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Web-basiertes Lernen: Konzepte, Praxisbeispiele und Tendenzen. Europäischer Erfahrungsaustausch in der beruflichen Bildung von Behinderten

Dokumentation eines
Workshops – 24.4.2002,
Institut Arbeit und Technik
im Rahmen der Projekte
ÖFTA, EURO H und REHA-INPROD

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Dokumentation eines Workshops - 24.4.2002, Institut Arbeit und Technik - im Rahmen der Projekte ÖFTA, EURO H und REHA-INPROD

Web-based learning: Concepts, Practical Examples and Tendencies. European Exchange of Experiences on Vocational Training for People with Disabilities

Documentation of a workshop – 24th April, 2002, Institut Arbeit und Technik – in the framework of the projects ÖFTA, EURO H and REHA-INPROD

Zusammenfassung

Die Entwicklung von netzbasierten/web-basierten Lernprogrammen und ihre Anwendung stehen in vielen Bereichen noch am Anfang. In diesem Kontext wurde in dem Workshop dem Konzept der innovationsorientierten Technikbewertung auf Basis der „Letzten Runde“ von Entwicklungen und Erprobungen nachgegangen. Die bisherige Entwicklung hat gezeigt, wie wichtig die sozialen Beziehungen und Interaktionen der Lernenden untereinander und zu den Lehrenden im Rahmen web-basierter Lernprogramme sind. Im Workshop wurde die Frage erörtert, wie sich diese durch das Netz unterstützen lassen, insbesondere dann, wenn es sich bei den Lernenden um Menschen mit körperlichen Behinderungen handelt. Es wurden Konzepte, Praxisbeispiele und Tendenzen des web-basierten Fernlernens mit Behinderten im Rahmen ihrer beruflichen Bildung und sozialen Integration vorgestellt.

In dieser Publikation werden die Beiträge des Workshops dokumentiert. Neben der Präsentation der Projekte ÖFTA, EURO H und REHA-INPROD und einige ihrer Ergebnisse enthält der Band Berichte von Experten zu web-basiertem Fernlernen und der Qualifizierung von Behinderten in Europa. Außerdem werden Highlights der Diskussionen in den beiden Arbeitsgruppen zu den Themen „Web-basiertes Lernen“ und „Fernlernen für Behinderte“ wiedergegeben.

Abstract

Network-based learning, especially web-based learning, is still an emerging application in many areas. In this context, innovation-oriented-assessment of technology was discussed in the workshop in relation to current developments and projects. Experience has shown the importance of social relationships and interactions between learners and between learners and trainers in web-based learning settings.

The question "how these relationships can be supported by a network", particularly if the learners are physically disabled, was the main focus of the discussion in the workshop. Concepts, practice and tendencies of web-based learning in vocational training for the disabled were presented.

The publication contains the presentation of the projects ÖFTA, EURO H und REHA-INPROD and some of their results, contributions of experts in the fields of web-based distance learning and on the qualification of people with disabilities in Europe. Also, the discussion of the two Workgroups on „Web-based Learning“ and „Distance learning for the Disabled“ is recorded here.

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Katharina Drechsler
Universität Bielefeld

ÖFTA- Öffentliche Diskurse über neue Technologien Öffentlichkeit und Technikfolgenabschätzung

1 Projektziel

Wissenschaft und Technik werden in der modernen Gesellschaft als notwendige und unverzichtbare Instrumente sozialen Fortschritts gesehen. Sie geraten aber zugleich unter wachsenden Legitimationsdruck. Sie müssen sich einer kritischen Öffentlichkeit gegenüber verantworten, auf deren Erwartungen reagieren und mit dafür geeigneten Formen der prozessualen Begleitung sowie dialogischen Verfahren reagieren.

Die Aufgabe des Arbeitskreises Technikfolgenabschätzung und –bewertung des Landes NRW (AKTAB) besteht darin, Technikfolgenforschung und –beratung im Land in einer Kooperation aller einschlägigen universitären und außeruniversitären Einrichtungen zu institutionalisieren. Während in den vergangenen Jahren umfangreiche Forschungsprojekte im Vordergrund standen, zu denen sich verschiedene AKTAB-Mitglieder zusammenschlossen, wird nun versucht, landesweit Themen der Technikfolgenabschätzung und –bewertung in die öffentliche Diskussion zu bringen bzw. diese Diskussion mit wissenschaftlicher Kompetenz zu unterstützen. Die Verständigung zwischen Wissenschaft, Technik und Öffentlichkeit soll gefördert werden.

Dazu hat der AKTAB das Projekt „ÖFTA – Öffentliche Diskurse über neue Technologien – Öffentlichkeit und Technikfolgenabschätzung“ initiiert. Das Projekt ÖFTA wird finanziert vom Ministerium für Schule, Wissenschaft und Forschung des Landes NRW.

2 Projektinstrumente und Projektstruktur

Auf der lokalen Ebene werden Diskussionsforen genutzt, um den Dialog mit der Öffentlichkeit zu fördern. Materialien aus den Projekten werden für die Öffentlichkeit aufbereitet und zur Verfügung gestellt. Neben den Printmedien steht hierfür das Internet (ÖFTA-Net) als ein weiteres Instrument der Öffentlichkeitsarbeit zur Verfügung. Öffentlichkeitsarbeit auf lokaler, als auch auf (inter-)national Ebene, wird in Form von Workshops und Veranstaltungen durchgeführt.

Das Projekt ÖFTA – Öffentlichkeit und Technikfolgenabschätzung setzt sich jeweils mit einem Thema, das eine Laufzeit von zwei bis drei Jahren hat, auseinander. Das Forschungsthema wird dezentral, also auf der lokalen Ebene bei den beteiligten Projekt-

partnern vertieft. Hier werden die Projektinstrumente für eine intensive Öffentlichkeitsarbeit genutzt und regional eingepasste Verfahren des öffentlichen Dialogs gesucht.

Die dezentrale Struktur der beteiligten Projekte eröffnet hierbei vielfältige Kooperationsformen. So werden Materialien für Multiplikatoren durch die Kooperationen entwickelt.

Die Koordination der beteiligten Projekte erfolgt zentral über eine Geschäftsstelle.

3 Forschungsthema

Das erste gemeinsame Thema des Forschungsverbundes „ÖFTA“ lautet **„Folgen neuer internetgestützter Bildungstechnologien“**. Die Folgen, Chancen, Risiken und die Gestaltungsmöglichkeiten der „neuen Bildungstechnologien“ sollen verdeutlicht werden.

Es geht dabei um zwei Analyseebenen:

- Der institutionelle Bereich, in dem der technologische Druck auf den Wandel der Bildungseinrichtungen im Zentrum steht.
- Die akteurs- und interaktionsbezogene Ebene, auf der es um neue kognitive Stile, Lernroutinen und Kompetenzen geht.

4 Forschungsverbund ÖFTA

An dem Projektverbund beteiligen sich insgesamt acht Einrichtungen: das Zentrum für Umweltforschung der Westfälischen Wilhelms-Universität Münster, das TaT, Transferzentrum für angepasste Technologien GmbH in Rheine, das Institut Mensch, Arbeit und Technik in Aachen, die Universität Bielefeld, das Institut für Wissenschafts- und Technikforschung, die Fernuniversität Hagen, das Sekretariat für Zukunftsforschung in Gelsenkirchen, das Institut Arbeit und Technik im Wissenschaftszentrum NRW, und der Forschungsverbund Dortmund mit der Sozialforschungsstelle, das Landesinstitut und die Universität Dortmund.

5 Forschungsschwerpunkte

Zukunftswissen als internetgestütztes Bildungs- und Informationsangebot SFZ – Sekretariat für Zukunftsforschung in Gelsenkirchen

Das Sekretariat für Zukunftsforschung in Gelsenkirchen, legt seinen inhaltlichen Schwerpunkt auf die internetgestützten Bildungsangebote. Insbesondere soll den Fragen nachgegangen werden:

a) Welche internetbasierten Bildungs- und Informationsangebote zu Zukunftswissen existieren international (mit dem Fokus auf die Europäische Union)?
b) Welche Zielgruppen können mit derartigen Bildungs- und Informationsangeboten erreicht werden?
c) Welche Angebote ziehen besonderes Interesse auf sich?
d) Wie können die spezifischen Vorteile der neuen internetgestützten und multimedialen Bildungstechnologien dafür genutzt werden?
e) Wie verändert sich das Bild der Zukunft bei dem Nutzer durch dieses bereitgestellten Angebote?

Lernort Universität – Umbruch durch Internationalisierung und Multimedia Fernuniversität Hagen

Ebenfalls auf neue Formen der Bildung konzentriert sich die Fernuniversität Hagen. Dort analysiert man die Globalisierungseffekte online-gestützter Weiterbildung. Zentrale Fragen und Themen dieses Projektes sind die folgenden:

a) Wie verändern sich die Rollen von Lehrenden und Lernenden durch den Einsatz multimedialer Lehre?
b) Welche Bedeutung haben die politischen Maßnahmen der Liberalisierung und der Internationalisierung des Bildungsmarktes?
c) Wie verändert sich der Lernort Universität durch das Zusammenspiel von Multimedia und Internationalisierung?
d) Welche Konsequenzen ergeben sich daraus für den Bildungsstandort Hagen/Iserlohn?

