability. (Hofmann 1985: 27)

The relevant literature as well as individual case studies (cf. Frehe 1986; Berning 1986; Hofmann/Ommerborn 1986: 197-212; Bartz/Raters 1990: 3-5) have shown that certain groups of

disabled people require special support in distance study: the physically disabled, the blind and partially sighted, the deaf and those hard of hearing. In the following, this study will concentrate on these groups.

Students with a hearing impairment

A person is considered deaf when his or her hearing is impaired to such an extent that even hearing aids do not enable him/her to understand spoken language. Moreover, speech impairment is one of the main symptoms of deafness.

In their studies, hearing-impaired students must therefore cope with the fact that verbal communication processes are interrupted in a crucial area, i.e. that of acoustic analysis (cf. Alich 1976: 1). In order to master study contents produced by hearing course teams, they must rely on difficult and largely inadequate sign material. In order to perform the speech acts required in their studies, they can mostly only use so-called kinaesthetic sign material consisting of position and sensations of movement, touch, tension and vibrations in the speech organs. Since acoustic sounds do not exist to the deaf, they are trained by practising for a long time with the help of kinetic sensations. In the best possible case this leads to adequate speech movements with, however, faulty realization with regard to distinctive phonetic features occurring frequently, since kinetic sensations are rather vague and therefore cannot properly indicate all distinctive phonetic features. In direct conversation, speech can be perceived by distance students with a hearing impairment only through lip-reading. In order to do this, the student must rely on "visible signs", i.e. the visible characteristics of the different speech movements performed by the partner's organs of articulation. The interweaving of sounds which occurs whenever these sounds are articulated not separately but in the context of speech often leads to the 'optic signs' being neutralized. The two words "hear" and "ear", for instance, look the same when they are pronounced (cf. Alich 1976: 1-3).

When the distance student is lip-reading, he or she therefore has to rely on his or her power of deduction, on hints available from the content and on a good knowledge of the language. New empirical studies have shown that while aids are absolutely necessary, *the* aid for students with a hearing impairment does not exist, with the individual case having to be considered each time. Thus neither sign-language interpreters nor any specific technical device constitute the one solution. Rather there must be a range of aids from which the student can choose and find the one best suited to him or her (cf. Cremer/Schulte 1992: 124; Schulte 1993: 74-75).

In the past, it was extremely difficult for those with a hearing impairment in Germany to study at university and choose one of the professions only open to university graduates. People with hearing impairments have so far entered into this area of education only occasionally and alone. For the individual, this area has been difficult to cope with with regard to contents and organisation and there is, as stressed by many distance students, only insufficient support available to them.

In this context, a recent decision by the Federal Social Welfare Tribunal (Bundessozialgericht) may be of practical relevance to promoting distance studies for those with a hearing impairment. In June 1993, the Bundessozialgericht decided in favour of people with a hearing impairment (Az.: 9/9a Rvs 1/91). The present legal position is that after school education people with a hearing impairment are no longer attributed the mark "H" (i.e. "helpless person"). As a consequence, they are then no longer entitled to a number of benefits. The Bundessozialgericht has declared this to be unjustified. Following an action brought by two of those concerned, it was decided that the mark "H" has to be conceded to those with a hearing impairment at least until the end of their professional education or training.

The judgement was based on the considerably restricted learning ability of people with a hearing impairment. One of the plaintiffs was a young woman who was born deaf. After passing the German equivalent of O'levels (first exam in secondary school) at a school for the deaf, the mark "H" was taken away from her. She, however, had argued that she would never be able to master certain vital basic skills and that she would never manage to complete the kind of professional training adequate to her mental abilities without permanent special support.

Still, the general public as well as those directly concerned, have a high opinion of the FernUniversität as a special study opportunity for those with a hearing impairment. The special opportunity is seen in the fact that study contents are taught with the help of media which differ considerably from those used at face-to-face universities. Students with a hearing impairment can pursue their studies on an entirely visual level. Distance study is recommended for this group as a parallel course of studies to that pursued at a face-to-face university. The following personal report by a deaf student of Hamburg university who pursues a second course of studies at the FernUniversität, shows some directions in which to further develop studies for the disabled at the FernUniversität. "I did unfortunately not finish studying all the FernUniversität material, since my time was taken up mainly by my studies at Hamburg university. I did, however, solve enough problems to gain some insight into the methods employed. There is hardly anything to criticize as far as the presentation of the learning content is concerned. I enrolled for a statistics course at the FernUniversität as a supplement to my studies in psychology where I had also enrolled in a statistics course. The FernUniversität statistics course helped me greatly in passing my Hamburg statistics course with success. I was, however, unable to make use of the LOTSE correction system for assignments, since I found instructions too complicated and confused. I could not keep to the submission dates. Distance study can be recommended to those with a hearing impairment if a few improvements are made, especially in the visual area (for instance video tapes are not available with subtitles). I am, however, convinced that distance study cannot completely replace regular studies at an ordinary university. I find it very important for those hard of hearing to get the opportunity of entering into discussions with others and tackle the hearing world. This particularly applies to the Arts." (Bartz/Raters 1990: 7).

Petra Piehl from Düsseldorf, a deaf student herself, has been participating in the FernUniversität discussion on disabled students since 1981. Under the section "Readers' opinions" in the FernUniversität magazine she wrote on the relevance of distance study for those with a hearing impairment: she mentions that the "FernUniversität claims to be particularly suited to the needs of disabled students." About herself she says: "I am myself one of those concerned - I have been deaf since I turned 7, study social work at Düsseldorf university and I am enrolled for a second course of studies at the FernUniversität." (Piehl 1981: 1). In her view, "disrupted communication is a primary problem for those with a hearing impairment". Surprisingly, she states that "studies at the FernUniversität are perfectly suited to the needs of the physically disabled, and this applies particularly to those with a hearing impairment. One of the main problems for the deaf and those hard of hearing (not only) in their studies is that of primary information access. This problem does not apply in distance study, since study contents are transmitted in writing. An increasing number of people with a hearing impairment notice this advantage and enrol at FernUniversität." (Piehl 1981: 2) She gives a vivid description of the problems faced by students with a hearing impairment: "If you turn off the sound on your television set just once, you will quickly understand how those of us with hearing difficulties feel. We can see everything - and are still excluded from any coherent information, unless we manage to make sense of what we see." (Piehl 1986: 86).

This group of distance students therefore has to depend to a special extent on communication aids which more or less replace a lack of speech performance. It has to be taken into account that, as a rule, the functions of language in distance study are the following:

- *operative* with regard to every presentation of a "cultural object" necessary to the teaching-learning process;

- *instructive* in connection with the learning process;

- *communicative* with regard to the direct (personal) interaction between teachers and learners;

- *emancipatory* with regard to the educational aims (cf. Oskamp 1977: 63).

This is because language, as we all know, "represents more than a mere instrument of communication, language represents the world"Beckmann (1989: 24). With a view to the effectiveness of "technical" means of communication, it is the communication function of language that is relevant. According to Orthmann 1987: 213-215, this function in turn primarily has four functions: recalling past experience; presenting the immediate surroundings; anticipating and planning future actions and controlling present actions.

In the different educational approaches, language is also accorded a special role. This may be seen by Dickopp's summing up of Litt's approach, which is founded on broad consensus within the so-called "arts-based educational theory": "On the one hand language serves the purpose of representing and manifesting the self, it is a 'means of communication'.- It does, however, also separately from its communication role, play a role in shaping and forming [...]." (Dickopp 1985: 56)

Open University experience seems to show that distance study is well suited for those deaf students who only lost their hearing after speech acquisition. This is because print media dominate in the distance-study process, contact between teachers and mentors can be in writing, and exams can also be written (cf. Haffa/Kammerer 1987: 50). However, those students who were born deaf experience great problems in acquiring knowledge and communicating what they have learnt, since their communicative abilities as a rule are limited to simple facts.

It is difficult for the deaf student who has never experienced language to comprehend complexity and high levels of theory and abstraction. For instance, it has become evident in exam situations in the department of mathematics and computer science at the FernUniversität that it is extremely difficult to impart contents without language but only visually through signs. Individual counselling has shown that deaf distance students can for instance read their examination texts but are often not sure whether they have really grasped its meaning. Teachers from schools for the deaf who advise the FernUniversität therefore recommended that additional written explanations should be provided to supplement examination questions. Such explanations are particularly necessary when facts are mentioned that cannot be directly experienced or demonstrated in reality or when new terms are to be introduced.

New research results show that students with a hearing impairment, no matter what type of impairment it is, as a rule require aids in acquiring and retaining teaching contents. At a conference of disabled FernUniversität students, a 25-30-year-old female student of computer science with a hearing impairment said: "In distance study for students with a hearing impairment signers in face-to-face events are essential, as well as study texts especially adapted to the needs of those with a hearing impairment." In the technical domain, these aids may, according to Cremer and Schulte

(1992: 119) be classified into individual aids and those only available at certain places. Individual aids are microport systems, telecommunication aids, hearing aids, personal computers and aids for coping with daily life. Aids restricted to a particular place are, for instance, induction loops and loud-speaker systems, microport-compatible microphones and aids helping with written language. According to the German Green Cross, 14 million people with hearing impairments currently live in Germany (cf. Westfälische Rundschau, No. 148 of 29/6/1993). Experts point out modem aids for improving hearing - but especially younger people often do not use them. A lot of educational work is necessary here in order to reduce prejudice, point out relevant information and the success of these possibilities for the disabled. Today, those with a hearing impairment can make use of comfortable aids produced by microelectronics which are rightly called revolutionary in technical and acoustic terms. A combination of materials adapted to the very sensitive auditory organ makes it possible for hearing aids to be placed directly in the auditory canal. These hearing aids adapt automatically to the exterior acoustic conditions.

The "telephone for the deaf" (a writing phone) introduced at the FernUniversität some time ago is also one of the aids supporting deaf students in the study process. This communication medium is quite easy to use: the deaf person dials his/her partner's number and then writes down questions, requests or statements to examination boards, departments or to the students' office with the help of an ordinary typewriter keyboard. The text is printed onto a strip of paper at the other end of the line. This device is portable and can therefore be used on various locations.

A sign-language interpreter has been employed by the FernUniversität for the last four years during certain face-to-face sessions. Some distance students need to learn how to make use of such interpreters. This became obvious at a few of the most recent disabled students' conferences in Hagen, where some of the students met with massive problems when trying to communicate with the sign-language interpreter engaged by the FernUniversität. This tallies with the experience of Gallaudet University Washington D.C., which is the largest university for the deaf and hard of hearing in the USA. In order to solve this problem, the university offers a course in which students can systematically learn how to use a sign-language interpreter. Lytle, the director of teacher training for deaf students at Gallaudet University, reported at a symposium in Germany that the university also offers a workshop providing advice for using signers successfully. A pilot project on "sign language" directed by Prillwitz in Hamburg integrating studies for the deaf or hard of hearing has also shown that the study situation for the deaf is not satisfactory. In this case, it is the *lack* of sign-language interpreters and of an adequate quality interpreting service which cause problems (cf. Prillwitz November 1993: 68- 71).

The Hamburg pilot project, in which sign language plays an important role, shows that when students' ability to communicate via sign-language interpreters is ensured, they can study successfully: "Not only do people with a hearing impairment, who have so far been largely excluded from higher education, get almost equal access to university. The hearing world is shown in a fascinating manner that people with a hearing impairment are no speechless deaf-mutes dependent on the pity of the hearing, but human beings fully able to talk in a language that not only fascinates linguists, the sign language. If, in contrast to previous generations, more and more people who are hard of hearing or postlingually deaf gradually find access to this visual language, and be it only through sign accompanying spoken language, all people with a hearing impairment should benefit." (Prillwitz 1993: 73).

Blind and visually impaired students

"Every disturbance of normal real sight may be called a visual impairment" (Scholtyssek 1960: 85). In defining visual impairment, the relevant literature differentiates three groups of people with a visual impairment: "1. People with a visual acuity reduced to 1/3 (0.3) down to 1/20 (0.05) of the norm. 2. Highly visually impaired people with a visual acuity reduced to 1/20 (0.05) down to 1/50 (0.02) of the norm. 3. Blind persons with a visual acuity of 1/50 (0.02) downwards." (Mersi 1974: 78). Special schools for children with a visual impairment teach students whose visual acuity is reduced to 1/3 down to 1/20 of the norm or whose field of vision is impaired to a similarly large degree. These limits point to the great variation of visual impairments.

Those who need special support and a special adaptation of the distance study system belong to groups 2 and 3 according to the Mersi-classification. They are the people meant in this study when the term "visually impaired student" is employed. The following testimony by the university lecturer John Hull shows how group three experiences the world: "I do not just have to accept blindness, but I also must not reject it. I must integrate it. I must try to put blindness into a context with seeing, the conscious with the unconscious." John Hull, who went blind in 1983, here talks of how he copes with his disability. In his book "Seeing in the dark", he describes his own setbacks and successes, humiliations and support, his depressions and hopes. For over ten years, he kept a taped diary which then served as a basis for his book. It is obvious that Hull does not exaggerate when he speaks of his fears during the time he started losing his eyesight. His statements about his family are remarkably free of sentimentality. The father of three children tells us how they learned about his blindness and tried to understand it. The author fights against those people who treat him as a child but at the same time understands their kindness. Hull paints an impressive picture of how the senses change as a result of blindness. Listening, feeling or tasting play a much greater role in perceiving one's surroundings. With its philosophical and religious features, the book makes clear that the adjustment of the self is a long and painful process. Although it seems that Hull has managed to adapt to the new situation, his sorrow about losing his eyesight remains with him: "Blindness is a small world [...], how can the little ones understand the big ones, without being jealous, and how can the big ones understand the little ones without feeling pity?"

Blind and visually impaired students expect the sighted to be better informed about the primary effects of their disability, like a limited sense of orientation, obstacles when trying to communicate and growing information deficits, in order to reduce problems occurring in the communication process (cf. Angermann et al. 1986: 1-3).