Digitale Bibliotheken
Universität Bielefeld, Institut für Wissenschafts- und Technikforschung

Die Universität Bielefeld richtet ihr Augenmerk besonders auf die Thematik digitaler Bibliotheken und deren Wirkung für die Modernisierung des Bildungswesens. Insbe-

sondere sollen anbieter- und nutzerspezifische Folgen der Modernisierung des Bildungswesens durch digitale Bibliotheken erforscht werden.

Zum einen wird auf der nutzerspezifischen Ebene den Fragen zur Informationskompetenz nachgegangen: welche Fertigkeiten und Kompetenzen werden für den Umgang mit den neuen Medien benötigt, welchen Nutzungsgrad haben diese Informationen und die Kommunikation von Informationen?

Zum anderen spielen auf der anbieterspezifischen Ebene Fragen zum Stellenwert und der Qualität von Informationen eine Rolle. Intermediäre Institutionen, allen voran das Verlagswesen, unterliegen einem Strukturwandel; die klassischen „papierenen" Formate (Buch, Zeitschrift) werden zunehmend durch neue ersetzt. Wandelt sich, so die Frage, der „homo libri" zu einem „Homo multimediorum"?

Internetchat als Wissenstransfer – Zentrum für Umweltforschung an der Westfälischen Wilhelms-Universität Münster

Das Zentrum für Umweltforschung der Westfälischen Wilhelms-Universität Münster setzt sich mit der Möglichkeit des Mediums Internet bei der Vermittlung umwelt- und technikrelevanten Wissens auseinander. Aufgrund der Strukturen der neuen Medien kann in Chat-Rooms oder Kommunikationsforen ein virtueller Raum erzeugt werden, in dem sich Expertenwissen und die Laienperspektive der Betroffenen in Hinblick auf umweltrelevante Themenbereiche wie Klima oder Verkehr weniger hierarchisch gegenübertreten, als das üblicherweise der Fall ist. Das Projekt versteht sich in diesem Zusammenhang als ein Beitrag zur Grundlagenforschung im Bereich der Umwelt- und Kommunikationssoziologie.

Die zentralen Fragen des Projektes sind:

a) Ist das Medium Internet geeignet für den Wissenstransfer von umwelt- und technikrelevantem Wissen?
b) Wie sieht die Nutzung des bereitgestellten Wissens aus?

Interkultur-Internetkultur-Leitkultur
TAT – Transferzentrum für angepasste Technologien in Rheine

Das TaT Transferzentrum für angepasste Technologien in Rheine konzentriert sich dagegen auf Fragestellungen, die für kleine und mittlere Unternehmen wichtig sind, wenn sie sich auf internationale Märkte begeben.

Das TAT analysiert:

a) Wie sich die Qualifizierung in den Betrieben ändert / ändern muss,
b) welche neuen Bedingungen in den Betrieben, welche Anforderungen an die Mitarbeiterinnen und Mitarbeiter sich ergeben,
c) welche Besonderheiten Betriebe beachten sollten, die sich auf internationale Märkte begeben.

IT-basierte Lernprogramme
IAT – Institut Arbeit und Technik

Die betriebliche Ebene ist auch für das Institut für Arbeit und Technik im Wissenschaftszentrum NRW von Interesse. Dort setzt man sich mit dem Qualifizierungswissen durch E-Learning und Web-basiertem Lernen in Betrieben auseinander. Methoden, Akzeptanz, Qualität, Effektivität und Wirtschaftlichkeit sollen in diesem Rahmen untersucht werden. Erfahrungen aus vorangegangenen Projekten möchte das IAT dazu nutzen, sich an der Gestaltung von zukünftigen Lernprozessen zu beteiligen. Die Auswahl und Bewertung von Lernsoftware spielt hier eine zentrale Rolle.

In Kooperation mit der Firma SOKOM Internetprojekte Köln organisiert das IAT drei Workshops zu den Themen „Web-basiertes Lernen in der beruflichen Bildung“, „Auswahl und Bewertung von IT-basierten Lernprogrammen für den Einsatz im Betrieb“ und „Neue Lernbeziehungen durch Internet- und Multimedia-basierte Lernmethoden – Erfahrungsaustausch mit anderen Europäischen Ländern“.

Interaktive Kompetenzforen – Lernen von Experten
MA&T Mensch, Arbeit und Technik Sell&Partner GmbH, Aachen

Für das Institut Mensch, Arbeit und Technik Aachen, bildet die Auseinandersetzung mit beruflichen Grundlagenkonzepten und deren Förderung über Lernsoftware und Kompetenzforen die Leitperspektive.

Ziel des Projektes „Interaktive Kompetenzforen – Lernen von Experten“ ist der Aufbau eines Kompetenzforums zum Thema „Telekooperation in kleinen und mittelständischen Ingenieurbüros“, dessen Auswertung und Verbesserung sowie die Auswertung des Transferpotentials auf andere Themengebiete.

Die zentralen Punkte des Projektes sind daher:

a) Vor- und Nachteile der multimedialen IUK Technologien für Kooperationen in kleinen und mittelländischen Ingenieurbüros.

b) Nutzung der Internettechnologien und die Veränderungen des Wissens- und Kompetenzerwerbs.

ÖFTA DO-IT und Weiterbildung in der E-City Dortmund
SFS- Sozialforschungsstelle Dortmund und die Universität Dortmund

Im Forschungsverbund Dortmund steht die Entwicklung Dortmunds zu einem Prototyp einer E-City, einer „electronic city“, und deren Auswirkungen auf die Weiterbildungslandschaft im Vordergrund. Der sich abzeichnende Transformationsprozess der Stadt Dortmund soll dokumentiert und kritisch begleitet werden. Im Mittelpunkt stehen die durch neue Weiterbildungseinrichtungen vermittelten und von Unternehmen geforderten Qualifikationen von Auszubildenden, Studierenden und Arbeitnehmern.
Der Folgenbewältigung von politisch initiierten wirtschaftlichen Innovationen hinsichtlich Weiterbildung und Kompetenzentwicklung, wird nachgegangen.

6 Ausblicke

Das Projekt ÖFTA mit seinem Thema „Folgen neuer internetgestützter Bildungstechnologien“ soll einen Einblick in die Bedeutung digitaler Technologien in allen Bereichen des Lehrens und Lernens vermitteln.

Die *Folgen* neuer Bildungstechnologien und die Fragen: „Was kann Technikfolgenabschätzung?“ und „Wozu kann die Öffentlichkeit Technikfolgenabschätzung nutzen?“ soll somit ins Blickfeld der öffentlichen Aufmerksamkeit rücken.

Auf verschiedenen Feldern werden institutionelle und individuelle Folgen der neuen Technologien erforscht und die Ergebnisse dieser Forschung mit der Öffentlichkeit diskutiert. Ziel dieser Dialoge ist es, in der öffentlichen Auseinandersetzung auch Handlungsoptionen und Gestaltungsmöglichkeiten zu erarbeiten.

Weitere Informationen zum Projekt ÖFTA finden Sie auf den Internetseiten unter: http://www.oefta.net

Catalina Nastase, Ioan Piturescu
National Council of Small and Medium sized Privat Enterprises in Romania

REHA-INPROD

Rehabilitation of Adults with Special Needs and Their (Re-) Integration in the Productive Work

People with special needs have the potential to become a strong force in the global economy, but they are severely handicapped in terms of business and technical skills, as well as in relation to access to resources and crucial business information. They need something or somebody to raise their awareness about their real opportunities. Internal barriers for their integration exist, too: persons with special needs are often afraid to take risks, they are caught up in the inner conflict between their role as adults capable to work and integrate themselves on the labour market on the one hand and as persons with special needs on the other. It is difficult to have a special need, while aggressively pursuing social opportunities. They feel lonely in a society full of prejudices, and with limited opportunities to integrate themselves on the labour market in good positions. They are hesitant to reject conditions. They face difficulties in co-operation.

The Objective of the Project:

The project is based on the cooperation between institutions from different countries, active in improving the chances for persons with special needs, concretely for people without hands, to integrate themselves on the labour market. The project works on devices to enable people without hands to use computers.

Activities:

Over a 2-year period, the following activities will be developed:

1. **In the first year**: meetings and seminars will be organised in the participating countries, in order to work out solutions for the integration of people with special needs and to study which devices are available to aid integration.
2. **In the second year:** a guide of good practice on technical protheses will be developed and a device to help handless people to work with computers.

At the end of the project guidelines for “a Workshop on Equal Opportunities” will be produced and disseminatd both in print and over the net.

Partners:

NATIONAL COUNCIL OF SMALL AND MEDIUM SIZED PRIVATE ENTERPRISES OF ROMANIA - C.N.I.P.M.M.R - ROMANIA - PROMOTEUR
VEB CONSULT S.r.l.- ITALY
INSTITUT ARBEIT UND TECHNIK (INSTITUTE FOR WORK AND TECHNOLOGY - IAT) - GERMANY
ASSOCIATION DIA-SPORT - BULGARIA

The end products of the project will be

- a device for facilitating the access of handless people to the PC and hence to the labour market
- guidelines of good practice on the use of the technical protheses and on methods used for training. These are made available to other institutions and other countries in all languages of the participating countries.

Dissemination

The dissemination of the results will take place in all participating countries. This will be the main responsibility of the project coordinator, the National Council of Small and Medium Sized Private Enterprises, but it will be supported by all the members of the partnership.

CNIPMMR will organize a training course for the target sector: persons with special needs on the labour market, equal opportunities for persons with special needs on the labour market, based on the experience in the project and previous practice.

Also, the participant partners will render practical assistance to people with special necessities. This is one important way to disseminate the knowledge and information achieved in the project.

The relevant information and results of the project will be also disseminated through the media, such as TV-broadcasts on social and economical subjects, articles in magazines (especially in educational and social magazines) and newspapers.

In June 2002, CNIPMMR will organize a press conference which will bring together all the Romanian partners and if possible, representatives of the foreign partners.

The results of the project will be also published on our Web page to be consulted by anyone interested.

Ileana Hamburg,
Institut Arbeit und Technik, Gelsenkirchen.
Bucur B. Ionescu, †
National School of Political Studies and Public Administration, Bucharest, Romania

EURO H – a European Project on Training for Young Disabled People

In many European countries the employment rate of disabled people is considerably lower (20 to 30%) than in the rest of the population. Analysis indicates that most people with disabilities of working age in Europe are out of the labor market altogether and heavily dependent on disability benefits. It has been pointed out, that many people with disabilities have only a basic level of education and are, therefore, often employed in low-skilled and low-paid jobs.

The access to qualification programs based on new information technologies can improve considerably the acquisition of qualification needed for their integration in important sectors of work and life in society. Particularly, open distance Learning which is supported by multimedia and Internet offers real opportunities to overcome certain handicaps of disabled people by facilitating access to new services, new knowledge and new forms of work like tele-working, and by breaking the isolation that disabled people feel in life and Learning through their integration into a virtual Learning community and by restoring a social identity for them through giving them access to work or helping them to maintain a job by improved qualification

Research results show that young people with different impairments (vision, hearing or mobility disadvantages) have only rarely access to the classical higher education system. Vocational training is a real opportunity for these people.

As a possible solution for this important problem, Romania initiated a project named "Vocational training by ODL for young people with a locomotory disadvantage" (short title - EURO H) since 2000. This project is financed by the European Union.

The partners of the project are:

- National School of Political Studies and Public Administration, Bucharest, Romania,
- a non-profit organization - Fundatia H, Bucharest, Romania, - specialized in education and training for children and adults with disabilities,
- a quality promotion foundation RFQP, Bucharest, Romania,
- a SME specialized in information technology and vocational training - New Systems S.A., Bucharest, Romania,
- a large old university - the University of Glasgow, Scotland,
- a new university - Szechenyi Istvan University Györ, Hungary,

- the IAT, Wissenschaftszentrum NRW, Gelsenkirchen, Germany.

Although the project refers mainly to people with mobility impairments, the category of people with vision and hearing disadvantages occupy a special place within the project.

The main objectives of EURO H are:

- to improve skills and competencies of young people with disabilities in some disciplines,
- to improve the quality of, and access to, continuing vocational training for young people with mobility impairments from Europe by using ODL,
- to promote and reinforce the contribution of vocational training to the process of innovation.

The work within the project will bring benefits to both society as a whole and young people with mobility impairments.

Benefits to the society include the following:

- encouragement to use the creativity and skills of a wider section of the population,
- contribution to meet the skill gaps faced by employers by providing wider pools to choose from,
- increasing productivity,
- reducing the social, psychological and financial costs of dependency.

It will benefit young people with mobility impairments by increasing the range of opportunities open to them and helping them to become (financially) self-supporting and to make a positive contribution in society. This is very important socially and psychologically, in terms of positive self-image and high self-esteem, as well as practically.

The project was launched in Bucharest (Romania), in May 2001. There and then, the main strategies and priorities for the project have been set.

The first task of the project was to carry out studies in all four project partner countries. All these studies were elaborated on the basis of a rigorous methodology. They provide a complete data collection for designing an analytical profile of the employment, education and training situation for young people with disabilities in Eastern and Western Europe. They also identified the barriers to employment and promotion for young disadvantaged people from the four countries, a comparative analysis and identification of good practice, including the question of access by these people to computer technology.

Based on the results of these studies, a comparative study of the employment situation of young people with disadvantages in these four countries from Eastern and Western Europe, coordinated by the University of Glasgow, has been finished.

This study consists of the following aspects:

- drawing up a profile of the education and training opportunities for young disabled people in these four countries,
- identifying and analysing the barriers to increased participation in the workforce, especially in high status/high pay occupations and promotion,
- identifying examples of good practice,
- carrying out comparative analysis to determine whether the employment situation for young people with impairments is similar in different countries or whether national, cultural and regional factors are significant,
- identification of the degree of access young people with different impairments have to computers, including with adaptations required for many particular disabilities and the Web and drawing up a strategy to increase access.

The results of the national studies and of the comparative study constitute starting points for other work packages included in the project, e. g. “Design and Development of Training Modules”, “Data Bases”, “Establishment of Distance Learning Center”, “Establishment of EURO H Center” etc.

Other outcomes of the project are:

- data bases of employers, disability organizations, existing training, good practices, legislation,
- training modules available in a variety of formats including Web, CD and hard copy.

Dissemination activities within EURO H include training workshops, Web sites, mailings, production and dissemination of reports, contacts with official bodies.
EURO H Center will be a base for the proper dissemination of outcomes.

Veit Hartmann
TaT GmbH, Rheine

Das Teilprojekt der TaT Transferzentrum für angepasste Technologien GmbH, Rheine

„Interkultur-Internetkultur-Leitkultur“

Inhaltlich versucht das TaT innerhalb des ÖFTA Verbundes herauszuarbeiten:

- wie sich die Qualifizierung in den Betrieben ändert bzw. ändern muß,
- welche neuen Bedingungen welche Anforderungen an die Mitarbeiterinnen und Mitarbeiter bewirken und
- welche Besonderheiten Betriebe beachten sollten, wenn sie sich auf internationale Märkte begeben, d.h. wie und womit sie die Mitarbeiter auf die Arbeit in anderen Wirtschafts- und Kulturräumen vorbereiten müssen.

Weiterhin wird mit dem Teilprojekt das Ziel verfolgt, in einen regionalen Diskurs über die Chancen und Risiken multimedialer internetgestützter Bildungsangebote zu treten. Angestoßen werden soll der Diskurs durch Workshops mit Unternehmen (als Anwender), Spezialisten aus dem Bereich der betrieblichen Weiterbildung und EDV-Entwicklern (als Anbieter von Produkten des Webbasierten ‚Trainings (WBT)). Auf den Veranstaltungen soll ein inhaltlicher Austausch über die Ergebnisse der seitens des TaT durchgeführten Delphi-Studie zum Thema vorgenommen werden.

Die Ergebnisse der ersten Runde der Delphi Befragung liegen nun vor, die wichtigsten fünf Ergebnisse des 19 Thesen umfassenden Fragebogens werden im Folgenden Text kurz vorgestellt.

Die zweite Runde der Delphi-Befragung wird im Herbst 2002 durchgeführt. Die aktuellen Ergebnisse dienen als Input für die Workshops mit EDV-Dienstleistern und Bildungsanbietern im betrieblichen Bereich.

Zur Delphi-Studie des TaT

Zur Vorbereitung der Delphi-Befragung wurde eine Recherche bei Experten in NRW durchgeführt, die sich mit dem Themenfeld „betriebliche Weiterbildung / E-Learning“ beschäftigen und die einschlägige Erfahrungen an den jeweiligen Hochschulen in NRW mit dem Thema gesammelt haben. Es wurden in einem zweiten Schritt die Experten ausgewählt, die die Thematik entweder aus der Blickrichtung einer Technikfolgenabschätzung oder Technikbewertung betrachteten, die Thematik aus pädagogischer Sicht

bearbeiten oder die das Thema aus dem Bereich der Informatik beleuchten. Es wurde eine Auswahl von ca. 70 Experten getroffen, die dann im Frühjahr 2002 im Rahmen der Delphi-Studie angeschrieben wurden.