Queries, criticism and statements sent in by those concerned illustrate the wishes, needs and interests of this target group. From Nürnberg, for instance, a potential student writes in, intending to study the M.A. course in philosophy after a new study centre had been opened in his town: "Because of my disability (visual impairment, no hands) I have several questions: Is there any special provision made for written exams, seminars and other face-to-face events? Is study material also available on audio or video discs or on discs for IBM-compatible personal computers?" Another student asks about examination regulations and study organization: "I have got a special problem: I have got a hearing impairment and a severe visual handicap. An improvement cannot be expected. I still study the first part of the programme and would like to take psychology as principal instead of subsidiary subject. Also, since my eyesight is fading, I would like to begin a doctoral dissertation already before entering the final exams of my course. Would that be possible?" The blind and visually impaired FernUniversität students' main matter of concern is expressed in the

following letter by a representative of a disabled students' self-help group: "[...] You are no doubt aware that in the summer semester 1990, 53 blind students were enrolled at the FernUniversität Hagen. This means that about a quarter of all German blind students study in Hagen. The FernUniversität has confirmed that these numbers have not gone down in the winter semester 1990/91 nor will they do so in the summer term 1991. [According to FernUniversität statistics, 90 blind students were enrolled at the university in the winter semester 1994/95. *the author*] [...] This development supports our request for a special programme for visually impaired students."

Students request tactile signs within FernUniversität buildings in order to facilitate orientation. Since the blind and partially sighted heed considerably more time and energy than sighted students in order to succeed in their studies, they also expect the amount of study literature especially adapted to their need to be increased. In 1995, the FernUniversität central library comprised about 550,000 volumes, 3,162 journal subscriptions, a catalogue system based on data processing, an information exchange and a CD-ROM-library net. A special department offers a "Service for Visually Impaired FernUniversität Students". So far, this service has been restricted to taping the books recommended by the FernUniversität's subject specialists. At the end of 1993, there were 86 audio books for FernUniversität courses and 203 audio books from publishing houses (cf. Gesellschaft der Freunde der FernUniversität 1994: 107). In order to provide optimum services to blind and partially sighted students with regard to study literature, increased cooperation with the managers of the Marburg and Karlsruhe pilot projects is planned (cf. Visse 1993: 62-63; Klaus 1993: 53-54).

Students request that "all measures taken to improve their study situation should make full use of the potential offered by the new technologies." (Angermann et al. 1986: 2).This means that in order to master both individual and group phases in distance study, students do not only need the basic equipment containing devices for the blind and visual aids (e.g. writing devices, magnifying aids, television reading aids), but also electronic aids, for instance a personal computer, in order to considerably reduce their additional expenditure in time and energy. This is illustrated by the statements made by a 30-year-old visually impaired full-time student of economics when answering a questionnaire during a conference of the disabled in February 1994: "Course units should be available on computer disks so that every visually impaired student can choose a computerized version if he or she wishes so. This also means that computers should be made available by the FernUniversität on a loan basis."

In written examinations, the blind and partially-sighted students wish to be able to perform as well as sighted students. They therefore demand extra time during these examinations to allow for the more time-consuming use of media for the blind (Braille, audio equipment, translation of normal writing).

As far as direct contact between distance students is concerned, the visually impaired students hope that the ability of visual perception will be less overrated in the future.

On the whole, students expect this kind of higher-education institution to use the greatest possible flexibility in dealing with the needs of individual blind or partially-sighted students.

Physically disabled students

Physically disabled people are traditionally understood to be those who are impaired in their motor ability. According to Herbst (1985: 39), "They have either been born with a severe physical impairment or have been disabled in the course of their lives [...] through illness or an accident [...] and are, for instance, dependent on a wheelchair." Most physically disabled do not need a

wheelchair. Differentiations have to be made for this group like for all other mentioned. Budde and Leszczensky, for instance, conclude from empirical analyses: "This group contains students with inflammatory diseases of the rheumatic type like chronic poly-arthritis or Morbus Bechterew. Severe mobility impairments are shown by wheelchair-bound students with tetraplegia, paraplegia, osteogenesis imperfecta or thalidomide damage. Several students referred to an amputation of one or several limbs, with the loss of a lower limb frequently compensated for by a prothesis. This category also comprises students with a damaged spine (Morbus Scheuermann, scoliosis ...), hip-joint dysplasia, damage to the nether limbs, whether because of a shortened or weakened leg or because of a congenital defect. Joint stiffening in the lower or upper extremities was frequently stated, too. In addition to this, there were statements like 'hands', 'mobility', 'motor impairment' or others."(Budde Leszczensky 1990: 101).

Physically disabled students represent the largest group amongst the FernUniversität disabled students. The distance-study system offers them favourable conditions, as mentioned earlier. For many of them, their disability means that their only possibility to study at a university is presented by the FernUniversität. This may be illustrated by the following testimony by one of those concerned:

"This question is almost always put to me if I talk in larger groups about where I study. Taking up distance study was the logical consequence of my experience with face-to-face study.

I have been suffering from spastic paralysis ever since I was born (1962). Thanks to intensive exercise this disability is in my case restricted to my forearms, but it does make it impossible for me to take notes or to quickly write up anything.

This was not much of a problem at school, since I could recapitulate contents through the textbooks, type my written test on a typewriter and make use of a writing aid in my final exams.

So in 1982 I finished secondary school and in summer 1982 enrolled at Bochum University to study economics. A typical school-leaver, I was all set to conquer the world. Disillusionment came immediately!

The first lectures I attended already presented me with greater problems than I had met at school. It was possible to master additional courses by listening and using a good textbook, but the more comprehensive the contents of a lecture, the more difficult it became to master them just with the help of textbooks. I had prepared for over six months for a written test, with the help of literature and previous years' test and then I received the result: failed.

I was fed up with studying. I was determined to stop. But a coincidence changed everything.

I read a newspaper article on the "Celebration of 10 years of FernUniversität existence". This was the solution, since I knew that despite everything I did need a degree. So I asked for information and then enrolled first parallel to my studies at Bochum University, and at the beginning of the new study year as a full-time student at the FernUniversität.

I have been a student there for 3 semesters now. For me, personally, it was the right decision. But you cannot say that as a general rule distance study should be preferred by disabled students to face-to-face study. Every applicant should only decide after gaining some experience with face-to-face study, since distance study does make different demands on the student. [...] I am convinced that because of the potential inherent in distance study, the FernUniversität has greater scope in shaping studies than a face-to-face university." (Boeck 1986: 34-45).

The main demand put forward by physically disabled students for the FernUniversität is to improve disabled access to and use of its buildings. This requires additional fittings suited to the needs of persons with disabilities (e.g. ramps) and alterations (toilets, lifts) not only in the central seat in Hagen, but above all in the already existing study centres. The needs of the disabled must also be considered when fitting out new buildings and/or planning new study centres.

Like other groups of disabled distance students, those with physical disabilities also expect examination procedures to be adapted to their individual needs.

The Minister for Research and Higher Education in North-Rhine-Westphalia (1981: 5) recommends the following regulations to make up for the disadvantages met with by all groups of disabled students during examinations:

- substituting an oral examination by a written one and vice versa;
- possibility of excluding the public;
- extra time for written papers and diploma theses;
- the use of technical aids, e.g. typewriters for the blind, hearing aids etc.

Schematic overview

People with disabilities in general
Students, teaching, examinations, media, library - changing the social climate marked by a lack of consideration and sympathy and by anonymity - greater support for the representative of students with disabilities **Self-help groups** - spiritual and material support **Buildings** - architecture suited to the needs of the disabled **Administration** - developing a comprehensive range of counselling services including public relations work - personal help for individual support to severely disabled persons **Counselling and information** - improved subject-related and general counselling - counsellor training to improve competence

Visually impaired students

Students, teaching, examinations, media, library

- extension of lending periods
- screen reading equipment
- new technologies (microelectronics, media etc.)
- extra time during examinations
- tape-copying devices
- tactile copying devices

Buildings

- tactile signs to rooms and floors
- specially assigned and adapted places for visually impaired students to work at

Counselling and information

- specific information material for the visually impaired

Physically disabled students

Students, teaching, examinations, media, library

- adaptation of examination procedures

Buildings

- architecture suited to the needs of the disabled

Administration

- extended offer of personal support during studies

People with disabilities in general

Students, teaching, examinations, media, library

- use of electronic devices
- overhead projectors
- induction loop systems
- microport systems
- longer lending periods for microport systems
- examination regulations

Administration

- improving the status and foundations of support for the disabled
- study companions and sign-language interpreters

- greater participation of self-help groups

Summary

Innovations with regard to adapting distance study to the needs of disabled persons are found in distance-study institutions everywhere. Most of these institutions include modern media or changed teaching and counselling structures in order to achieve greater individualisation.

Most, though not all, institutions make deliberate and differentiated use of distance teaching for the education and training of the disabled. People with disabilities are not as such, through their physical or mental condition, excluded from distance study as a specific form of study. They are the target group for innovations. Depending on the distance-study system looked at, there are narrow and wide ranges of adaption measures: the type of disability mostly determines the intensity of dealing with the expectations, interests and problems. It also determines the type of adaptation both with regard to organization and content.

It might have been expected that those countries particularly influenced by the idea of a welfare state and the aim to create equal opportunities in education would reserve this form of study for the target group of disabled people. The example of Scandinavia, however, shows that distance teaching there simply is "a quite normal form" of further and continuing education for everybody. It is therefore not regarded necessary to prove its exceptional suitability for special cases.

Distance study is, however, indeed seen as a possiblity of fulfilling educational desires expressed by disabled people. Dutch, German and English-speaking experts agreee that distance study is of unique importance for those disabled people who are unable to participate in the traditional education system (cf. Daniels 1993; van Enckevoort et al. 1992; Haffa/Kammerer 1987; EADTU 1993, 1993b: 125-127; Ommerborn 1995[2]).

By many institutions, distance study for the disabled is carried out more or less "in passing". The disabled students participate in "normal" distance study: specific problems, expectations and interests are dealt with on an individual basis. In the context of this concept, the disabled distance student is considered an individual case and does not belong to any target group warranting specific didactic or organizational measures.

Other distance-study systems develop initiatives going much further: they develop special distance-study offers targeted at the different groups of disabled on the one hand, and supplement study materials and media common to all with specific aids as well as didactic and organizational measures on the other hand. The Hadley School for the Blind in the USA with its distance-study programme for visually impaired persons and some special offers for the deaf and hard of hearing in Norway are outstanding examples.

The Open University and the Open universiteit particularly specialize in tailoring programmes to the study situation and needs of the disabled. They offer additional support measures both of a didactic and an organizational nature to the heterogenuous target groups of the disabled. Such concepts, where distance study is put into practice and the needs of the disabled are taken into consideration at the same time, are the normal case at these universities. They depart from the

conviction that all distance students share the same study aim and that course contents must derive from this aim - not, however, from the study situation and the experience of the group of disabled in question. This is justified with the argument that the disabled should not be marginalized because of their disability but should instead be integrated into the community of students. There are many different types of support, ranging from individual, subject-related tackling of problems to planned activities for disabled applicants and students. Study needs are considered on three levels:

1 Target-group oriented information is given to potential applicants, including for instance information on the relevance and suitability of certain courses to the physically handicapped at the Open University or specific counselling media targeted at visually impaired applicants and students at the Open universiteit.

2 Media presentation of distance-study programmes takes the needs of the disabled into account with regard to text presentation and requirements for assignments.

3 Organizational planning takes the needs of the disabled into account. If for instance face-to-face sessions are planned, wheelchair access is ensured and sign-language interpreters or technical/mediated aids are available to those with a hearing impairment.

On the whole it has been shown that systematic advance planning enables the institution to provide distance study largely adapted to the needs of disabled applicants and students.

4 Exploiting the media potential

Distance study for students with special needs is unthinkable without media.

Mediated communication - general remarks

Mediated learning supports distance study. Mediated communication is a specific characteristic and consitutive element of distance study.

Distance-teaching universities are forced to make suitable use of didactic means simply because traditional forms of oral academic teaching are largely substituted by a mainly technologically supported teaching and learning system. Therefore, mediated forms of communication are of prime importance.

As a rule, the transfer of substantial parts of the teaching to so-called non-personal media may be considered a typical characteristic of this type of study.Media here is taken to mean a "vehicle of signs and information" or a "sign and information system [...] supporting the communication between at least two partners, or making it possible." (Dichanz no year: 44). New (old) media are increasingly used in distance study.

Does this mean that the increased use of media also influences studies for the disabled? Do the claims put forward by the new media create new perspectives in this field? After all, distance-teaching universities justify their existence with their overall goals which may be regarded as a guiding principle for their activities, the foundation of their existence and the measure for their success. Can we make out new innovation potential for improving distance study for the disabled, making the imparting of knowledge a more communicative or more dialogue-oriented process?

Disabled students themselves consistently demand the increased use of new technologies when developing new study programmes or revising existing ones. This could lead to more study programmes being opened to disabled applicants.

It shall be attempted to answer these questions in this chapter by first describing the main media used in distance study and then determining their functional value for disabled students.

Before presenting in detail the different media that may be conisdered constitutive elements of the distance-study processes of the disabled, a small digression on the philosophy of media shall be inserted. This is important when assessing media with regard to the improvement of study processes for the disabled.

From a historical point of view, the importance of media for the educational process is subject to disagreement: there have been media optimists and pessimists ever since the invention of printing with the help of moveable characters by Johannes Gensfleisch zum Gutenberg in Mainz around the year 1445. Some are afraid of media causing too much haste, obsessional neuroses, anxiety attacks, sleeping disorders, sexual bruatlization, aggressiveness and criminal behaviour, to name but some. Others set great hopes on the effects of the media. As far as educational processes are concerned, pessimists fear atrophied memories, a coarsening, impoverization or reduced use of language as well as stultification, whereas optimists hope for an increased vocabulary, a growing narrative power, creativity and a generally increased level of education.

Observers and analysts of our constantly growing and changing media world like McLuhan, Huxley and Postman point to the potential dangers (cf. Postman 1992). There is unanimity that "the increasing mediatization of our surroundings and experience results in a reduction of our ability for direct sensual experience" (Dichanz no year: 45). Dichanz puts this very succinctly by saying that we are "well on the way to 'losing our senses'". New media are also seen to present considerable dangers to our society as a whole and education in particular. Hentig (1984: 91) for instance registers "the slow disappearance of reality". Deeply pessimistic, he confirms with regard to media education "I confess that almost everything happening in its name makes me feel disheartened and miserable. Its knowledge, potential and statements are completely incommensurate with the weight and scope of the problems." (v. Hentig 1984: 91).

For Dichanz, this development is disturbing also because the reality to be perceived has usually already been tampered with."The human being perceiving reality via media does no longer have the chance to form his own judgment on the basis of his perceptions. His perceptions are directed towards something that has already been perceived by others. The perception of reality directed by one's self is substituted by a direction from outside the self. The growing technical and political entanglement of these perceptions in the new communication and information technologies renders it more and more difficult, soon impossible, to recognize those who direct perceptions from the outside, and their interests. Enlightenment through media education must has therefore turned into political enlightenment!" (Dichanz no year: 40).