Vorgehensweise

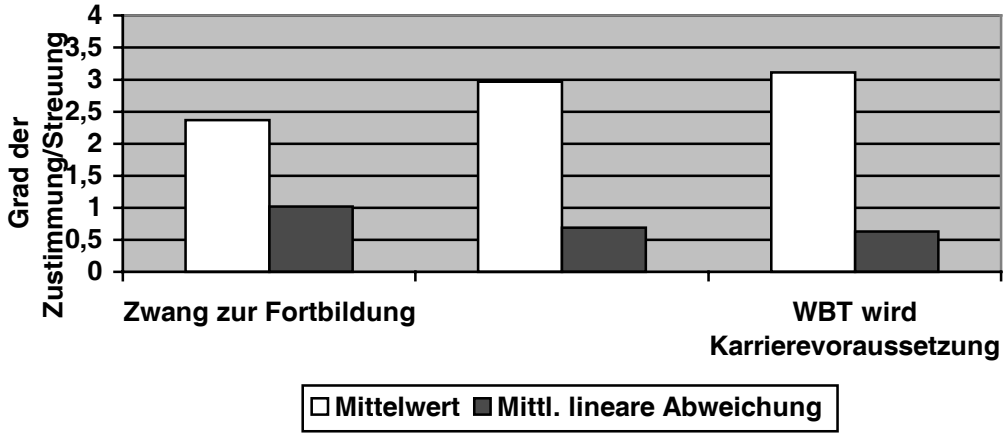
Im Fragebogen wurde der Grad der Zustimmung zu insgesamt 19 Thesen erfasst. Die Antwortmöglichkeiten lauteten „gar nicht", „kaum", „teilweise", „im wesentlichen" und „voll". Um eine Aggregation der Daten zu ermöglichen, wurden die Antworten in eine Skala übersetzt, auf der die Zustimmung zwischen 0 (überhaupt keine Zustimmung) und 4 (volle Zustimmung) schwankt. Streng genommen ist ein solches Vorgehen unzulässig, zumal die Antwortmöglichkeiten „kaum" und „im wesentlichen" eher Ablehnung bzw. Zustimmung als einen mittleren Grad der Befürwortung nahelegen. Im Rahmen des Forschungsziels Tendenzen aufzuspüren erscheint uns eine Quantifizierung der Daten jedoch durchaus legitim.

So war es möglich, das arithmetische Mittel des Zustimmungsgrades und die Streuung der Antworten zu berechnen. Um die Stärke des Konsenses bzw. Dissenses der Experten besser veranschaulichen zu können, wurde auf die gerne verwendete Standardabweichung verzichtet und die mittlere lineare Abweichung als Streuungsmaß gewählt.

Ausgewählte Ergebnisse

1 Veränderung der Mitarbeiterrolle

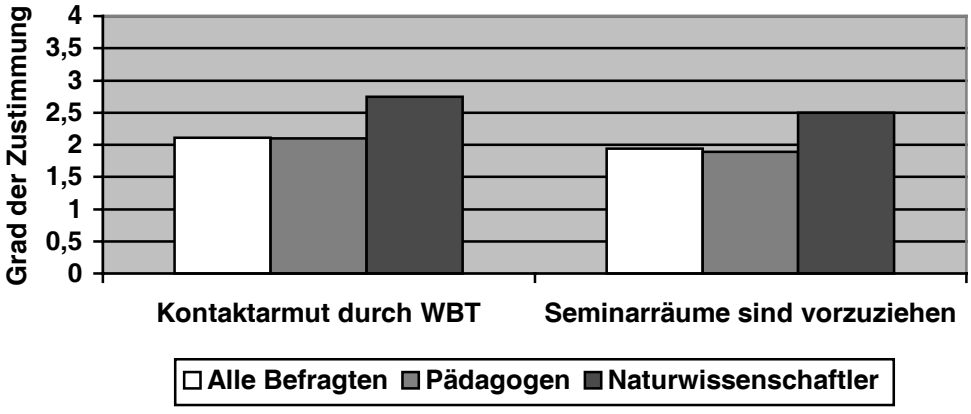
Ein zentraler Fragenkomplex der Studie behandelt die psychologischen und sozialen Folgen des Web-based training für die Mitarbeiter. Zustimmung erzielen die Thesen, dass die Verantwortung für die eigene Weiterbildung durch WBT steigen wird (erzielter Index: 2,97) und dass selbstmotiviertes Lernen eine noch wichtigere Voraussetzung für die Karriere werden wird (erzielter Index 3,11). Ob die Mitarbeiter diese Entwicklung als Zwang erleben, ist unter den Experten stark umstritten. Die mittlere lineare Abweichung erzielt bei dieser Frage den zweithöchsten Wert in der gesamten Befragung (1,02). Während viele Pädagogen der These vom Zwang zur Fortbildung im wesentlichen zustimmen (erzielter Index: 2,67), unterstützen die Naturwissenschaftler die These nicht einmal teilweise (erzielter Index: 1,88).



Fazit: Web-based training wird zu einer stärkeren Forderung der Beschäftigten führen.

2 WBT aus pädagogischer Perspektive

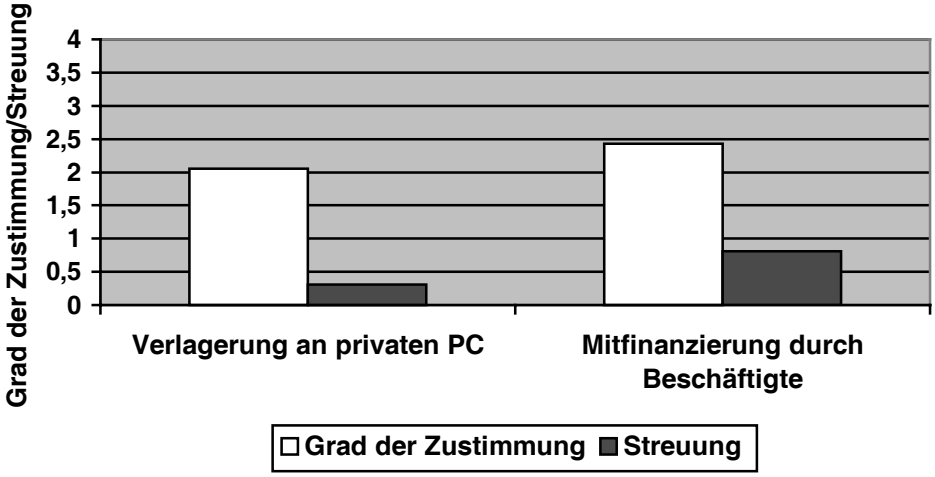
Die beiden Thesen, dass E-Learning zu Kontaktarmut führt (erzielter Index: 2,11) und dass das Lernen in Seminarräumen dem Lernen am Computer aus pädagogischer Sicht vorzuziehen sei (erzielter Index: 1,94), erfahren nur teilweise Zustimmung. Die These zur Kontaktarmut durch Lernen am Computer ist die umstrittenste der gesamten Befragung (Streuung: 1,04). Ausgerechnet die Pädagogen stimmen hier nur teilweise zu (erzielter Index: 2,1), während viele Naturwissenschaftler die Gefahr der Vereinsamung im wesentlichen bejahen (erzielter Index: 2,75). Ähnlich überraschend ist das Ergebnis zur These zum pädagogischen Wert von Lernsituationen am Computer: Die Pädagogen sind von den Vorzügen des Lernens in Seminarräumen nicht einmal teilweise überzeugt (erzielter Index: 1,89), während die Naturwissenschaftler das Lernen in Seminarräumen wesentlich stärker befürworten (erzielter Index: 2,5). Allerdings muss man einräumen, dass sich gerade hier der geringe Stichprobenumfang bemerkbar machen könnte. Die Frage zum pädagogischen Wert von Online-Kursen wurde nur von 6 Naturwissenschaftlern beantwortet.



Fazit: Fortbildung am Computer muss pädagogisch nicht unbedingt von Nachteil sein.

3 Fortbildung von zu Hause aus?

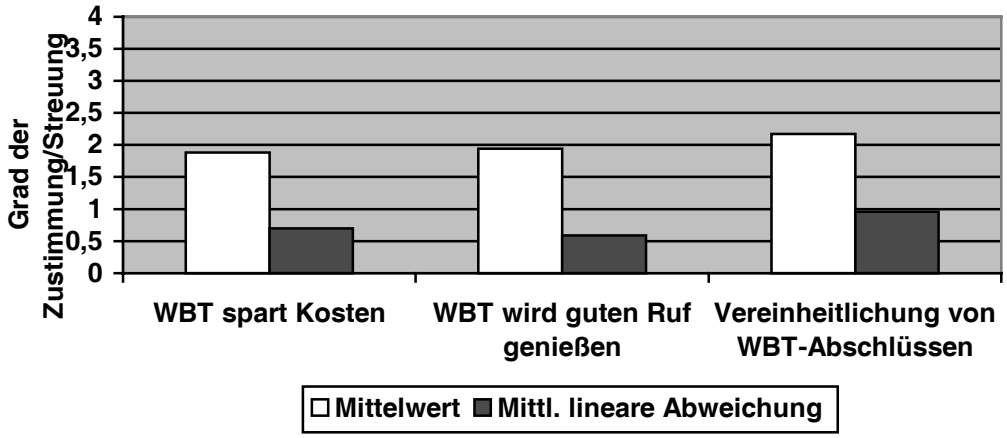
Der These, dass die betriebliche Weiterbildung in Zukunft an privaten PCs stattfinden wird, stimmen die Experten immerhin teilweise zu (erzielter Index: 2,05). Dabei wurde der größte Konsens der gesamten Erhebung erreicht (Streuung: 0,31). Außerdem befinden die Befragten, dass die Mitarbeiter die Kosten für die Fortbildung in Zukunft zumindest teilweise selber tragen müssen (erzielter Index: 2,43). Die Mitfinanzierung durch die Beschäftigten wird von Pädagogen (erzielter Index: 2,4) und Naturwissenschaftlern (erzielter Index: 2,6) sehr einheitlich bewertet.



Fazit: Die Weiterbildung droht in die Privatsphäre einzudringen.

4 Was verspricht WBT den Unternehmen?

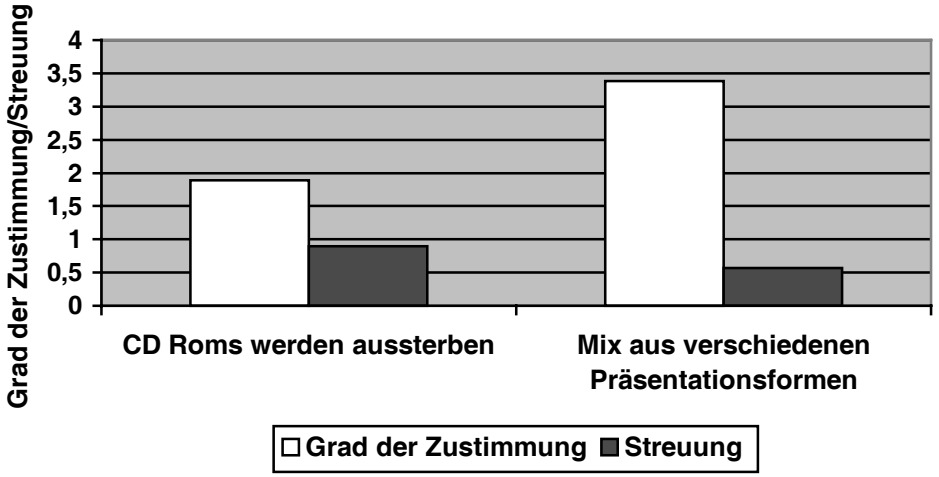
Distance-Learning muss nicht unbedingt kostengünstiger sein als der Besuch von Seminaren. Die Experten stimmen nicht mal teilweise zu, dass die Unternehmen durch E-Learning Kosten einsparen können (erzielter Index: 1,88). Zudem steht nicht fest, ob die Onlinekurse überhaupt einen guten Ruf bei kleinen und mittleren Unternehmen genießen werden (erzielter Index: 1,94). Eine mögliche Ursache hierfür kann darin gesehen werden, dass sich einheitliche, auf die Anforderungsprofile abgestimmte Abschlusszertifikate nur teilweise durchsetzen werden (erzielter Index: 2,17). Allerdings sind sich die Befragten in diesem Punkt sehr uneinig (Streuung: 0,96).



Fazit: Die Umstellung auf Web-gestütztes Lernen ist für die Unternehmen mit Risiken verbunden.

5 Die Zukunft der Lernmedien

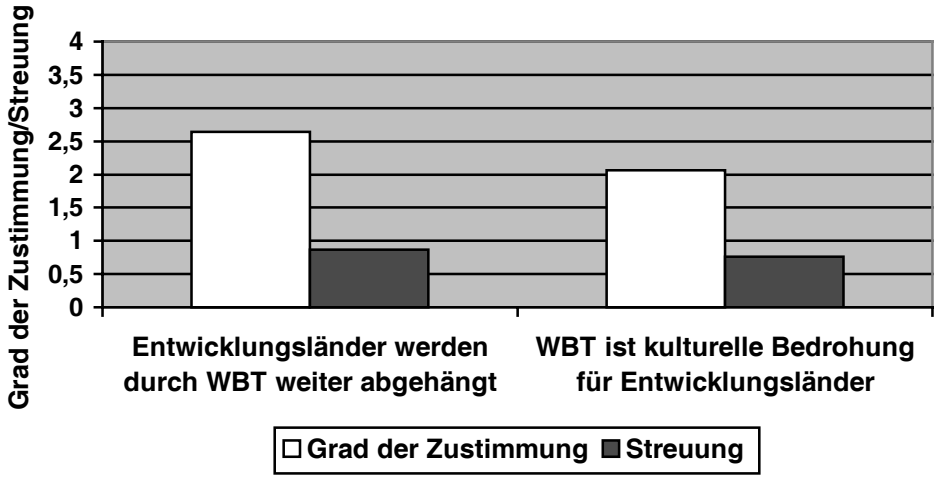
Das Internet wird vielfach als dominierendes Medium der Zukunft angesehen. Für Lernmedien scheint dies jedoch nur eingeschränkt zu gelten. Zwar stimmen die Experten der These, dass Lernprogramme auf CD-ROMs und anderen Datenträgern aussterben werden, annähernd teilweise zu (erzielter Index: 1,89). Die These, dass sich Weiterbildungsmaßnahmen in Zukunft auf verschiedene Präsentationsformen stützen werden, erfuhr jedoch die stärkste Zustimmung in der gesamten Befragung (erzielter Index: 3,38). Die Bestätigung dieser These macht deutlich, dass die Idee vom multimedialen Lernen mehr als nur ein gerne verwendetes Schlagwort ist.



Fazit: WBT wird mit anderen Präsentationsformen kombiniert werden.

6 WBT im globalen Kontext

Die Entwicklungsländer werden die Potentiale des WBT nicht nutzen können. Die Experten befanden, dass diese Länder durch E-Learning noch weiter abgehängt werden (erzielter Index: 2,64). Die Befragten schätzen die Organisationsformen, Arbeitsweisen und Techniken dieser Kulturen sogar als teilweise bedroht ein (erzielter Index: 2,06). Da die Länder der dritten Welt kaum über eine Kommunikationsinfrastruktur verfügen, fällt der Zustimmungsgrad zu dieser These überraschend hoch aus.



Fazit: Ohne von seinen Chancen zu profitieren, sind die Entwicklungsländer den Risiken des WBT ausgesetzt.

Fazit

Es läßt sich ein großes Interesse der Befragten an der ersten Runde der Delphi-Befragung nachweisen, da der insgesamte Rücklauf – wenn auch mehrere Bögen aufgrund von Terminüberschreitungen nicht mehr berücksichtigt werden konnten – bei ca. 57% liegt. Auffällig ist insbesondere, dass bei einer Vielzahl von beantworteten Fragen, eine extreme Uneinigkeit der Experten zu den vorgelegten Thesen bestand. Diesen Umstand wird das TaT auf jeden Fall in der zweiten Runde der Befragung aufgreifen und hier detaillierter weiterarbeiten. Zwei inhaltliche Tendenzen sind erkennbar: Erstens ist ein Trend zu einer zunehmenden Individualisierung innerhalb betrieblicher Lern- und Qualifizierungprozesse zu erkennen, sowohl die Steigerung von Eigenverantwortlichkeit der MitarbeiterInnen als auch der potentielle Verlust von gruppenspezifischen Lernsituationen werden erkennbar.

Zweitens stellt sich insbesondere für die zweite Delphirunde die Frage, ob ein in Ansätzen schon zu erkennender Trend zunehmender Normierung in den Bereichen der betrieblichen Weiterbildung durch den Einsatz von EDV und IuK Technologien zu verzeichnen ist und welche Auswirkungen dieser Trend haben kann, wenn er sich fortsetzt.

Hans Peters
Rheinisch-Westfälisches Berufskolleg für Hörgeschädigte in Essen

Schulversuch am Rheinisch-Westfälischen Berufskolleg in Essen wird von Hörgeschädigten aus dem gesamten Bundesgebiet stark nachgefragt

Für die neue Virtuelle Fachschule für Technik mit dem Schwerpunkt Automatisierungstechnik konnten von 36 Interessenten leider nur 22 Teilnehmer berücksichtigt werden. Damit beginnt nach den Sommerferien erstmals in Deutschland eine „Virtuelle Fachschule für Technik“. Bereits vor 2 Jahren hatte die Schule mit der Pilotphase für die „Virtuelle Fachschule für Betriebswirtschaft“ mit dem Schwerpunkt Wirtschaftsinformatik gestartet.

Zur Zeit sind dies in Deutschland die einzigen „Virtuellen Fachschulen“.

Warum „Virtuelle Fachschulen“?