The alternative, in his view, does however not consist in modern Luddism. Students must instead be enabled to become "masters of the media reality" and to learn "its technical use". They must acquire the ability to make social, moral and ethical value judgments on this technical use. This can only be underlined. Experience and the optimistic, almost euphoric discussions on the use of media and educational technologies, aiming in the past merely at optimizing, rationalizing and intensifying teaching and learning - developed and tested for instance by the Aachen School of Education (Zielinski) - confirm these conclusions (cf. Ommerborn 1980: 131-133). In the sixties and seventies more and more areas of societal action could be seen to be subjected to strategic-utilitarian action, which since Max Weber is being studied under the point of view of the rationalization of formerly traditionally ruled areas of life. Applied to educational and training

processes, this type of action means that one tries to render these processes more scientific and psychological. The concept of rendering educational and training processes more scientific was more or less clearly based on the demand for increased efficiency. This increased efficiency was to be achieved through "rationalizing, intensifying and economizing teaching and learning processes".

Such measures may be subsumed under the heading educational technology, which is characterized by the means-ends oriented application of results from basic sciences and overarching scientific theories to educational processes. The overarching scientific theories to be used are, according to Lumsdaine, mainly behavioral science, particularly the learning theories, but also other disciplines like cybernetics, communication theory, theory of perception and economics.

Educational technology in its narrower and original sense is characterized by the application of special technologies to the development, testing and provision of mechanical or electronic teaching aids. There are manifold manifestations of educational technology, with the School of Education in Aachen favouring for a long time programmed instruction as an application of principles stemming from learning psychology and information technology.

This chapter will only present the two main areas of application for teaching technology, programmed instruction and computer-aided learning. They will influence the shaping of curricular and extra-curricular areas of educational action in the future.

Programmed instruction: in the sixties and the first half of the seventies, it seemed as if, with the concept of programmed instruction, a method had been found at last for education and further education which allowed for learners to be led "rationally", "intensively", "economically" and via a means-end rationale to learning aims previously determined by others than the learner himself or herself. This kind of learning according to programmes aimed at individualizing learning and helping the individual learner to acquire knowledge by himself/herself. These are the advantages of programmed instruction:

- optimal preparation of teaching through the development, testing and evaluation of learning programmes;

- high learning effect and degree of retention in comparison with other forms of teaching;

- the teacher is relieved of some of his/her duties with regard to imparting information and therefore may spend more time on other tasks;

- evaluation of the learning processes through the learner himself/herself and others as an integral element of programmed instruction;

- activation of the learner, since after each step the learner must show a reaction in the form of answers;

- reinforcement through feedback about what has been learnt, thus generating a sense of achievement and motivation for further learning;

- the correct use of the learning programmes leads to learning with less stress; ideally, programmes make individual teaching possible - a form of teaching considered already by Herbart to be far superior to any "mass-produced school teaching".

Research and experience, however, soon shed light on the disadvantages of learning programmes. These were:

- the lack of dialogue and the small amount of communicative and personal contact;

- the fact that the path to the acquisition of knowledge is previously determined by others than the learner himself/herself; the loss of experience since there is no direct link with the learner's immediate experience.

Since it is impossible to completely compensate for or eliminate these disadvantages, it was concluded that different types of courses had to be developed, which were to be planned according to the "law of teaching and learning in two phases".

It must indeed be considered doubtful whether purely instrumental techniques may fulfil the needs of the learner as a social being. In order to offer the learner the chance of satisfying immediate or consummate needs like security, interest, communication, motivation and confidence, a social phase was to be introduced which was to be preceded by a phase of individualized learning.

individualized phase (objectified teaching)	**social phase** (social teaching)
autonomous learning	group learning
self-instruction	group instruction

Only structuring the learning process into an individualized and a social phase creates various possibilities for reflecting the learning process. Beyond the mere learning technique, qualifications acquired this way offer the chance of reflecting both instrumentalization and heteronomy of learning and can thus have an emancipatory effect.

Computer-aided learning (CAL): this second application of teaching technology saw a particularly strong development at the end of the sixties. Comprehensive teaching and research projects first made the necessary technical prerequisites available and then carried out studies in the areas of didactics and method. The status of the medium "computer" was considerably changed in the following years. This may be illustrated with the help of basic forms of CAL: exercise programmes; tutorial programmes; dialogue and information programmes; simulations and games as well as interactive programming.

The first two basic forms let the computer take on the functions of a teacher, by presenting information, setting tasks, giving the learner something to think about, checking answers, providing reinforcement or confirmation. The aim of increasing the "individualization of learning", however, was difficult to realize in practice, so that the status of the computer as teaching medium is not undisputed.

Particularly the high degree of pre-structuring typical for the programmes considerably reduces their flexibility with regard to the individual learner's wishes for adaptation and modification.

Because of this and other problems, the computer should primarily be used as a complex learning aid. As a result, there has been a strong tendency towards dialogue and information programmes, simulations and games as well as "interactive programming" in the last few years.

Even though the initial euphoria about the potential of the computer for education has somewhat abated in the last years, it can realistically be acknowledged that selected forms of computer use should have their legitimate place in teaching. Information technology now is of importance in so many areas of our lives that this holds even more true. It seems unthinkable to exclude such a medium with its manifold possibilities from the area of education and training - and thus also to eliminate the possibility of improving disabled students' learning by encouraging them towards an informed and critical use of the computer.

Many of the aspects mentioned above are again relevant for the present discussion about media in distance teaching. They are already important today with regard to studies for the disabled at the FernUniversität (cf. Peters 1992: 4; Heuel; Postel 1994: 265-266).

In view of the far-reaching technological change, the use of these "new media" increasingly depends on whether the decision-makers at distance-teaching universities manage to seize the chances offered and effectuate a change of direction. The technological change for instance turns the computer more and more into a medium of communication. This process may be compared to the first revolution in the history of the dissemination of knowledge, the invention and industrialization of printing. Today, though, this process no longer needs several centuries to take place, it is a time-lapse process: "Only some years ago computers did their duty shrouded in mystery in computer centres, behind doors with several locks and surrounded by people with white coats. The first books also were only available to a few select scribes, hand-written treasures kept in august surroundings. The development of printing, which enabled everybody to get access to knowledge, changed the world like hardly any other innovation. The development of information technology may now trigger off processes with comparably far-reaching social and cultural consequences, since it opens up new forms of access to knowledge that may well change possibilities open to human beings in a similarly dramatic way." (Klotz 1992: 3). In a historical review of the modifications undergone by different models of educational technology, Peters has shown that this development very much depends on the state of development of a given culture. Educational technology doubtlessly is an expression of the industrial age which, in order to produce goods, has developed scientifically founded, highly mechanized procedures organized in a complex way. Since this was preceded by an "artisan age", which also had its effect on living and learning with teachers primarily relying on traditional experience, using the techniques of demonstration and imitation and employing media only as tools, and since some elements of teaching and learning are preserved from all cultural epochs, future "post-modern" teaching and learning systems will always also contain elements of educational technology (cf. Peters 1990: 8-9). Some of these, which Peters regards as promising since they have already been tested successfully, are educational television, distance-teaching universities, knowledge-based learning systems, personal computers, expert systems, electronic mail and tutor-directed video teaching.

As "media students", the disabled students must acquire competences enabling them to deal with the variation of new media in an informed and self-assured manner. On the one hand, the use of new media should become a matter-of-fact daily element of studying, with no special meaning attached to it. On the other hand, students should also have a critical, constructive attitude towards these media. To this purpose, three basic qualifications may, according to Dichant, systematically be taught to them in distance study: "To properly understand [...] mediated messages by decoding them; to identify messages and information in their context and their dependance on various

interests [...]; to produce messages themselves and thus participate in the presentation of media messages." (Dichanz no year: 54).

On the basis of American experience, Sommer puts forward similar demands and stresses the importance of a self-learning competence as a key qualification necessary for the use of the "new media". The ability or competence to use such modern systems is therefore just as necessary as the readiness to accept these tools of learning and acquisition of knowledge and to work with them in an informed and critical manner without becoming their slaves (cf. Sommer 1987: 432). On the one hand, this stresses the importance of face-to-face or social phases as elements of distance study for the disabled. On the other hand, it also shows that specially developed teaching material must impart the necessary qualifications enabling students to use the new media as interactive media for self-study. As shall be shown later on, the use of interactive media for self-study in combination with powerful networks and transmission systems will in the long run prove to be indispensable.

So will the disabled distance student of the future spend all his or her time in his or her flat, study, "multimedia learning cell" and only communicate with the machine or screen? This is a perspective that is both unrealistic and inhumane! The aim cannot be to substitute human beings by machines. Instead, the disabled students must be prepared for mastering and shaping the new technologies. For the danger of mediatisation does exist, a development which means that, with an increasingly mechanized information and communication, reality is more and more transmitted via media only and that experience is more and more a purely technical one. A "critical distance" towards the media must therefore be postulated. The steadily and intensively increasing use of the new media is, however, also proof of their creative and innovative potential.

The media landscape at the distance-teaching universities and its relevance to disabled students

We have learnt by now that media cannot take on all teaching functions and that distance study constitutes an enormous individual learning performance. This performance strongly differs from that shown in face-to-face study, especially if seen from the point of view of learning psychology. The distance students' performance is not better or worse, it is simply different. Written study material, i.e. print media, are of prime importance. So far they play the role of principal study media.

Nowadays the practice of alphabetical writing counts among the things most taken for granted in European culture today. "The cultural behaviour we associate with Latin letters and Arab numerals, with paginated texts and books for sale, with systematic libraries, silent, private reading and compulsory schooling for everybody has developed quite gradually. It has not only been decisive in shaping the form and function of science but also of our everyday behaviour. Europe only bit by bit approached these forms that now are so familiar to us - forms which are today faced with competition in the form of audiovisual media and micro-electronic production and preservation techniques." (Kuchenbuch 1994: 36).

Distance-teaching universities endeavour to present these media in a manner suited to the needs of the disabled or to develop special study materials for particular groups of disabled. The great importance still attached to written study material in distance study seems to mean that it is well-suited for physically disabled students, those with a visual impairment and particularly for the deaf and hard of hearing. This thesis will now be looked at in detail from a media point of view, since for the disabled, their studies centre around learning with new methods and media, and for the teaching and supporting institution this constitutes their programmes and task. The main problems of the distance-study system are in this context seen to lie in the possibility of achieving a quick and

effective feedback to students and in the necessity of finding optimized possibilities of dialogue (cf. Dichanz 1980: 78).

Print media

Like no other scientist, Comenius saw the possibilities inherent in printed material for the self-study of people who cannot be taught in state schools. This is the reason he gives in the Pampaedia (1960: 147): "Should therefore such people exist, who cannot learn in state schools, they should, provided they can read, still be able, with the help of the books, and using application and perseverance, to compensate for this shortcoming and reach the same goal by entering the whole body of knowledge out of themselves. This way it would come about that the autodidacts would only differ from those instructed in schools in that the latter would be completely educated and sure of their knowledge whereas the former would show some incertainty. But both would know everything they need to know."

Comenius wished for books to be written in the form of dialogues in order to direct the readers the same way a learner is directed in school. He himself had the chance to observe the effect of print media for this kind of teaching: his textbook Janua linguarum reserata appeared in 1631 and was translated into twelve European and four Asian languages (cf. Lindner 1947: XIV; Peters 1973: 66).

Experience with the use of printed course materials at distance-teaching universities has shown that the course structures meet, both on principle and in detail, the expectations and demands expressed by the different groups of the disabled, with the exception of those whose senses are damaged. They are very well suited to the individualized phase of learning.

A course unit, which may comprise written as well as supplementary audiovisual study material, is orientated towards the autonomous or single learner. As an ideal type, it contains the following structural characteristics: table of contents, teaching aims, explanations, glossaries, list of references, study text and an appendix with solutions to the self-checking exercises, with assignments for submission and model solutions for the assignments for submission. The teaching aims are accorded particular importance since they serve to orientate the learner, to help evaluate the intended learning process and as written communication between teachers and learners or correctors and students. Partially operationalized lists of learning aims have in this context been proven reliable, just as the discussion of the learning aims in the text with mention of specific self-checking exercises enabling the student to check whether the aims have been reached.

The integrated self-checking exercises and the assignments for submission also serve an important function in the course of the learning process for disabled students. The self-checking exercises support the retention of information, help the learner prepare for the assignments for submission and the end-of-course examinations and provide a sense of achievement. The assignments for submission on the other hand more strongly serve examination and evaluation purposes. By being corrected and returned to the students they serve the didactic function of feedback. Solutions are provided for the self-checking exercises with the intent of reinforcing the learning process, similar to the use within programmed instruction.

The presentation of the study text in its self-instructing character is on the whole oriented towards didactic elements which contribute to the easier acquisition and retention of study contents. Learning success is greatest when students are well motivated, are informed about the reasons for the way the study material is presented and, by working with the study material, get a sense of (learning) security (cf. Wurster 1987: 3-5).

It is postulated that this teaching medium should be further developed, tested and renewed with a view to better adapting it to the special needs of the disabled. This applies to course development in particular. The subject of the course must be clearly explained, the course structure be logical, style must be understandable, facts correct and new research be included. Not only should the subjects of the different courses be readily available in a course programme. Both students and teachers should also be able to read about and check up on the way a subject is treated for course development, the diligence employed, whether facts are reliable and up-to-date. In addition to this subject-related quality, the didactic structure of a course under distance-study conditions must also be ensured. Distance students' specific conditions and their learning situation must be anticipated. This way the problem development, the presentation of the facts, the construction of exercises can all be made to lead the learner onto an autonomous but secure path through the subject matter to be studied. It must also be guaranteed that the course subject is of relevance within the curriculum and the examination regulations (cf. Dichanz 980; Ommerborn 1995).

Audiovisual media

Audio tapes

Media play a dominating role in transmitting "teaching at a distance" (Peters). At first, media only served the function of "creating motivation" and contributing to "the organization of the studies" (Peters). Gradually audiovisual media were developed, evaluated and made available to students as a supplement to printed study material. If students enrol for a course accompanied by audio cassettes, students receive both print media and cassettes at the same time. Audio cassettes are "greatly appreciated" by able-bodied and disabled students alike "as a supplement to printed course material" (cf. Vitalis 1987: 23). Contents and form of these cassettes cover a broad spectrum of, for instance, "reports, help with difficult text passage, pronunciation hints, excerpts from speeches, interviews, discussions, self-checking exercises" (Vitalis 1987: 23). It has been shown that, in addition to their basic function of transmitting teaching contents, audio tapes can also support the learning process of able-bodied and disabled participants by taking on functions complementary to the printed study material.