Hörgeschädigten konnte bis zum Beginn des Schulversuches am 1. September 1999 in Deutschland keine Fachschule angeboten werden, obwohl dies seit Jahrzehnten von Hörgeschädigten und den Hauptfürsorgestellen nachgefragt wird. Der Grund ist sehr einfach:

- Führt man die Fachschule in Tagesform durch, muss der Hörgeschädigte i.d.R. seinen nach dem Schwerbehindertengesetz sicheren Arbeitsplatz kündigen.
- Führt man die Fachschule in berufsbegleitender Abendform durch (wie überwiegend im Regelsystem), hat man einen Standort um ein Einzugsgebiet mit ca. 35 km Radius. Weitere Entfernungen sind nach Feierabend nur selten zu erreichen. In einem solchen Einzugsgebiet lassen sich aber nicht genügend Hörgeschädigte finden, mit denen man eine Klasse bilden kann. Versuche, etwa Gehörlose im Regelsystem mit Dolmetschern, Mitschreibdiensten usw. zu beschulen, waren (von Einzelfällen abgesehen) wenig erfolgreich.

Erst die Weiterentwicklung des Internets erlaubte eine völlige Neuorganisation des Unterrichtes in der Fachschule: Durch die Mischung

1/3 Fernlehrmaterialen,

1/3 Internetunterricht und

1/3 Präsenzunterricht

an 20 Samstagen pro Jahr in Essen konnte die „35 km-Falle“ überwunden werden.

Erstmals wurde in Deutschland eine virtuelle Fachschule als Schulversuch genehmigt.

Schulträger, Landesregierung NRW, BMA und rwb-essen sehen dadurch den grundgesetzlichen Anspruch Hörgeschädigter gewährleistet, dieser Behindertengruppe - an zumindest einer Stelle im Geltungsbereich des Grundgesetzes – eine solche Schulform anzubieten.

Fachrichtungen und Schwerpunkte

Folgende Fachschulen sind bisher am rwb-essen eingerichtet:

Fachschule für Technik	**Fachrichtung Automatisierungstechnik** (für alle Berufe im Metall- und Elektro-Bereich einschließlich der Zeichnerberufe aus diesen Berufsfeldern)
Fachschule für Wirtschaft	**Fachrichtung Betriebswirtschaft** **Schwerpunkt Wirtschaftsinformatik** (für alle Verwaltungsberufe sowie die kaufmännischen Berufsfelder)

Weitere Fachschulen und Fachrichtungen können (soweit es die Möglichkeiten der Schule erlauben) eingerichtet werden.

Stundentafeln

Abweichend zum Regelsystem bietet das rwb-essen einen freiwilligen Vorkurs an. Er dauert ½ Jahr. In den Stundentafeln der Fachschulen wurden die Stundenanteile der Fächer Kommunikation auf 180 Std. und Englisch auf 280 Std. erhöht. Damit wird den behinderungsspezifischen Sprachproblemen Hörgeschädigter Rechnung getragen. Gleichzeitig wurde die Regelzeit von 4 Jahren auf 4 ½ Jahre erhöht.

Vorkurs Virtuelle Fachschule

		Stunden
Fächer	Deutsch (Kommunikation)	60
	Englisch	60
	Mathematik	50
	Methoden, Arbeitstechniken, Grundlagen	40
	Anpassung Berufsfeld	40
	Summe	**250**

Virtuelle Fachschule für Technik

Fachschule für Technik Fachrichtung Automatisierungstechnik		**Stunden**
Fachrichtungs-übergreifender Bereich	Kommunikation	180
	Fremdsprache	280
	Personalwirtschaft, Soziologie/Politik	80
	Betriebswirtschaftslehre	160
Fachrichtungs- bezogener Bereich	**Schwerpunktübergreifende Fächer**	
	Elektrotechnik für Maschinentechniker Fertigungstechnik für Elektrotechniker	60
	Elektrotechnik	60
	Fertigungstechnik	120
	Technische Kommunikation und Konstruktionstechnik	160
	Schwerpunktfächer	
	Informationstechnik	120
	System- und Automatisierungstechnik	330
	Mechatronik	330
	Produktionsmanagement	160
Projektarbeit	(im fachrichtungsbezogenen Bereich bereits integriert)	
Wahlbereich	Mathematik, Umwelt	100
	Summe	**2140**

Virtuelle Fachschule für Wirtschaft

Fachschule für Wirtschaft		Stunden
Fachrichtungs-übergreifender Bereich	Kommunikation	180
	Fremdsprache	280
	Volkswirtschaftslehre/Politik	80
	Wirtschafts- und Arbeitsrecht	160
Fachrichtungs-bezogener Bereich	**Schwerpunktübergreifende Fächer**	
	Betriebswirtschaftslehre	240
	Rechnungswesen	240
	Wirtschaftsmathematik/Statistik	160
	Schwerpunktfach	
	Wirtschaftsinformatik/Organisation mit SAP-Grundkurs	480
	Zusatzfächer	
	Absatzwirtschaft	160
	Produktionswirtschaft mit Qualitätssicherung	160
Projektarbeit	(im fachrichtungsbezogenen Bereich bereits integriert)	
Wahlbereich	Stütz-, Ergänzungs- und Förderkurse (entfallen wegen Vorkurs und Verlängerung auf 4,5 Jahre)	0
	Summe	**2140**

Weitere beteiligte Institutionen

Neben der Forschungsstelle zur Rehabilitation von Menschen mit kommunikativer Behinderung an der Martin-Luther-Universität Halle-Wittenberg (Leitung: Prof. Dr. Christa Schlenker-Schulte) und dem Rheinisch-Westfälischen Berufskolleg für Hörgeschädigte in Essen (rwb-essen) (Leitung OStD Ernst Schulte) sind folgende weitere Institutionen am Modellprojekt „Virtuelle Fachschulen am rwb-essen“ beteiligt:

Bundesministerium für Arbeit und Soziales
Die Errichtung der virtuellen Fachschulen am rwb-essen wird in einem Modellvorhaben des Bundesministeriums für Arbeit und Soziales (http://www.bma.de) gefördert.

Ministerium für Schule, Wissenschaft und Forschung des Landes Nordrhein-Westfalen
Die virtuellen Fachschulen am rwb-essen sind ein Schulversuch des Landes NRW (www.nrw.de) und durch das Ministerium für Schule, Wissenschaft und Forschung des Landes Nordrhein-Westfalen (Aktenzeichen 714.70-20/6 Nr. 265/99) genehmigt worden (www.mswf.nrw.de). Schulfachliche Aufsicht: Bezirksregierung Düsseldorf, Dezernat 44 (www.bezreg-duesseldorf.nrw.de).

Schulträger Landschaftsverband Rheinland (LVR)
Der Landschaftsverband Rheinland (LVR) ist der regionale Kommunalverband der rheinischen Städte und Kreise. Weitere Informationen zum Schulträger LVR findet man auf der Homepage des LVR (www.lvr.de). Der Landschaftsverband Westfalen-Lippe (LWL) beteiligt sich an den Kosten der Schule. Weitere Informationen zum LWL unter http://www.lwl.org.

Universität Essen
Die Universität Essen stellt über ihr Hochschulrechenzentrum den Zugang zum Hochgeschwindigkeitsinternet der Universitäten (DFN) sicher. Zu diesem Zweck ist das rwb-essen mit dem Rechenzentrum über eine optische Richtfunkstrecke verbunden. Mit einer Übertragungsrate von 10 MBit/s ist ein stabiler und übertragungssicherer Betrieb der Kommunikationsserver des rwb-essen möglich.