Videos

Videos are available to teachers and learners both in the individualized and the social phases of distance study. For the target group of the disabled, with the exception of the visually impaired students, video tapes may be classified systematically as follows, according to a suggestion by Laser and Mattes (1983: 12);

- videos with informative character (theories or terms are illustrated visually);
- videos resembling lectures or exercises;
- videos providing background information;
- videos as a substitute or supplement to face-to-face sessions;

- videos serving the purpose of questioning a concept;

- videos for behavioural training (microteaching).

The disabled students generally voice positive opinions about video tapes. In our study they presented many suggestions for an extension of the production. Videos are welcomed as facilitators of learning. Students with a hearing impairment demand an integrated subtitling of all videos.

Television

The development of television as a teaching medium in distance study was rather limited up to the end of the eighties. Even today, distance study is mainly characterized by the combination of print media and face-to-face sessions, mainly in study centres. Television, video, videotext and computer mostly play only a supplementary role.

Which future functions and innovative potential is inherent in this medium with a view to making dialogue and increased communication possible for disabled distance students?

Academic television broadcasts to be developed by the distance-teaching universities may follow the basic pattern used in other types of face-to-face sessions in distance teaching: in the individual case it may be disputed whether and at which point course-related specialization is more important than the general public interest. Balancing the author's wishes, who as a rule tends towards specialization, against those of the editors, who have to consider the large impact essential to mass media, remains a permanent task with no instant recipe for success available. The basic patterns of academic broadcasts consist of a lecture, dialogue or discussion, accompanied by (moving) pictures and other means of presenting the subject matter (teaching aids, models). In order to use the full potential of television, a high proportion of pictures and a high degree of integration with regard to sound and picture should be aimed at.

Distance teaching via television always requires supplements. Such supplements can be realized by tutors or mentors, printed supplementary material or, in the future, through the different forms of electronically mediated dialogue. This opens up completely new perspectives for distance study for disabled. The European Union programmes like DELTA (Development of European Learning through Technological Advance) will in the future make it possible to increasingly take into account future European and other international experience and technologies when planning television broadcasts for distance study. Evaluation studies undertaken in British distance-study institutions indicate the importance of "television" for studies for the disabled. Educational programmes on television only have a positive learning effect when based on clearly defined teaching aims, when programmes are produced in a professional manner, oriented towards the target groups, and when they are entertaining and regularly watched by students (cf. Winterhoff-Spurk 1990: 78-79). Bryant et al. report on similar tendencies with regard to Open University programmes: "Ten years' research [...] indicates very clearly that the extent to which students will learn from television depends entirely on the conditions surrounding the use of television." (Bryant et al. 1984: 26).

TV programme elements are particularly successful in distance study when they are easily accessible (broadcasting slot, repeats or tapes), when they are used synchronously with study texts and in order to apply and check analytical, theoretical principles (cf. Bates 1990).

The individual range and relevance of the new media, in this case cable and satellite television, gain a completely new dimension when the recipients, i.e. the disabled students, can interact with each other or with the teachers during broadcasts. Television must become interactive in one form

or another. In a few years, this will be an element of all distance teaching institutions. However, there is already some international experience: in Japan and the USA, educational programmes for the disabled in the form of "electronic classrooms" were developed already ten years ago. This means televised links between educational institutions, with pupils or students being able to ask or answer questions with the help of computers, the telephone or TV.

The technology of videoconferencing has also been taken up by distance teaching universities. Videoconferencing may become particularly relevant in studies for the disabled since it can help individualize communication in the areas of information, counselling and teaching. American experience by various educational institutions corroborates this. Present research focuses on the use and acceptance of this technology and on comparing it with face-to-face communication. First results indicate some future relevance when one tries to adapt distance-study systems to the needs of the disabled. Audiovisual communication reduces negative interpersonal aspects, for instance differences of dominance and hierarchy, it encourages the students to concentrate on the problems and it takes less time. Groups of participants more often cooperate, and participants are more easily ready to compromise and change their attitudes. Those who use this medium intend to learn something. They can benefit from the advantages of mass-media educational television and at the same time influence the teaching-learning process through active participation (cf. Winterhoff-Purk 1995).

New research results report on current developments in the new information and communication technologies in France, the Netherlands and Great Britain and on how these are intended to be used in higher education. They show that these technologies are mainly used in order to improve teaching and render it more effective. This concurs with the author's own conclusions (cf. Sachverständigengutachten 1992: 76-77), namely that the new media may be used as aids in distance study for the disabled. The place where guided learning takes place lies outside the teaching institution, without contact between teachers and disabled students being interrupted. The learning process may be adapted to the wishes of the disabled regarding time, and to their intellectual prerequisites. To sum up: the new media make it possible to reach aims enabling certain groups of disabled people to pursue studies of considerably improved quality because of its flexibility with regard to time and place; because they allow for the basis of knowledge to be extended and readily available; because they optimize vividness and make interactivity linked with feedback on performance possible. (cf. Ommerborn 1997).

Media aids in studies for visually impaired students

It is obvious that it is hardly or not at all possible for the visually impaired to study mainly with printed material.

Distance teaching offered a chance to many visually impaired persons to enrol at a university and pursue their individual desires for education. This can be illustrated with the following example from Germany. "For eight weeks, Heinrich K. had left his family at a complete loss as to his behaviour. Whenever everybody gathered to talk about something, he withdrew to his own room. Until one day he put a sheet of paper onto the tea table which was covered all over with embossed dots. 'This is my certificate', he proudly declared to his family." The 62-year-old distance student had passed successfully one of the first courses for the blind. He mentions that this had been his wish ever since, at the age of 22 in March 1944, a bomb fragment had torn his optic nerve to pieces. "He had only secretly nursed his wish for university study but at the same time mastered his life in an exemplary manner." (Wacker 1984: 1)

Over the last years, visually impaired distance students like Heinrich K. have, for various reasons, studied thousands of courses and passed written exams in Germany alone.

And for whom could successful studies mean more self-confidence, will to live and ability to cope with their environment than for disabled people? Amongst the disabled, the blind face a particular difficulty: they cannot read in the traditional way or enjoy a television programme. Some examples may illustrate that the blind and visually impaired distance students derive meaning from their studies for their daily and future life. Heinrich K. concludes: "Sure, this certificate does not give me the chance to make a start in a new profession. I am not interested in that anyway, I am 62 years old after all. But you cannot begin to imagine what it has meant to me, and still does, to realize my life-long desire to study at a university. This has given my life a new, indispensable meaning [...]."

At distance students' conferences, the author has received similar indications of the importance of university study for the disabled. A 57-year-old distance student with multiple disabilities (visual and hearing impairment) for instance wrote down in answer to the question "What does distance study mean to you personally?": "For me, distance study is a wonderful opportunity of extending and enriching the quality of my life. It conveys strength and self-confidence to me that I need in my decisions, and it provides joy by unveiling new insights to me."

At the FernUniversität, for instance, the first new medium to be used for the visually impaired students was the audio tape. The text would be read by a group of speakers, as a rule three professional speakers, with different passages allocated to each one. This made it easier to convey adequately the main structure of the study text. In order to also convey the deep structure of the text unambiguously but unobtrusively, the centre for the development of distance study material introduced a didactic innovation: so-called acoustic punctuation marks. Evaluation proved them to be a success (cf. Wurster 1984: 143). In the process of further adapting the study material to didactic principles it soon became clear that audio tapes should not be the only medium used for the visually impaired and blind students. Illustrations, glossaries, assignments of submission and lists of references, for instance, could only be conveyed in a very limited manner.

The linking of different media postulated by media theory constituted the next innovative step: the audio tape was supplemented by Braille texts and tactile material. Tactile material like Braille is read by touching it with the fingertips. Practical experience showed, however, that this material is only suitable for relatively simple graphic illustrations. Complicated illustrations, e.g. the pictures appearing more and more in the printed texts for sighted students, had to be conveyed by means of verbal descriptions. During this phase of their development, surveys showed that these study materials developed especially for the blind and partially sighted were generally much approved of. In 1982, "a great majority of the partially sighted students considered the production of these materials a success and wished for the FernUniversität to develop further offers of this type and in this area." (Peters 1982: 33).

Occasional criticism of some details brought about further modifications: for instance, to the initial surprise of the development team, the system of combined media with the audio tape as main medium did not only meet with unanimous approval: "Rather, those students who had gone blind early and had learnt Braille (in its shorthand version) preferred study material in Braille. Only students who had lost their eyesight at a later stage in their lives were, as a rule, not able to read Braille and depended on the audio tapes. A third group of partially sighted students, those with a residue of sight, could also read black print (our print), when it was large enough." (Wurster 1985: 146).

New technical developments in the areas of digitalization, splitting and reproduction of texts by choice constituted the next steps to optimization. On principle, a sophisticated media offer is now

possible. Stored texts may be reproduced in Braille (longhand and shorthand) or in large print on paper or screens.

What are the experiences of this group of students? Where can we identify potential further development?

It must be taken into account that the target groups, as mentioned above, prefer different media. So for those who went blind early and who prefer Braille texts, equipment and procedures for transcribing digitally stored texts into Braille ought to be developed. For those who went blind at a later stage and who very often are not very good at Braille-reading and thus prefer the auditive transmission of contents, systems able to change digitally-stored texts into synthetic speech should be developed. For those students with a residue of sight who are still able to visually recognize enlarged signs and letters, technologies are required which make it possible to let digitally stored study contents in a variation of sizes (1.3 to 20 cm letter height) appear on ordinary television screens.

The FernUniversität can now look back on more than 10 years of experience in managing and evaluating distance study for students with a visual impairment. This experience shows that the visually impaired students are an extremely heterogeneous group, particularly with a view to the media preferred (cf. Heuer 1991: 10). Haptically oriented students today primarily ask for media in printed Braille or shorthand files on computer disks. Students with auditive orientation prefer audio tapes or computer disks with longhand files. This means that if course development were to concentrate on one medium only, it would exclude part of the target group from its use. Any progress in this area must therefore always be multimedia.

Today courses in black print can be provided in five other versions, following the so-called multi-media transformation concept:

- in Braille
- on audio tape
- on computer disk with shorthand Braille
- on computer disk with longhand Braille
- in large print.

Apart from integrating them, the main aim in developing these media must therefore be "[...] to reproduce distance study materials as closely to the original as possible. When transferring the black-print course to the different media, particular care is taken that the page-numbering remains unchanged in comparison to the original" (Heuer 1991: 8).

This is an indispensable detail, mainly for two didactic reasons: on the one hand, it is the only way in which visually disabled and sighted students can work together in formal or informal study groups. If for instance a particular passage of the course text is discussed in a face-to-face session, it must be possible to find this passage with the help of the original page number in the Braille version, the taped version and the black-print version. Both sighted and visually impaired students may thus also follow up cross-references in the text. On the other hand, these media may thus be used for quotations, which considerably facilitates the tutors' and correctors' tasks. Heuer viz. Hallmann (1991: 10) describes the technical details: "Ensuring page-numbering congruent with that of the black-print course is done in different ways, depending on the medium: a) For the Braille version, a second page-number indicator is integrated with the running pagination. On each Braille page this indicator shows the number of the original page, currently being transmitted. B) For the tape, additional low-frequency tones are inserted whenever the speaker announces the next page. c)

The computer disk versions also contain additional indicators for the original page being shown on screen. (d) The large-print versions also contain a second page-number indicator."

Media aids for students with a hearing impairment

"Btx [the German version of teletext] encourages sociableness and motivation" - "For pupils with a hearing impairment: videotext-computers as a path out of isolation" - these were the headlines used by a well-known Westphalian newspaper when reporting on the importance of computers with teletext for pupils with a hearing impairment: "Karsten is hard of hearing. He seems to live in a kind of silent movie, where somebody has at least turned the sound to the lowest perceptible tone. When you can hardly hear, you hardly know how to pronounce words. When you hardly know language, you find it difficult to communicate. Who in that position will enjoy waiting in the queue in front of the ticket window in order to ask for information about trains? Karsten does no longer have any problems in this area. He simply uses the public computer at Münster railway-station post office and asks about the train connection he is interested in. Btx is the name of his electronic companion." (Bertram 1992).

More and more people with a hearing impairment use teletext-computers to accompany them through their day-to-day private and professional life, to provide information and help with planning. One of them stated: "Ever since I have been able to use this service at home, it has not only become easier to cope with everyday-life, I have also increased my contacts with others. According to investigation carried out by the project 'Btx and people with a hearing impairment' in Münster, pupils with a hearing problem send out greeting, congratulations, invitations etc. via Teletext and receive, for instance, homework from teachers. Pupils may also send short messages to their teachers directly into school."

These results show trends confirming the experience with disabled distance students. The resulting type of communication often is very open, direct and sometimes surprisingly vivid and creative. Teletext is an adequate media support for those with a hearing impairment and often remarkably encourages their motivation to express themselves in writing. It has been shown that teletext enables disabled students to actively participate in the communicative teaching-learning process.

For the teletext system, which was tried out and adapted as a medium of communication at the beginning of the eighties, the student's television set is used to present text and graphical elements on screen. The main focus of the programme may lie in the following areas: public relations, information for distance students and using the feedback-channel for communication with the course tutor. The feedback-channel represents the special advantage of this system, since it enables participants not only to passively receive information emanating from "big brother", but to actively enter into a dialogue. Disabled students may use these services for instance for the following tasks: ordering information material, borrowing books and journals from the library, sending messages to their institution etc.

There are obviously many perspectives for future use. The speed with which information is conveyed can optimize the corrector's feedback function. The feedback-channel allows for attractive offers to be made to students, with positive reception on their part. The message service considerably complements personal, telephone and written communication.

Some pilot projects at the German FernUniversität have shown that the use of teletext by the disabled may be improved by integrating external computers. Another step forward may consist in the improved new standards of presentation. Teletext offers a great potential for distance study for the disabled - it may be used for up-to-date information, for instance about courses on offer, for counselling, and for access to the institution's mainframe computer. Its didactic potential should, however, not be overestimated. Teletext is a typical medium for the individual and should be used to supplement the study process individually.

Of course teletext is not the only form of using media in distance teaching for students with a hearing impairment, as can be seen from Open University evaluation results spanning many years. Hales (1985: 2-4) considers distance teaching to be important for the deaf and hard of hearing primarily because it consists to a large extent of written and visual media. The Open University has developed various projects using computers or interactive systems to convey language to students with a hearing impairment. The results show that these students interact very well with a computerized system. This is especially the case because they themselves consider working with a computer terminal as an adult occupation. For the future, the Open University proposes the development of systems containing interactive elements so that students with a hearing impairment do not remain isolated from their teachers or other students.

The so-called CYCLOPS-system, a distance telewriting system, is an example for this kind of system. It allows the tutor to pass on visual information via the telephone network. Computer-conferencing systems are also named as a possibility of providing increased chances of interaction for students with a hearing impairment.

Recent media developments

Over the last fifteen years, a number of products or media models have been developed for disabled students at the different distance teaching universities. Some of these have been integrated into the study system and may in parts be regarded as exemplary for studies for the disabled. They also illustrate the relevance of a media university in this context. In addition to the "standard" media already mentioned above (e.g. audio and video tapes), new ways have been found of how to provide teaching, counselling and information oriented towards the needs of this target group.

The importance of computer and television in this context will steadily increase. This could have a positive effect on studies adapted to the needs of the disabled, since both media stress communication aspects. (cf. Peters 1992; Wurster 1994; Peters 1995).

Distance teaching universities dedicate a considerable amount of research and development time to the development of educational technologies, which may also play an important role in studies for the disabled. These technologies may encourage communication, facilitate learning and optimize, rationalize and economize the study process.

In a survey conducted in 1992, the German FernUniversität questioned all its departments and central institutes about their current research and development activities in this area. According to survey results, research activities had taken place in 33 areas belonging to the category of educational technology in 1991 alone. The importance of this innovation potential in the areas of media and communication should not be underestimated.

As far as optimizing teaching and learning for disabled students are concerned, the following interesting results should be mentioned: about half of the FernUniversität departments and institutes questioned used the category "remarks on research activities" to stress the relevance of educational technologies for teaching and learning.

When mentioning educational technologies, they refer to the many different communication and information technologies which may be subsumed under the term "mediated communication".Above all, these are teletext, video discs, computer, video systems, cable and satellite television. It is usually not the media themselves which are considered innovative, but rather the extended possibilities of using the "old" media like television or telephone. The potential of traditional media is extended in various ways - by extending their capacity, combining them,

linking them to computers, installing additional distribution nets (cable) or using existing methods of distribution (telephone net) more intensively.

The new educational technologies available in distance study are regarded by experts such as educationist, educational technologists, experts in information studies and distance educators, partly sceptically, partly euphorically. Despite the fact that many experts strongly reject these innovations and consistently warn about their dangers, they have, even with little initial acceptance, established themselves once and for all. This is primarily due to the forces of technological progress and economic interests as well as those of communication policy. Their usefulness, particularly for improving studies for the disabled, will gain even more importance in the future. The disabled very often use these media very actively and intensively. They know all the possibilities of using them and have a very high opinion of their didactic potential e.g. with regard to the visually disabled.

Of course one has to counteract any dangers: everyday experience, especially that of severely disabled students, is mainly secondary experience, and mediated communication partly replaces interpersonal communication. This subsidiary function also contains a danger inherent in the new media. Even in distance study, they may accelerate the loss of function suffered by traditional communication agents. The disabled student must therefore be systematically enabled to understand the media, use them critically and help shaping them.

Summary and international perspectives

The disabled applicants and students place high expectations on distance teaching universities, both with regard to quality and to quantity. It therefore has to be checked whether the new media may not be used to a much grater extent for improving the quality of studies for the disabled. Which perspectives for development may be perceived? Are there possibilities for new offers?

Worldwide, studies are currently being oriented more towards the needs of the disabled, with individual distance teaching universities making remarkable contributions. All our knowledge of distance learning promises positive developments. In the future, European distance teaching universities should increasingly cooperate in orienting distance teaching more towards the disabled. The report published by the European Association of Distance Teaching Universities (EADTU) shows that the use of media is becoming increasingly important in European distance study. The following overview on the basis of the EADTU-report may illustrate this:

European distance-study institutions	**Media**		
	print media	audio and video tapes	interactive media
Belgium	X	X	X
Denmark	X	X	
Finland	X	X	
France	X	X	
Germany	X	X	X
Ireland	X	X	

Italy	X	X	X
Netherlands	X	X	X
Norway	X	X	
Portugal	X	X	
Spain	X	X	X
Sweden	X	X	X
United Kingdom	X	X	X

European distance-study institutions	**Media**		
	satellite	interactive video	radio
Belgium	planned	X	
Denmark			X
Finland			
France		X	X
Germany	X	X	X
Ireland			X
Italy	X		X
Netherlands		X	X*)
Norway	X	X	X
Portugal	planned	X	X
Spain			X
Sweden		X	X
United Kingdom		X	X

*) only for information purposes

European distance-study institutions	**Media**		
	television	computer conferencing	E-mail
Belgium			
Denmark	X		
Finland			
France	X	X	X
Germany	X	X	X
Ireland			
Italy			X
Netherlands	X*)	X	
Norway	X	X	X
Portugal	X		X
Spain	X		
Sweden		X	
United Kingdom	X	X	X

*) only for information purposes

European distance-study institutions	**Media**		
	audio and video conferencing	video phone	telephone conferencing
Belgium	X		
Denmark			
Finland			
France			
Germany	planned		
Ireland			
Italy			
Netherlands			
Norway	X	X	
Portugal			
Spain			
Sweden	X	X	X
United Kingdom	X	X	X

As they may be important for disabled distance-students in the future, some national and international examples of innovative media use, which in parts still have to be tried and tested, shall be presented in the following passages.

One of these is the so-called telematic counselling which may extend and improve communication. Telematics (a composite term uniting telephone and information science) has known a great boost as a supplement to tutoring and counselling, whether on the phone, by letter or face-to-face in study centres and the central seat of the institutions. The first experiments have become known as computer-mediated communication and were carried out in the context of two projects at the British Open University and the Universidad Nacional de Educación a Distancia (UNED) in Spain. Telematic counselling is based on a mainframe computer communicating with the course participant's computer via the telephone line (cf. Rumble 1988: 111-113; Ruiperez 1991: 14-16).

The characteristics of telematic counselling may be considered favourably with a view to distance study for the disabled based on dialogue. Since communication is not synchronous, students and teachers or counsellors may themselves determine their study or working hours. Only medium-range developments, however, will show whether there are any advantages with regard to economics and productivity (cf. Kaye/Mason/Harasim 1989: 8; Slovacek 1990: 3; Ruiperez 1991: 22).

Telematic counselling for the disabled should also not be seen as an alternative to counselling by letter, phone or face-to-face, but rather as a useful supplement.

In the current discussion on how to improve distance teaching, the new media are rightly accorded great relevance, also for internationalizing teaching and counselling. The relevant didactic concepts are, however, still being developed. The discussion within and outside the institution therefore remains largely theoretical. However, perspectives for development may been found in close European cooperation in the context of research and development programmes like COMETT, RACE, ESPRIT, DELTA and EUROTECHNET.

At least existing - especially international - experience has illustrated the many possibilities for improving the quality of distance study. The new media may be used adequately for broadening access to specialized knowledge in order to help students learn how to use it autonomously when trying to solve problems.

There are valid reasons why technological development has been relatively slow. Print media and counselling in study centres have been tried out and tested. Using new media seems justified only when one or more of the following conditions are fulfilled: lower costs, greater teaching effectiveness and increased accessibility to students (cf. Bates 1990: 21).

It may be assumed that media and technology developments will gain importance worldwide as an aspect of distance teaching, that media use is of high quality and has altogether expanded. When EADTU members rated the relevance of the different media, computer-mediated communication received the highest rating, followed by acoustic media, television and computer-based learning (cf. Bates 1990: 285).

The next decade opens up new perspectives for studies of the disabled via the new media. There is great openness towards the use of new media and telecommunication systems. The progress in this field can make study conditions for disabled students resemble more and more those of face-to-face students. Potential and chances are known, there is a knowledge of the problems and a readiness to experiment.

The disabled students' expectations towards an increased use of media in distance teaching can only be fulfilled if the number of interactive components is increased, if necessary feedback is ensured, if systems suitable for dialogue are developed further and if the individual constituents of studies for the disabled are used alternately. The readiness to experiment mentioned above shall be illustrated with examples form current research and development offering perspectives for dialogue-oriented studies for the disabled.

Computer

In the area of computer technology, developments at the moment follow a rapid pace similar to that at the end of the sixties. We must therefore also look at the perspectives for computer use in distance
study for the disabled.

The chances and limits of learning with the help of computer are by now known, but we have not yet reached the end of the considerable and in parts fascinating perspectives for development. So far, only a limited amount of interactivity has been achieved. Experts in this field refer to the current taxonomies which differentiate between three and five levels of interaction. Only the lower levels of interaction have been realized though. Recently developed computer-aided teaching programmes aim at presenting interactive learning systems allowing the student a flexible dialogue

with the computer. As a means of communication, they facilitate dialogue between the teachers and learners across distances of time and place.

The fact that one-way-communication is thus reduced is the decisive aspect for disabled students. Distance study requires the opportunity for immediate response, for question and answer, for discussion and disputation. Interactive media open new possibilities for these aspects. Fundamental research should, however, be continued in this field: the interactive teaching and learning systems must be embedded into larger teaching and curricular contexts.

In order to ascertain foreseeable consequences of using the new computer technologies, Edwards (1988: 5-7) has conducted a survey amongst disabled students with the help of telephone interviews and questionnaires. It became clear during this survey that alternatives must be provided for those students who cannot afford a computer. For many the new programmes mean an improvement of their study conditions, with problems being similar for disabled and able-bodied students. For a small number of disabled students, their disabilities make it difficult to use the computer so that the use of the new technologies will tend to disadvantage them. "Disabled students will generally experience the same problems as other students under the home computing policy" (Edwards 1988: 43).

Interactive programmes for personal computers constitute a relatively recent element in the range of media offered by the German FernUniversität (cf. Heuel/Postel 1994: 265-266). These programmes also have weaknesses, as illustrated by German and international research results (cf. Ommerborn 1996). These weaknesses consist in the sometimes tiring learning in front of the screen, the comparatively low dissolution of the page on screen, the dependence on the availability of hardware, and the high costs of development. Some specific characteristics of these interactive programmes such as immediate feedback on learning success, autonomy in selecting learning contents, self-determined pacing and the decentralized use of existing storage and computing facilities, will however ensure greater relevance for this medium in studies of the disabled at the FernUniversität.

The following questions must be asked with respect to the relevance of the new techniques to the study system, particularly for the disabled: which media or techniques are available? Are teachers and administrators aware of the chance inherent in their use? Are the recipients, i.e. the disabled students, ready to use these new techniques?

Even though a comprehensive concept for the use of the new media to the advantage of disabled distance students cannot yet be made out, individual elements opening up new possibilities for distance study for the disabled are in existence. Video telephoning and teleconferencing, for instance, provide on principle the whole communication potential of personal face-to-face teaching to be used in distance study. A broad-band communication system for the first time ever offers the chance of personal audiovisual communication in this field. This type of technology can realize the advantages of face-to-face study such as spontaneous question-and-answer games or the flexible use of illustrations, over a geographical distance. Interactive programmes can thus be a substitute or supplement for print media or personal face-to-face sessions. Accessing data banks for information and using so-called hypertext systems allow students to follow their own path through the study contents. These systems can also be regarded as a type of distance-teaching course (cf. Mandl et al. 1991; Holmberg 1992: 23). Hypermedia enable the learners to link information on all levels of perception. Learning progress is individualized, texts, video sequences or stills are provided with a soundtrack.

Results of research carried out at the British Open University, the FernUniversität and the Dutch Open universiteit point to the following possibilities: it seems feasible that in the long run face-to-face sessions will at least in some areas be substituted by interactive programmes in

combination, for instance, with audiovisual material for practice periods or laboratory experiments. Computer conferencing systems and video conferences may be used for various purposes in teaching and counselling. These systems will soon be mainly used for supplementing and consolidating written teaching and learning material.

With regard to improving distance study for the disabled, new forms of application will be possible in the future which should be tried out and tested.

- Teachers, mentors and tutors may access audiovisual media via the institution mainframe computer to select them for use in face-to-face sessions and use them for their preparation. These staff members may also teach via various media. Video phone contact may be established with experts who are available for discussion with able-bodied and disabled students.

- The disabled students access audiovisual media or direct broadcasts with supplementary functions.

The main advantage of these media lies in their independence of place:

- Disabled students may use video phones in order to participate in face-to-face sessions at study centres or other places;

- Students may receive support form tutors via telematics. Teleconferences unite the advantages of communication and independence of place;

- In the future, studies for the disabled can also be organized via video phone.

The new media may represent an enormous improvement in the study conditions for disabled distance students (Peters 1995; Wurster 1994; Ommerborn 1996). They may also represent innovative potential with regard to active participation and social integration into university life. This is because they create new forms of organization and new structures in distance study which in turn improve contacts and communication. This way, teaching and learning processes which before required the students' presence may take place at a distance. Institutional and technical conditions for establishing such forms of study for disabled students are positive and the necessary know-how is available in the institutions. As a result of the research and development work taking place now, in a few years' time disabled students will sit at home in front of their computer, ask for information about a distance teaching university, enrol for a programme, pay their fees, send in assignments for computer correction, fill in questionnaires and receive counselling, as it is already now partially possible through CYCLOPS at the Open University. For the Open University, CYCLOPS represents something like an electronic noticeboard at a distance which, in combination with telephone conferencing, makes advanced forms of tutorials at a distance possible (cf. Thompson/Brown/Knowler 1992: 33).

The disabled students themselves welcome additional media but wish for more. This wish may, however, not be quite free from illusions: "It should be said quite clearly: none of the new media will save the students the actual work of learning and studying."(Wurster). The disabled students are right, however, in expecting new additional media to take on a meaningful role and promote study success.

There is no doubt that innovative technologies and media can optimize learning processes. Teachers and administrators at distance teaching institutions are aware of the special chances media offer for teaching the disabled, especially for dialogue-oriented teaching. The disabled distance students themselves are largely using audio and video tapes, radio, television and more and more frequently computers in their private lives. They therefore demand them as a way to improve their studies.