Weitere Informationen

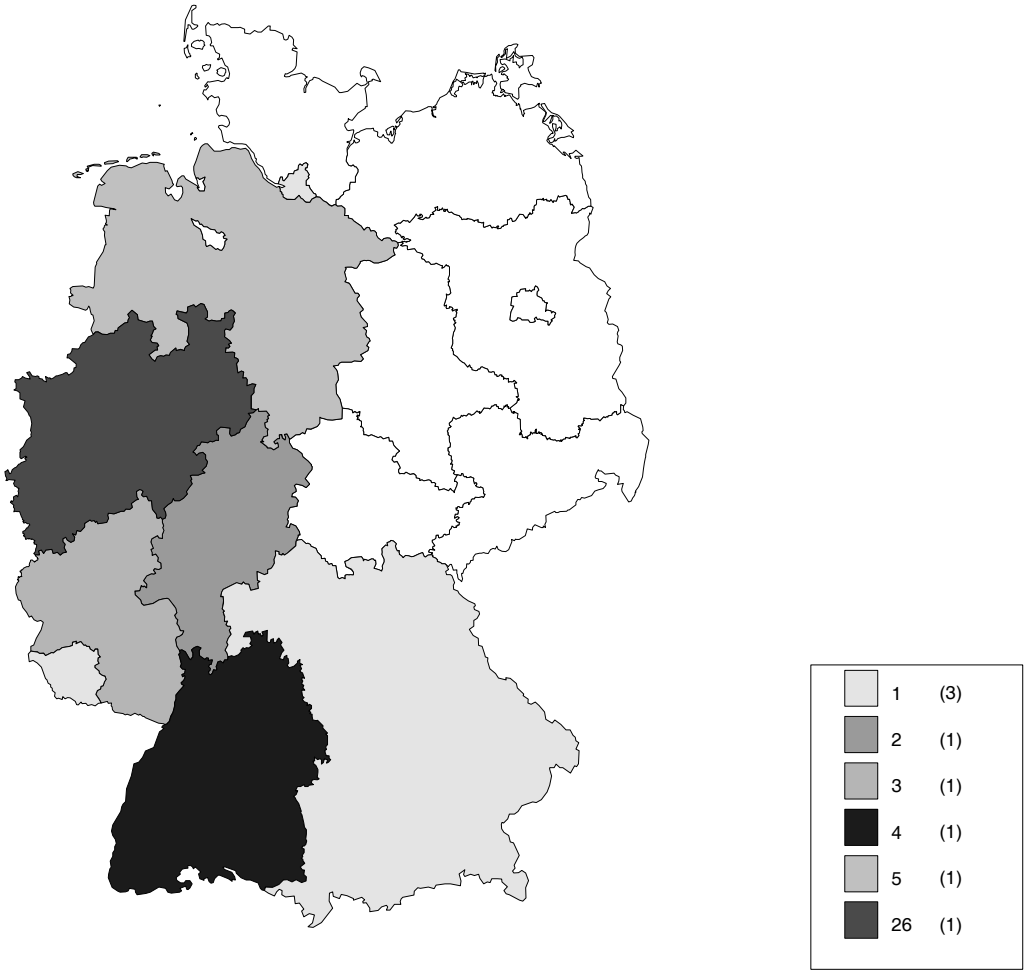
Rheinisch-Westfälisches Berufskolleg für Hörgeschädigte in Essen
Kerckhoffstr. 100
45144 Essen
Telefon: (02 01) 87 67-0
Fax: (02 01) 75 10 21
E-Mail: info@rwb-essen.de.
Homepage: http://www.rwb-essen.de

Koordination, Planung und Entwicklung der virtuellen Fachschulen:

StD H. Peters (peters@rwb-essen.de): Gesamtleitung und Beratung,
StD R. Saueracker (saueracker@rwb-essen.de): Schwerpunkt Wirtschaft,
StD W. Waclawek (waclawek@rwb-essen.de): Schwerpunkt Technik,
StD P. Schrumpf (schrumpf@rwb-essen.de): Schwerpunkt didaktisches Modell sowie Internet und Intranet am rwb-essen.

Verteilung der Teilnehmer der Virtuellen Fachschulen für Technik und Wirtschaft nach den Bundesländern

Zur Zeit werden 43 Teilnehmer aus acht Bundesländern in den Virtuellen Fachschulen am rwb-essen unterrichtet.



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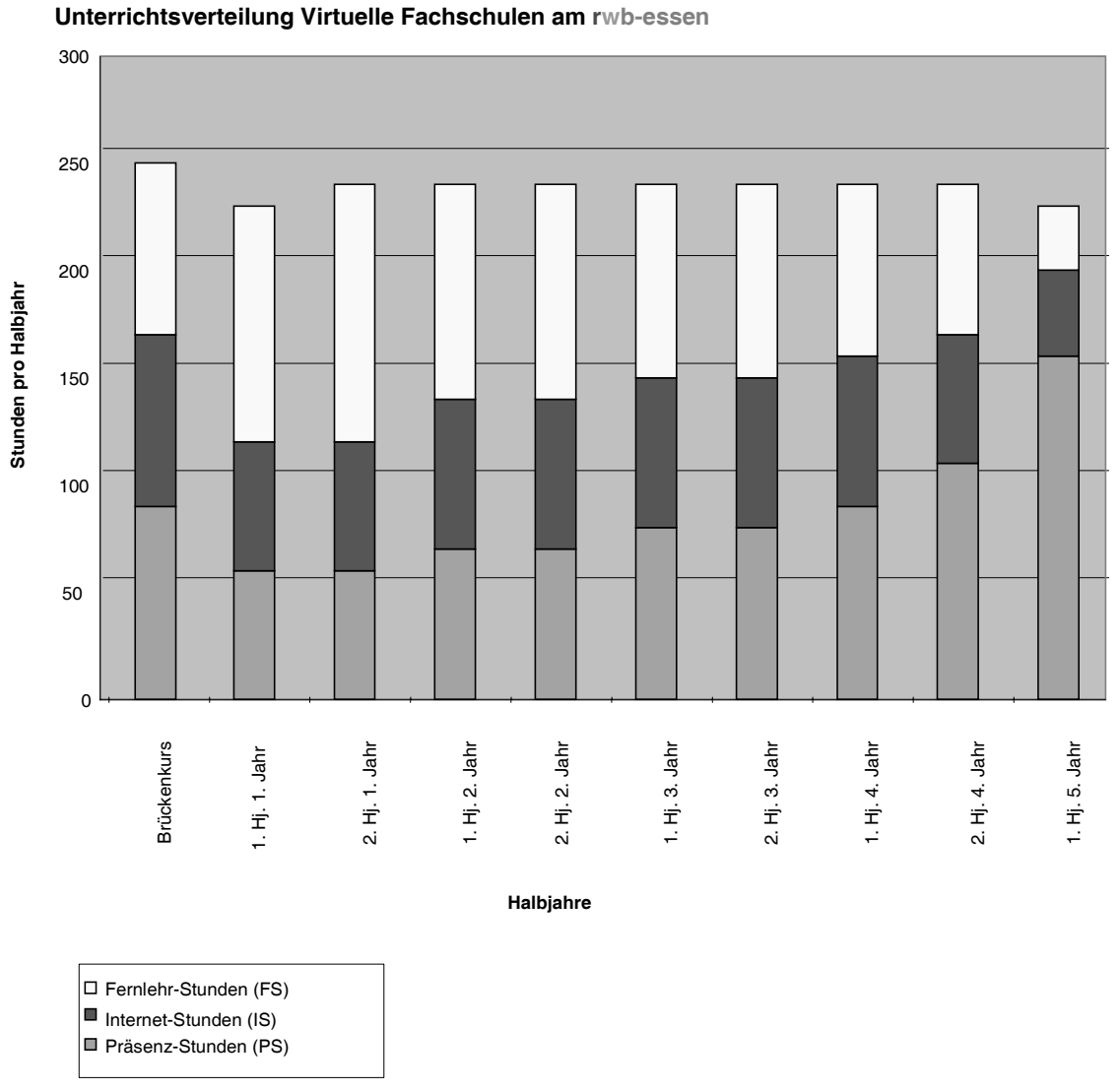
Unterrichtsverteilung für die gesamte Dauer der Fachschule

Die nachfolgende Tabelle zeigt die geplante Verteilung der Fernlehrstunden, der Internetstunden und der Präsenzstunden in den Virtuellen Fachschulen am rwb-essen.

Der Präsenzunterricht steigt im letzten Halbjahr stark an: Im Prüfungshalbjahr (1. Halbjahr des 5. Jahres) findet eine ca. dreiwöchige Kompaktphase in Essen (Abschlussarbeit unter Aufsicht und verstärkte Projektarbeit) statt.



Marion Hersh
University of Scottland

Education and Training of Disabled People: A Four Country Comparison

1 Introduction

The results in this paper are largely based on a preliminary comparative study of the position of young people with mobility problems in Germany, Hungary, Romania and the UK, which used initial data gathered in national studies of these countries (CePTIC-SNSPA, 2001; Hersh, 2001 IAT/SOKOM, 2001; Ottófi,2001). The comparative study considered the position of disabled young people in education and employment, whereas this work focuses on education. Factors such as the availability of accessible or adapted housing, transport and information and communications technology can have a significant impact on the quality and experience of education for disabled students. These issues are discussed in the comparative study (Hersh et al., 2002), but due to shortage of space cannot be considered here.

Access to education and/or vocational training is often seen as the key to obtaining employment. Many jobs, including manual jobs, are now requiring increased levels of qualifications and higher level qualifications are essential for obtaining professional employment. However, though qualifications increase job opportunities, they do not guarantee obtaining a job. The available data (Hersh et al., 2002) indicate that in all four countries:

- People with disabilities have lower levels of education and qualifications than non-disabled people
- A higher percentage of people with disabilities in work than economically inactive have some qualifications, indicating that qualifications increase the likelihood of obtaining employment.

Although obtaining qualifications and becoming more employable are general important aims of education, there are generally other equally important aims. These aims include preparation for the transition to adulthood, personal development and the development of social skills, Learning to obtain and evaluate information and make choices and Learning to live independently, including by determining and obtaining the prerequisite support. Therefore access to education for disabled young people should include access to both the full range of different types of education and the full range of potential benefits, rather than a focus purely on vocational education, important though this is.