Distance teaching universities and media educationists alike should take greater care to recognize the importance of these media for the disabled, without, of course, disregarding the dangers.

The new communication possibilities must be looked at with a view to their relevance to the disabled. It will then be possible to fully use their potential for information, counselling and studies, particularly as a way to facilitate and enrich life and support students in their studies. This should not result in any new euphoria about these concepts of educational technology. They do not represent the ideal way which alone automatically provides the solution for adequate studies for the disabled.

Past criticism voiced by educationists, media experts and distance educators shows that particularly large educational systems are open to manipulation, a politically explosive subject.

According to Postman, the media world has become an "improbable world". "Information is trickling forth from millions of screens all over the world, through every conceivable channel and every conceivable medium - light waves, ether waves, telex strips, data banks, telephone wires, television cables, satellites, printing machines. In the background, every conceivable type of storage - paper, video and audio tapes, disks, film, siliconchips - carries an even greater mass of retrievable information." (Postman 1992: 79). Are we not, to use another of Postman's images, drowning like the sorcerer's apprentice in a flood of information, the sorcerer having left behind nothing but a broom?

The problems consist, in a few words, in the dangers of one-way-communication, the constant exposure to a stream of information resulting in passivity in the distance students: one-sided manipulation, restriction to whichever contents may be visualized or made audible, and mass teaching oriented towards an average level.

There is no doubt of the relevance of media for distance teaching universities today, with the universities frequently calling themselves "media universities". The use of new information and communication technologies is on the increase, an innovative push having taken place particularly during the last ten years. (cf. Peters 1995).

Large parts of the study system at distance teaching universities represent a conditio sine qua non for disabled distance students. The new forms of teaching and learning allow this target group to study individually, independent of time and, for some part, of place. For certain groups of disabled people, studies are unthinkable without the innovative potential inherent in the new media. These media allow individualization and differentiation to take place with regard to many aspects of "being disabled".

Since printed and didactically presented study material will remain the standard medium, the "new" media will increasingly play a role in overcoming isolation. They may thus contribute to humanizing studies for the disabled. It will, however, become increasingly important to develop a good theoretical basis for the applications of the new media and technologies come to play a more central role in distance teaching universities.

5 Results and perspectives

Distance teaching universities have to develop a wide range of services to meet the special educational needs of disabled students.

The results of our analysis show that many problems remain to be solved before distance study for the disabled can be used as widely as it should be.

The present development of distance study is a dynamic one, taking place within limits that are constantly pushed further. Distance study makes possible exceptionally flexible and adaptible forms of study. Many of the known advantages may be compensated for by combining certain forms of study and choosing suitable media for bridging the distance. In order to offer studies completely adapted to the needs of the disabled, distance teaching universities must in the future make more and more use of the innovations described and provide support measures with regard to the teaching organization. Individualization must in this context necessarily aim at taking the specific situation of the disabled into account and making use of the didactics and methods particular to distance study:

- assistance in individualizing the study process
- regard for distance students' social needs.

Additional opportunities for education and further education have been opened up. With disabled students being able to acquire higher qualifications and to regularly renew and update them, the percentage of participation in higher education has increased. The institutions now ensure the provision both of an academic first-time education and of the increasingly important further education for the disabled. Initiatives are, however, still required to realize more equal opportunities for this social group. The German FernUniversität, for instance, is currently widening individual access to higher education for those target groups which find face-to-face study difficult. Despite the distance between teachers and students, this makes study possible for this target group. By interweaving distance and face-to-face study, face-to-face universities are relieved of high student numbers and the individual study success is increased.

Since the structures of traditional higher education show partial deficits, the special importance of distance study for disabled groups may be deduced. Distance study at any place and at any time. It thus offers completely new opportunities for disabled and chronically ill people to participate in education and continuing education. It also compensates for deficits in face-to-face study and imbalances in educational and professional development. Participants may pace their studies comparatively autonomously and adapt them to the time available to them and to their life and study conditions. Independence of place and adaptability point to the possibilities for individual use. Individuality above all means that the individual may choose his/her own educational aim consistent with his/her personal needs and desires. Distance study should be seen as a space for experimentation for the disabled and their individually different cases and preferences. This has become clear from the testimonies quoted in this study.

Can distance study be considered a genuine alternative for the disabled? This question was looked at in this study from various points of view. To conclude, this question shall be put to an expert, who also is a wheelchair user and studied at a face-to-face university. Since 1976 he has been looking after the interests of disabled students. His honest answer is: "It certainly is an alternative. Whether it is a good one for the disabled, or a bad one, or an acceptable one - this depends on many factors, not the least on the disabled person's personal circumstances, his/her

inclinations, intentions and abilities. The type and degree of one's disability also play an important role. There can be no single answer to the question, whether there are more advantages or disadvantages compared to face-to-face study, the answer must be individually different and can only be given by the disabled themselves."

Even if there is as yet no comprehensive concept available for the potential described, we can make out individual elements opening up new possibilities for organizing studies for the disabled.

In distance study in the Netherlands, Great Britain and Germany, tutorial support and face-to-face sessions have particularly over the last few years been looked at closely by distance educators with regard to their didactic potential. As the discussion since the second half of the seventies show, determining the didactic value of face-to-face sessions in distance study remains one of the most difficult and as yet unsolved problems in distance education. Face-to-face sessions may, however, be necessary for disabled students, both for anthropological-educational reasons and for objective, content-related reasons. They may help them find a motivating and meaningful answer to the question what the aim and purpose of their studies may be.

These social phases can also counteract the often-quoted "double isolation" suffered by disabled people in distance study. They may contribute to more integration and, in the ideal case, to integration consisting in "mutual understanding in action" (Dickopp).

The heterogeneity typical for the disabled distance students does not allow for any absolute statements. The type of disability or chronical illness, the educational biography, the study prerequisites and expectations, the study aims, the learning potential and the study contents - all these factors must play a role in determining whether and to what extent social phases are necessary, useful and desired by the individual. This shows the truth in an old insight gained in distance-education research, i.e. that on the one hand, face-to-face sessions do not automatically have to be included for everybody and in every learning context, but that on the other hand, they may be desirable or necessary.

Further planning will have to take into consideration that the demand for distance study will also show high growth rates in the area of further education. The proportion of disabled students will, if measures for adaptation and innovation are extended, justify this assumption. There are obvious advantages inherent in the system: the main reasons given by those concerned for taking up distance study are flexible study time, the chance to determine one's work load autonomously and to study at a distance despite one's disability and without having to leave one's home (cf. Hofmann/Ommerborn 1997). When deciding on the application of innovative measures and adaptations to compensate obstacles due to disability, the distance-study institutions should take into account the following findings:

- People with a hearing impairment have so far taken up distance study only in isolated cases and have found it difficult to cope with, both with regard to organization and content. In this area the problem of the necessary support has up to now only been insufficiently solved. The aids analysed in this study may support the distance-study process specifically for those with a hearing impairment.

- Considering the rising popularity of distance study amongst the disabled, it is necessary that complete study programmes are developed specifically for the blind and partially sighted. Moreover, the distance teaching universities should create pools for aids to be used in equipping the workplaces used by the blind and partially sighted. They should also continue to use their flexibility in dealing with the needs of the individually disabled with regard to tests and examination regulations.

- The physically disabled above all request buildings belonging to the distance-teaching universities to be adapted to their needs. Existing barriers and obstacles making life and studies difficult should be diminished (Ommerborn 1995[2]).

When developing new study programmes and revising existing ones, the chances for conveying knowledge in a more communicative and dialogue-oriented manner and thus for improving distance study for the disabled should receive stronger consideration than in the past. This can lead to more and more study programmes being opened to disabled people. With the far-reaching technological change taking place, the application of the "new media" and other adaption measures will increasingly depend on whether decision-makers at distance-teaching universities manage to seize the chances for optimizing teaching activities. The disabled students themselves must, in their role as "media students", acquire competences enabling them to deal with the new media competently and confidently. Traditional teaching media may be developed further, tested and renewed using the adaptions to the needs of the disabled which have been described.

International research findings about the state of the art and the goals for the use of new information and communication technologies may be of help in developing distance teaching for the disabled.

The many qualitative and quantitative expectations held by disabled applicants and students with regard to distance study should prompt the institutions to make better use of the rich fund of knowledge available on "distance learning". In the future, distance-teaching universities might cooperate in organizing distance teaching adapted to the needs of the disabled. Even if as yet there is no comprehensive concept for using the innovative potential, individual elements are opening up new possibilities for studies for the disabled, for instance computer-conferencing systems and video conferences, to name but a few (cf. Keegan 1994; Portway/Lane 1994; Ommerborn 1997).

At least in some areas it seems feasible to substitute face-to-face sessions by interactive programmes, in combination with audiovisual media, for instance. The main emphasis will soon be on supplementing or reinforcing printed study material. Just as media education has done already, distance-teaching universities should, in their approaches to teaching technology, give more attention to the importance of the personal computer for the severely disabled.

There is no doubt about the special relevance of media for the disabled in the current phase of development of the distance-teaching universities. Particularly in the last years, we have seen an innovative push. Since printed study material presented according to the principles of learning psychology will remain the standard medium, other media will be of importance with regard to counteracting isolation.

This should not result in any new euphoria about these concepts of educational technology. They do not represent the ideal way which alone automatically provides the solution for adequate studies for the disabled. Past criticism voiced by educationists, media experts and distance educators shows that particularly large educational systems are open to manipulation, a politically explosive subject (cf. Ommerborn 1996).

The distance-teaching universities must provide information and counselling about their programmes to disabled applicants and offer assistance to the individual in his/her decisions. In the future, it should be possible for the disabled student to direct his/her studies in accordance with his/her personality, his/her life situation and professional demands. This may be better achieved by offering the kind of media-supported educational counselling suited to the distance-study system. Institutions should here concentrate on the further development and application of various audiovisual and electronic media. These should always be regarded as a supplement to or

preparation for potentially desired personal counselling. They can direct students towards the face-to-face counselling offered in the institution's regional centres which are closer to the students' home. Counsellors can therefore be in close touch with the disabled students' real life situation and develop suitable forms of supporting, helping or stimulating the students.

Media development and the use of technology for tutoring and counselling disabled distance students should be followed by further research and development. Thus it may be desirable to produce interactive videodiscs for use in PC, to extend the amount of information for disabled applicants and establish centres for self-information.

With the new media becoming more widely available, it will be necessary to redefine the mentors'/tutors' role and tasks. A substantial part of their duties will consist teaching disabled applicants and students how to use the different media and thus enable them to use them autonomously for their own purposes.

Furthermore, the range of media available can be extended with regard to study aids, particularly didactic ones, for disabled students. Thus, video and audio tapes may e.g. effectively provide guidance on how to write assignments, draft scientific papers or prepare examinations. Completely new perspectives open up on possible modifications of the existing institutional framework for counselling and tutoring systems in favour of disabled applicants and distance students.

Staff development seminars should familiarize tutors, counsellors and others with the disabled students' study situation. This way, conditions shall gradually be created within the existing counselling, tutoring and information more specifically at disabled applicants and students.

A centre for the promotion of disabled students' interests could be the nucleus for the development of a mobile study centre. Many university sections would support the establishment of such a study centre:

- the examination boards which look after severely disabled students during their examinations at home;
- the teaching staff;
- the counsellors;
- those making an individually tailored proposal to students for their course and writing it up into a study plan.

The centre for the promotion of the interests of disabled students should, in cooperation with the disabled students' representative, put forward the students' needs and interests in the universities' bodies and towards the universities' administration. This mobile centre should have the following tasks:

- general counselling provided by mobile tutors;
- arranging for subject-related counselling via the existing study centres;
- arranging for the services of sign-language interpreters;
- collaborating in the production and dissemination of counselling and teaching media suitable for the disabled;
- conceiving, organizing and evaluating orientation phases;
- ensuring the provision of compensatory measures.

Orientation towards the immediate study needs of disabled applicants and students also includes changing the generally held ideas about disability. It means rejecting a deficit-oriented one. The

extension and differentiation of groups of disabled people happening as a result of social change must be given particular attention. This applies to the way the "new" and especially disadvantaged target groups view themselves, and to their study and living conditions. Recent research (cf. Adam et al. 1993: 414-416) shows that persons with chronic somatic and mental illnesses should form part of the extended target group. As a result of the changing concept of disability, these persons are today in part counted as disabled. Among them are disabled people with special difficulties requiring stronger support. Due to an accumulation of problems, these groups doubly suffer marginalization and discrimination. They need stronger protection and a greater amount of measures compensating for their disadvantages. This need was expressed clearly by some of those concerned at a disabled students' conference in Hagen in November 1995.

A mobile centre for the promotion of the disabled may offer more adequate information and better supplementary counselling and thus meet the disabled students' expectations and possibilities to a much larger extent. It is of course indispensable that the disabled themselves and their self-help groups participate in the development of this concept.

In order to further compensate for disadvantages, existing services provided by the universities' central administrations which have been proven to contribute to study success should be further developed and tested for disabled students.

The necessity expressed by Peters already in the early years for the teaching and learning system to be tailored towards specific target groups and their interests points the way to the future development of distance-teaching universities. Developing innovative models and methods for studies for the disabled with individual and social phases taking into account the target group's expectations and requirements will become a permanent task. In order to realize university studies suited to disabled people under the conditions of our present-day society, we need information about the present, imagination concerning the possibilities and decisiveness when it comes to the practical realization. The plurality of the individual's life and living situation as well as his/her claim to autonomy must never be disregarded.

There can only be success if all those concerned - disabled people and students, teaching staff and administrators - collaborate. Success is imperative, since the quality of the educational offers in this area also indicates the extent to which freedom, individuality and responsibility can be realized in an "enlightened" society. Enlightenment in this sense also means striving for human autonomy and confidence in one's own reason and future.

The internationalization of distance study offers another chance for self-reflection and possible re-organization. Distance-teaching universities should concentrate their commitment and resources on their task of reforming studies in this area. The importance of distance study in reforming higher education is widely recognized. The flexible offers of education and training for the disabled available at large European distance-teaching universities, such as the Open University in the United Kingdom and the Dutch Open universiteit, present themselves as a basis for internationalizing higher distance education for the disabled. If distance-teaching universities wish to provide such offers, however, they must continue modularizing teaching elements both in graduate and continuing education programmes and continue structuring the study and examination system towards consecutive or vertically differentiated degrees. These activities will increase the efficiency of higher distance education and continuing education for the disabled, render contents easier to study, reduce drop-out rates and respectively increase success rates and shorten study times without cutting back on the performance required of university students. On the whole, a stronger integration of distance-study elements into the general education also seems to be indispensable to future development. Students shall be able to use distance and face-to-face modes alternatively. Qualifications acquired in distance education shall have the same status and recognition as

qualifications acquired at face-to-face universities. Distance study should be regarded as a complement to traditional higher education enabling students to meet the demands of the coming decades. (cf. Memorandum of the European Community 1991 § 96).

All in all, the approaches towards developing and improving higher distance education and continuing education for disabled students may be regarded as promising. The activities described in this study constitute a substantial contribution towards innovation with regard to studies for the disabled. Over the next years, this contribution will also come to have a stronger effect on face-to-face universities. In the future, both the readiness for continuous innovation and imagination with regard to didactics will be necessary. The right to education demands that suitable conditions be provided for disabled people at distance-teaching universities so that they may pursue education or training adequate to their talents and inclinations. This is in accordance with the claim to innovation put forward by the institutions and must be furthered. For a society is judged, amongst other things, by the way it treats its disabled members, which is also (and particularly) valid for the area of education.

There remains one other important task for distance-teaching universities - to disseminate information. This way, they can overcome the still existing reluctance towards distance study. At the same time, they can successfully combat the ignorance about the realistic possibilities offered to the disabled by distance study. The resources are available at the institutions. Distance-teaching universities may become better known and accepted if they represent their educational remit to provide opportunities for higher education and training to marginal groups of society, and if they do so openly, in a modern way and while explaining the historical development of distance study.

Amongst disabled students at face-to-face universities and at distance-teaching universities, distance study has gained a bonus of confidence. This bonus must be used and extended so that education and training may contribute to a new relationship between disabled and able-bodied people.

In working closely together with all concerned and by taking into account national and international knowledge, distance educators and institutions may achieve a broad range of creative proposals and new ideas for restructuring teaching and learning - restructuring it particularly with regard to the communicative and social importance that distance study in all its forms has for disabled people.

6 Final remarks

I. For individual disabled persons, distance learning can be an expedient and successful means of access to educational and vocational opportunities. However, participation in higher education distance learning raises many problems which must be solved in order that this form of learning can be opened up to disabled persons to the desired extent (cf. especially Hofmann/Ommerborn 1997: 33-42).

For disabled persons, education has a key function for the realization of individual prospects in life, because the acquisition of qualifications buys the "ticket" providing access to the main sector in life - "work" - and to other relevant sectors. Education comprises school education and vocational training as well as training for adolescents and young people in the context of life-long learning. Thus, education has an important role as regards the social integration of disabled persons, because it provides essential prerequisites for participation in important

sectors of life in post-modern society. Ensuring a basic right to education for disabled persons means that they must have access to higher education institutions and that study conditions must be improved. After all, "the state of being disabled in distance learning" must not become a "private matter" for the individual concerned. Last but not least, education and continuing education for disabled students enjoys such high importance because it is not merely a matter of "vocational survival" but, to some extent, also "personal survival". The individual's potential in terms of qualifications and knowledge which he or she is equipped with to master jobrelated tasks will be important. Social reality - including real-life conditions in occupational and private life - has changed so radically that reorientation is the order of the day. Accordingly, the distance learning system is compelled to seize and utilize every educational opportunity in order to guarantee the hoped-for learning success and subsequent acquisition of qualifications on the part of disabled students. Such an approach will uphold the interpretation of education as being a permanent, life-long process. Born of the consciousness of our times, increasingly bold endeavours are being undertaken to turn the individual's entitlement to education as laid down in the basic law into a right to education enabling disabled persons to be fully integrated into society.

II. Only twenty years ago it was the major exception for disabled pupils to pass the »Abitur« examination - not to mention to embark on higher education studies and to complete them. Today, distance teaching institutions represent a second chance for mature and disabled students. These persons wish to embark on a university-level course of study, but they often do not possess the traditionally required formal qualifications for access to higher education. Nonetheless, a steadily increasing number of disabled persons consider distance studies a second route, which, owing to their being disabled and their discouraging experience in the traditional higher education system, they regard as an alternative route towards participation in academic education (cf. Paist 1995: 61-70; Adam 1992: 105).

An example from Germany: the percentage of disabled students at German higher education institutions is 13 % (10 % chronically and 3 % disabled). In 1997, a total number of more than 50,000 of these men and women engaged in higher education studies felt that they were considerably or very disadvantaged. The ongoing education policy debate concerning the integration of minorities in our society clearly reveals that, in this respect, distance education must meet stringent requirements. In the ongoing debate by educationalists and sociologists concerning the inequality produced by post-modern society today, deliberations continue to focus on the problem of how to cope with inequality within specific societies - that is, the inequality between social classes and strata, the inequality between men and women, between disabled and healthy persons, between persons who have a workplace and those who have none, between foreigners working in host countries vis-à-vis the indigenous population etc.

Special assistance for disabled persons is required in the area of university education. Section 2, Subsection 5 of the Skeleton Agreement for Universities requires universities to make it their duty to take account of the special needs of disabled students. To improve their study opportunities, the German Union of Students has set up a central advisory service for disabled applicants and students which documents the possibilities for study available to disabled persons throughout the country and also provides information and advice. It is necessary to mention that open university programmes offer a great degree of self-determination with regard to the place of learning, learning aims and learning speed Therefore, they offer considerable advantages to disabled students.

"Disabled" and "non-disabled" students have equal access to assistance to promote study under the Federal Training Promotion Act. The Act embodies certain special provisions to compensate for deficiencies due to disability. Thus, disabled persons receive assistance benefits for the period by which a course of study is extended beyond the maximum term of assistance due to disability. The assistance exceeding the normal time because of disability is granted as a subsidy and not - as usual - as half loan.

III. In order to offset problems arising in a course of study as a result of personal handicaps, the distance learning system must identify and analyse appropriate measures and adjustments. Despite the fact that the distance education-institutions have been in existence for almost more than thirty years and despite their claim to cater to the disabled in their aims and structures, adequately substantial statements on these problems based on real-life conditions have so far been extremely concise. Distance study courses can very well be tailored to teaching and learning methods accessible to everyone, regardless of his or her handicap. But this means that the distance universities must acquire more extensive organizational and content-related competence for planning distance studies for the disabled.

Disabled students are entitled to solidarity and support so that they can find their niche in university life and are enabled to plan their study routine in accordance with their personal needs and goals. It is a prerequisite for the participation of disabled students in a scientific community that these students be given the opportunity to become integrated into study activities just like any other member of a university or other higher education institution. Only in this way living and study conditions for disabled students can be adjusted adequately. Focusing educational policy aims and planning in the social integration of disabled students and would-be students is born of - and indeed signalizes - a changed awareness and a broad recognition of the right of the disabled to become full members of society. This goal can be realized only if disabled students can rest assured that their entitlement to study-supportive services intended to compensate for specific needs will be honoured and if it is ensured that these needs will be met. Disabled students have rights. They are not recipients of well-meant charitable financial assistance for which they are expected to be grateful. The basic rights of disabled students and would-be students to equal participation in distance study programmes, too, has so far not been implemented to the desirable extent (cf. Ministerium für Arbeit, Gesundheit and Soziales 1993; Ommerborn 1995).

Disabled persons as a conceivable target group for distance learning institutions were, however, already included in the planning phase for this type of higher education institution. We know precious little about the prerequisites, modalities and possibilities of distance studies for disabled persons. It is also a controversial issue in the debate concerning the optimization of study opportunities for the disabled. There are those who consider this an "ideal solution" in view of the manifold impediments and difficulties encountered by disabled students in their daily study routine. Others consider that in this way disabled persons are segregated from participation in attendance studies and that this prevents the acquisition of experience through participation in study programmes together with non-disabled and disabled students. All distance-teaching institutions are therefore endeavouring to provide disabled students with study courses giving due consideration to students' different handicaps and their personal living environment. This applies to all groups of

distance teaching institutions, as described by Keegan (1993: 62-76) in his typology of distance teaching systems:

Distance teaching institutions

Autonomous institutions		**Mixed institutions**		
Group 1	Group 2	Group 3	Group 4	Group 5
Private and public correspondence schools and colleges	Distance-teaching universities or open universities	Independent study divisions of extension colleges of universities	The consultation model	Integrated model

(cf. Keegan 1993: 64)

In doing so, they can take account of the specific contexts or expectations of the disabled and, indeed, provide study programmes for this group via the particular teaching methods used. To this end, they orientate their efforts towards the general basis for the contemporary appreciation of education and continuing education in our advanced industrialized society. This is based on the inviolability of the dignity of Man as set out in the Basic Law and on the individual's basic right to education and training in the democratic state. This applies without restriction to the individual's status on the employment market, to age or sex.

The specific goal of such institutions as regards disabled members of our society is revealed in the following idealistic description of the overall situation in distance learning courses; the disabled adult embarks on a course of study corresponding to the specific needs, interests and requirements of his or her individual life situation. In doing so, the student continues to live within the confines of his or her particular social environment to a very great extent. The individual is not, however, governed by the autodidactic conditions of distance learning, but instead maintains contact from a distance with the distance study organization providing information, advice, tutoring and guidance.

However, partially deficient structures in higher education also point to the special importance of distance education for disabled status groups. For many disabled students at attendance-based higher education institutions, distance studies may represent a satisfactory complementary and basic variant of higher education studies, designed in particular to eliminate the major interruptions in the regular pattern of study in attendance-based study courses which are experienced by disabled students and by those who are chronically ill. Distance teaching represents an important variant, which offsets the disadvantages confronting the students targeted by attendance-based higher education institutions because it is a special form of education for disabled students in which "teachers and students work apart from each other - at a distance;

1. teachers and students do not communicate 'eyeball to eyeball' with each other;
2. letters (and other [...] material) are exchanged with the help of the mailing system;
3. the learning usually takes place in the homes of the students;
4. the teaching-learning process assumes the form of self-study, however guided by the teacher;
5. the teaching-learning process allows a degree of openness with regard to access, goals and methods;

6. the student does not cease to work for a living as it is a study alongside work." (Peters 1993: 16)

IV. From the pedagogical point of view, the state of being disabled is defined in the theory and practice of educating the disabled, which is concerned with the institutionalized educational support of adults: in pedagogical terms, the disabled are adults whose learning capacity and social integration raise such problems that this group requires special educational support. Fortunately, the state of being "disabled" today is an attribute which is controversial when applied to a human being. The very act of differentiating between "disabled" and "non-disabled" - that is, the attempt to segregate one group in society from the others, can be considered problematical in view of relevant past experience. The question is therefore whether the term "disabled" should perhaps be abandoned - and with it any attempt at classification at all. From the anthropological point of view, it can be established that the specific state of being a human being is indivisible: a human being is a human being. People are equal as regards their nature and dignity. Priority should be given to this attribute of sharing the human experience. People with or without definable handicaps are indistinguishable as regards the essence of their "humanness".

Integration - in the sense of the full participation in all branches of study on the part of disabled persons and those threatened by the possibility of becoming disabled - calls for orientation to the points of view, ideas and interests of disabled students themselves who are participating in distance study programmes, how they regard and interpret their lives, their real-life situation and the familiar barriers and obstacles to their personal development. Two aspects will acquire particular importance: "individualization" and "living an independent life". The processes of individualization, with the central criteria of independence and autonomy, represent greater opportunities but also greater risks for individuals as well as for the society as a whole. The act of liberating oneself from restrictive supervision and dependence on others and the opening-up of ever new options and opportunities in life are in stark contrast to the loss of security, personal safety and the continuity of life and, possibly, becoming assimilated into anonymous support systems. The term "independent living" is linked to a new concept of the relationship between the state of being disabled on the one hand, and society on the other - a society which itself generates handicaps in many sectors by practising many different forms of discrimination. Consequently, a new approach is required with regard to traditional work with disabled persons and relevant policy. In the lives of disabled people, and also in work with and for them, considerable changes occur sometimes which call for the abandonment of the traditional, deficit-oriented image of disabled persons as being a group liable to require early pensions and rights to representation and which call for a reorientation of measures and efforts relating to the disabled. At the same time, this entails a shift in thinking catering to the needs of disabled persons.

V. This review of relevant experiences gained in Germany and in other countries of the European Union would appear to indicate that the distance study model will, in the future, offer the open learning institutions scope for experiment which will enable consideration to be given to the demand for:

- the opening-up of this institutions to disabled students, and
- the opening adaptation of the higher education study system to the individual need of this heterogeneous group (cf. Ommerborn 1995; Hofmann/ Ommerborn 1997).

Teaching and learning employing distance teaching and distance learning methods are firmly anchored in the education systems of a number of countries. International experience enables us to become acquainted with completely different solutions to identical or similar problems arising in the participation of disabled students in distance education and of identifying singular, novel courses of action.

During the past twenty years, higher education institutions in the world have increasingly adopted distance education as a method of teaching and learning within the framework of studies for disabled students. This has been done either in the form of programmes offered in addition to the traditional forms of teaching and study at the university concerned or as its main activity.

In a more or less differentiated form, studies concerning the "disabled" target group within the framework of distance education (distance teaching and distance learning) have been carried out in Western European countries and in transatlantic countries. Comparative data relating to foreign distance-education institutions from the aspect of adjusting study systems to the respective need of disabled students provide a very accurate picture of the individual institutions. Of course, it must not be forgotten that these distance-education institutions vary considerably in nature. For example, important differences exist with regard to enrolment conditions, duration and quality of the study courses offered, the methods employed in the design of courses as well as the teaching methods and media employed. Numerous other specific differences are on the one hand due to the specific national education system and to the social, political and economic context in which the respective distance-education institutions function in the individual countries. On the other hand, these differences are partly also due to the specific organizational structures of the institutions concerned and to the goals envisaged. In the adaptation of foreign distance education systems to the study- and learning-related needs of disabled students, four levels can be distinguished (cf. Haffa/Kammerer 1987; Ommerborn 1995):

Level I	Adaptation to the individual case; no systematic addressing of the needs of the disabled
Level II	Adaptation to the individual case; systematic addressing of the needs of the disabled
Level III	Target group-specific, systematic development and implementation of organizational measures and aids
Level IV	Target group-specific study contents

Innovations designed to introduce a distance study system "better adapted" to the needs of the disabled are to be found in all foreign distance-education institutions. Most of these institutions also employ aids provided by the media or changes in the structure of teaching and study guidance in order to bring about enhanced individualization.

In most foreign distance-education institutions - though not in all countries - distance teaching is systematically employed for the education and training of the disabled in manifold ways. Disabled persons are not per se excluded from distance education as a specific form of study by virtue of their physical state or psychological situation. They are the targets of innovations. Depending on the respective distance education system, broad and narrow ranges of adaptive measures can be discerned. The nature of the handicap usually governs the intensity with which the disabled person's expectations, interests and problems are studied. The handicap determines the type of organizational and study-content related adaptation. The German situation can be compared with the situation in other European and non-European countries: distance education is considered an excellent opportunity for meeting the education requirements and preferences expressed by disabled people.

VI. The distance education system calls for individualization targeted to the consideration of the life situation of each disabled person as well as to the peculiarities of the organization of teaching under the distance education system. The development of distance education calls for flexible and adaptable elements in the organization of teaching so that the advantages of the system for each disabled student (flexible duration of studies, determination of the volume of study work by the student, opportunity for participation in study programmes despite the geographical distance between teacher and student) can come into full play.

At any rate, the current development of distance education is to be interpreted as a dynamic process executed within constantly shifting frontiers. The forms in which this development is taking place are flexible and subject to change to an unusual degree. Many of the known disadvantages can be compensated for by the introduction of combined study forms and by selecting appropriate media suitable for bridging the geographical distance between teacher and student. For the furure, it will be important that the distance teaching systems increasingly introduce innovations in order to provide study courses geared to the requirements of disabled participants and that they provide supportive measures with regard to the organization of teaching. In this connection, individualization inevitably aims at consideration of the specific situation of the disabled as well as at the specific characteristics of teaching and methods as applied in distance education:

- Assistance in the individualization of the study process.
- Due consideration of the social needs of disabled students.

The advantages of distance education are obvious. Disabled students state that the major reasons for their embarking on distance education are the flexible duration of studies and the student's ability to determine the volume of study work, as well as the possibilities for engaging in distance studies while pursuing a gainful occupation and for studying at home. In the development and introduction of appropriate innovative measures and adaptions designed to compensate for difficulties encountered by disabled students owing to their particular handicap, the distance education system must take into account the following facts: specific groups of disabled persons (the physically disabled, the blind and others with impaired vision, the deaf and those with impaired hearing) have a special need for support during their participation in distance education. The general public - and also "those directly concerned" - have a very high opinion of the distance-education institutions, although from the point of view of higher education teaching it must be stated that to date disabled

students have by no means exploited the full range of opportunities for study open to them. As regards distance-education institutions, the following results have been found and should be considered for further developments in this field (cf. Ommerborn 1995):

- To date, only very few individuals with impaired hearing have applied for participation in distance education. These individuals have found it difficult to cope with the system for organizational and contents-related reasons. In view of the manifold need for help and support in this sector, it must be considered that the problems occurring at distance-education institutions largely still have not been satisfactorily solved. The aids identified so far for the impartment of teaching contents and for ensuring that they are properly taught and assimilated can represent one way of providing support especially for distance students with impaired hearing.

- In view of the increasing popularity of distance education with students with impaired vision, it is imperative that complete study courses be set up for this group of students and that open universities create a pool of aids in their different institutions with a view to equipping workstations for blind students and those with impaired vision. Furthermore, such institutions must continue to be flexible - as it has been in the past - in meeting the requirements of the individual disabled and with regard to credentialling and regulations governing written supervised examinations.

- First and foremost, physically disabled students at such institutions demand that the planning of structural elements at their place of study be geared to their specific needs. The existing barriers and obstacles which hamper the daily living and study routine for disabled students are to be removed. Additional facilities specifically for disabled students (for example ramps) and structural alterations (special toilets, lifts) are required not only in the headquarters of the distance-education institutions, but particularly also in the study centres referred to.

VII. The potential offered by the new (old) media as regards information, guidance and study programmes for the disabled has not yet been fully tapped. In this connection, the introduction of new ideas, new methods and forms of organization is to be regarded not as a mechanical process, but as an evolutionary process.

In the development of new study courses as well as in the planning of the contents of existing courses, greater consideration is to be given to the opportunities and innovation potential for improving study courses for disabled participants in distance education through which the teaching of knowledge can be provided with increased emphasis on approaches based on communication and dialogue. This may lead to the opening-up of a greater number of study courses for disabled would-be students than have been available in the past. In view of the ongoing radical technological change, the employment of the "new media" as well as of various other "opportunities for adaptation" depends increasingly on the extent to which decision-makers in distance education are successful in using the avenues available to them for optimizing teaching activities. But disabled participants, being "media students", must also acquire skills which enable them to get to grips expertly and confidently with the manifold new media at their disposal. Traditional teaching approaches can be further developed, tested and revised, incorporating the adjustments to the specific needs of the disabled as described above. The findings of relevant research carried out concerning the state-of-the-art and envisaged goals of the application of new information and

communications technologies will, in the future, constitute valuable aids in the organization of the academic teaching tradition within the framework of distance education for disabled students.

The importance of the media for disabled students in view of the state-of-the-art of teaching in distance education is undisputed. The impact of the media is now so far-reaching that, particularly with regard to developments over the past few years, the term "innovation boom" is appropriate. Since the standard medium used continues to be study material in the form of print media prepared on the basis of the requirements of learning psychology, the media can become increasingly important by virtue of their function, which is that of relieving isolation by establishing contacts and communication. Of course, we should not allow ourselves to fall into a state of euphoria about the concepts with regard to teaching approaches and the use of the media in instruction. They do not represent the royal road or the sole possibility whereby a solution to the problems involved in distance education geared to the needs of disabled students would, as it were, naturally present itself (cf. Peters 1983: 3-8; Ommerborn 1997).

Special technology for disabled students will change the nature of the distance learning experience: technological developments in this field need to be preceded and accompanied by research and evaluation to monitor carefully not only the learning process of disabled students, but also the costs and organizational implications (cf. Bates 1993: 190).

In the future, the tasks for the many distance-education institutions in the world - namely to instruct disabled would-be students by providing information and guidance on the range of study programmes available and offering decision-making aids geared to each individual student - should be fulfilled in such a way that each individual is enabled to plan his or her studies in harmony with his or her personality, personal situation in life and future professional requirements. Such a goal can be attained more rapidly via the employment of a system of media-supported educational guidance tailored to the requirements of the distance education system. Here, priority is given to the area of the further development and utilization of utterly different audiovisual and electronic media. These must always be regarded as complementary resources and as a preparation for personal guidance: they draw attention to the opportunities for face-to-face guidance provided at decentralized institutions maintained by the open universities and located closer to the individual student's place of residence.

VIII. The models developed during the planning phase concerning the setting-up of study centres give only elementary consideration to the criteria to be observed in addressing the needs of new target groups participating in distance education. Despite the relative open-endedness of the decisions at the time of planning, only very modest efforts have been made to realize the innovation potential for increased consideration of the specific needs of disabled students by introducing clear-cut measures.

The present situation ascertained during the relevant study available on the possibilities for students in wheelchairs to participate in study programmes at all the study centres maintained by the distance universities furnishes initial indications with regard to improvements and modernization. In order to ensure that these opportunities are enforced and guaranteed, work with, and for, disabled students must become one of the priority goals at the distance universities. From the aspect of academic staff, the realization of this goal involves the organization of subject-related seminars for men and women of the institutions' staff (tutors, academic counsellors etc.), in order to familiarize them with the institutional framework of the open universities. It would thus be possible to gradually introduce and establish those conditions which would enable a systematic approach to be adopted in

addressing the needs and interests, provision of counselling and support for disabled students and would-be students. It would be a welcome development if full-time staff were to be entrusted with providing information, counselling and support for specific target groups. In addition to this, the institution of a cross-sectoral "committee for students in specific study situations" - which, nonetheless, would be firmly integrated in the university departments - could be set up. A centre for supporting the needs of students in specific study situations could represent the point of departure for setting up and developing a first mobile study centre at distance universities. The following reasons would advocate the further development and expansion of such a centre: the provision of support from examination offices which would assist severely disabled students sitting for examinations "on the spot"; support provided by the representatives of the fields of study taught at this institution; support from a Division of Academic Counselling/Study Centres and performance of the task of offering the students a detailed concept geared to individual requirements and subsequently establishing the details of this concept within their personal study programme in a binding manner.

With a view to optimizing the prerequisites for participation in studies at distance universities, the centre promoting studies for disabled students would be obliged, working in conjunction with the officer in charge of disabled students issues, to incorporate the individual concerns, needs and interests of disabled study applicants and students in the academic bodies as well as in the university administration and the student welfare service. A mobile centre for the promotion of studies for the disabled should fulfil the following functions: general academic counselling provided by travelling tutors; the provision of qualified counselling via existing study centres; the central provision of sign- language interpreters; participation in the production and distribution of counselling and teaching media geared to the requirements of disabled students; the drafting, implementation and evaluation of orientation phases; guaranteed compensation measures (cf. Paist 1995: 61-70; Ommerborn 1995).

A model of a mobile centre for the promotion of studies could provide disabled students with better information and improved additional support which would cater better to their individual expectations and opportunities. It is imperative that disabled students and self-help groups participate in the elaboration of the concept for the implementation of the measures designed to help them.

IX. The reform of distance education for the disabled renders it imperative that a radical renewal of teaching aids and structures be incorporated. Among other things, it is necessary that all European Distance Universities participate in future within the framework of the Europeanization of distance education activities in the action programmes launched by the European Communities for the benefit of the disabled. Via European cooperation on the part of the distance-teaching universities, it will be possible to meet the information and counselling requirements of disabled students, using a computer-aided information and documentation system. The list of measures under this programme will attach particular importance to the role of new technologies with regard to the integration of the disabled. It is a fact that the distance education system is particularly appropriate for meeting the educational needs of many disabled persons. New programmes can help to ensure that many disabled persons are given the opportunity to acquire new academic qualifications, to participate in further education programmes not seized in the past. , to prepare themselves for

aspects of life such as gainful employment, everyday life as well as various educational deficits or make up for opportunities

Higher education in the "European dimension" is not a new idea: the history, traditions and self-image of universities reveal that, from the very beginning, these seats of learning have catered not merely to European educational requirements, but have always been international in outlook and scope. Nonetheless, it is imperative that, parallel to the gradual coalescence of the European Union, the universities permit this European dimension to become fully incorporated into distance education for the disabled. There is still a considerable amount of uncertainty and difference of opinion with regard to the establishment in detail of the new challenges involved - the Europeanization of distance education.

In the course of the coalescence of the European Union, European structures - including structures in the area of distance studies and distance education research - should continue to grow together in order to constitute a pan-European distance education environment. These ambitious goals cannot be achieved overnight. Distance education can represent an innovative part of the education and training of those concerned in a Europe which is progressing towards unity. Distance education is a declared goal of the European Union. The "opening-up of boundaries" via distance studies is aspired to - not merely for economic reasons. On the contrary, it is one of many steps to be taken towards establishing a Europe of the citizens - a step in the direction of the European citizen, with a view to establishing a European Union which intends to be more than a Europe of merchants. The new single market in Europe does indeed mean more than merely the free movement of goods: every citizen may live, learn and work in any of the Member States - this constitutes the right to mobility. In the Treaty on European Union (Article 126 c) it is expressly stated that the Community shall contribute to the development of quality education by encouraging cooperation between Member States and by supporting and supplementing the activities of the Member States for the content of teaching and the organization of education systems and their cultural and linguistic diversity. The "promotion of the development of distance teaching" is stressed particularly as being one of the goals of the Community's activities.

One of the measures to be taken in order to establish "mobility in Europe" is the establishment - under Article 57 of the EEC Treaty - of directives for the mutual recognition of diplomas, certificates and other evidence of formal qualifications. This is to ensure that the different regulations existing in the EU Member States governing the taking up of professional work shall either be standardized or existing national training programmes shall be mutually recognized. There is a specific need for harmonizing regulations with regard to the crediting and recognition of study periods. Another open issue is the recognition of study periods completed in all countries of the EU - in other words the problem of whether studies completed in other countries can be accepted towards an examination to be taken in other countries. Until now, no firm rules have been established. This makes it more difficult to provide counselling and to plan study curricula for individually disabled or chronically ill students. For the Europe of the future it will be imperative that, as far as university-level distance education is concerned, study credits earned in one Member State meet with unqualified recognition in another Member State. This task virtually calls for an attempt at "squaring the circle": it is an impossible task. The study regulations and study systems prevailing in all the Member States are so complex and, at the same time, different that this task will take some time: different study requirements, study-related degrees of difficulty and levels as well as heterogeneous examination regulations preclude any attempt at complete standardization for the time being. The idea that a disabled participant in distance education may study at a number of different European distance-education institutions, earning his or her credits in the process in order

to sit for the examination of his or her choice at one of the distance-education institutions or traditional institutions of higher education on the conclusion of the study programme is probably utopian.

X. As an academic institution which rounds off the existing higher education system in order to cater to the new requirements regarding training and continuing education in the postmodern society for heterogeneous target groups, the distance education systems should, more than in the past, be receptive to new tasks confronting education, produce a wealth of new ideas on the subject of study reform and develop a corresponding willingness to experiment in fulfilling the tasks described.

"The European integration is one of the most important political tasks of our generation. So, it is an honour for us to be part of this process and to play an active role in it. Universities have very often taken the initiative for changes and boundary crossings. We have the privilege and duty to teach. So, we are obliged to form an integral model within an integrated Europe" (Wiendieck 1997: 15). There remains an additional major task for the systems, which is campaigning for the cause of and providing information on distance education. In this way, it will be possible to counter the reserve, which, to some extent, still exists vis-à-vis distance education. It will likewise be possible to compensate for the ignorance of people in all walks of life concerning the realistic opportunities for study courses for the disabled. The staff and media required to this end are available at the distance educations systems. The system itself now benefits from the added trust placed in it by disabled participants in distance education, which must be exploited, developed and fostered so that education and training can help to create a new relationship between the disabled and the so called "non-disabled". In cooperation with those concerned and with due incorporation of findings to date, it will be possible to create a broad range of creative proposals and fresh ideas concerning the restructuring of teaching and learning - and this particularly in view of the importance of distance education from the communicative and social aspects by virtue of its basic form and its role with regard to the further education of the disabled. The current teaching/learning paradigm is one where the faculties are expected to work very hard (preparing for class and lecturing), while the disabled or chronically ill students sit back and listen. We want to reserve that dynamic (cf. Wilson 1997: 261).

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