Some of the issues which effect the education and training of disabled children and (young) adults with disabilities are also of concern to non-disabled people, whereas others only or largely effect children and adults with disabilities. Important issues to be considered include the following:

- Accessibility and appropriateness of the curriculum, location, facilities, buildings and other factors
- Quality of educational provision for both disabled and non-disabled children and young people
- Relevance of educational provision to both personal development and employment
- Qualifications from education and training
- Modification of the curriculum to make it more accessible and whether this is possible without devaluing the resulting training and qualifications
- Integration and inclusion: mainstream or 'special' schools

2 Special Educational Needs, Resources and Individual Education Programmes

2.1 Children With Special Education Needs

The term children with special educational needs (SEN) is used in all four study countries in an educational context. To some extent it is a slightly euphemistic replacement for other terms which are now less politically acceptable. However the change of name does not necessarily mean that attitudes have changed and the term 'needs' could be used in the context of the deficit model of disability. The term SEN has different meanings in different countries. In addition to disabled children, it has also been used to describe children who are 'gifted' and/or children who are disadvantaged or discriminated against due to their ethnic and/or social backgrounds. The UK does not further subdivide children with SEN, whereas in Germany the term SEN includes 11 different disability categories, but no ethnic and/or social categories (OECD, 1995). In Romania the term children with SEN sometimes refers to children who are disadvantaged due to their ethnic or social backgrounds, as well as children with mild to severe Learning disabilities, motor, sensory and language impairments and emotional and behavioural difficulties. It was first used in 1993 when in cooperation with UNICEF the Romanian government initiated a national programme of pilot projects to integrate children with SEN into the community.

A number of countries have procedures for assessing children considered to have SEN to determine resource requirements and/or educational programmes to meet these needs. Although an apparently positive development, this may lead to children being labelled and distinguished from their peers, even if they remain in an integrated educational environment. In many cases assessment of children as having special needs has resulted in

them being transferred to special schools. In Hungary all schools and kindergartens are required by law to provide equipment and furniture for disabled children. As long as provision is sufficient, this type of approach is preferable to tying of resources to specific children, with the resulting labelling and loss of flexibility in resource use.

2.2 Individual Educational Programmes

All four countries use documents, often called Individual Educational Programmes (IEPs), which detail the educational programme to be followed by a child (with SEN). Thinking about IEPs has been influenced by behavioural psychology and, in particular, the view that the Learning process can be carefully planned and controlled, with complex tasks analysed in detail and broken down into very simple constituent elements. It is considered that teaching these elements or steps in the correct order in a carefully controlled environment will allow all pupils, regardless of the severity of their problems, to make progress. This approach has the advantage of giving an apparently scientific basis for the education of children with SEN (Banks et al., 2001) and the associated disadvantage that it has not been established that the majority of children and young people whether with or without SEN do in fact learn in this way. In addition Learning the components of a task, skill or piece of knowledge may not lead to understanding or Learning the whole. It also ignores both individual and subject specific differences in Learning style and the possibility that in some cases apparent Learning difficulties may be the result of an inappropriate match between teaching approaches and the particular individual Learning style.

The literature is full of discussion of the time-consuming nature of the IEP process and the consensus amongst many teachers outside the UK seems to be that the time involved could be better used elsewhere (Emanuelsson et al., 1997). Even the UK school inspection body Ofsted (1997) has identified a problem rising from the growing stress on a particular type of accountability, which has led to concentration on IEP paperwork rather than on delivering quality education. Initial concerns about excessive paperwork may have been replaced by concerns about developing strategies to deliver, monitor and evaluate IEPs (Tod et al., 1999). However this may be due to habituation and there may still be severe problems arising from the need to balance the time spent on paperwork and on actually preparing and delivering teaching in a context of limited resources, while not increasing workload.

In the 1980s and 90s the focus of the education system in the UK, as in other Western economies, changed to emphasise individuality, parental choice and direct accountability of schools for the use of resources and standards of education. The 1988 Education Act in effect set up a quasi-market in schools by tying funding to the number of pupils admitted. This has resulted in incentives to maximize enrolments so as to maximize income. In the UK the use of targets is often portrayed as part of an accountability agenda, which gives parents information about the performance of particular schools in

the form school league tables based on the results of tests at the ages of 7, 11, 14 and 16. However in practice different groups of parents, including those of children with SEN, use a range of different criteria in choosing schools, so that the assumption that parents would choose the most successful schools and less successful schools would be forced to raise standards in order to compete is not generally valid. (Evans et al., 1997).

In Scotland it is recommended that IEPS should contain targets in one or more of the following curriculum areas: communication and language, numeracy and personal and social development, and that a level of 80% success in achieving targets should be aimed for, though this is sometimes interpreted as 80% of pupils meeting 80% of their targets. Literature on the linkage of targets to IEPs indicates that severe problems result when schools (or teachers) are rewarded or penalized for meeting or failing to meet targets, with targets likely to be revised downwards when there could be penalties for not achieving them. There is insufficient evidence that targets linked to IEPs will raise standards (Banks et al., 2001).

In the UK up to a fifth of children are recognised as having special needs, 2.9% of children have been assessed as requiring individual programmes and 1.3% have been formally assessed and placed in special schools. The proportion of children educated in special schools varies from under 0.5% in some areas to over 2% in others (Evans et al., 1999; DfEE, 1997). The analogous figures for Germany are 4.31% of children recognized as having special needs, 5% assessed as requiring individual programmes and 4% placed in special schools. The significant differences in the percentages of children considered to have SEN probably say more about the different definitions used and problems in collecting analogous data than any actual differences in the percentages of children with SEN. However it is interesting to note that in Germany the percentages of children recognized as having SEN, individual programmes and placed in special schools are approximately equal, whereas in the UK only a small proportion of children considered to have SEN are placed in special schools or given individual programmes.

In Romania many special education programmes are developed and implemented by non governmental organizations (NGO's) for both children with mobility impairments who learn at home and students with SEN integrated in mainstream schools. General approval is required from the authorities, but control seems to be very loose. Some of the advantages and disadvantages of voluntary as opposed to state provision are discussed in Hersh et al. (2002).

2.3 Documentation and Resources

Unlike in the other three countries, in the UK there is a statutory document, called a Record or Statement of Needs in Scotland and England and Wales respectively, which identifies a child's special educational needs and the resources required to meet these needs. The format of the Record or Statement is specified by legislation, whereas the

format of IEPs is not specified and varies considerably between different schools. The number of pupils with statements in mainstream schools is rising fast and almost doubled between 1991 and 1997 (TES, 24 October 1997). This does not, however, indicate a rise in the integration into the mainstream of pupils who would formerly have been in special schools, but is rather the result of pressure from parents and schools to obtain additional resources for children with Learning difficulties in mainstream education.

A recent Scottish survey found that education authority officers considered that disabled children who were making good progress under the standard 5-14 educational programme did not require records (Banks et al., 2001). This is clearly in accordance with principles of inclusion and the need to avoid developing separate programmes for disabled children purely on the grounds of disability when there are no educational reasons for doing this. The same survey also found considerable agreement on the value of IEPs for children who do meet the criteria for a Record of Needs, though there is no mechanism to attach resources to IEPs. Therefore children with SEN may have either a record/statement or IEP, neither or both. A number of professionals would prefer replacing Records by IEPs, which are considered to be working documents, whereas parents would prefer to retain the Record, to which resources are attached and which is therefore considered a form of protection (Banks et al., 2001).

3 Integration or 'Special' Schools

Integration has been defined as 'that process which maximises the interaction between disabled and non-disabled pupils'. There are three main categories of integration (OECD, 1999): location (in the same building), social (interaction during non-academic timetabled periods such as breaks and sports) and functional (following the same curriculum in the same classroom). Children with SEN may be educated in ordinary classes in mainstream schools, 'special' classes in mainstream schools or 'special schools'. In the UK children with individual educational programmes are approximately equally divided between mainstream and 'special' schools (46 to 54%), whereas in Germany the overwhelming majority (80%) are in 'special' schools (OECD, 1999). However in recent years 'special' schools have been viewed very critically and there is now a focus on integration in mainstream kindergartens and schools. In 1997 57% (27,000) of preschool places in Germany were in 'special' facilities and 43% (20,000) in mainstream ones. However the situation in primary schools is much less clear (Swantje, 1999).

There is some evidence of increasing integration in both Romania and Hungary. For instance there was a reduction of 3% compared to the previous academic year in the 53,510 disabled children enrolled in special schools in Romania in 1999-2000. The Romanian government is in the process of working out specific details of regulations and new measures to integrate disabled children into mainstream schools, in accordance with European legislation. However there are differences between the curricula used in

special and mainstream schools in Romania. This will make it more difficult for disabled children to move from special into mainstream education and for children in special education to obtain recognised qualifications and (mainstream) employment. In Hungary more disabled children are moving into mainstream schools and mainstream schools are required to have any equipment required by disabled pupils. Despite moves towards integration there are still considerable variations across the different countries in the percentages of children or young people in mainstream and 'special' schools. However differences in definitions and problems in data collection make it difficult to comment in detail.

There is an extensive body of literature, for instance (Biewer, 2001; Booth et al., 1992ab; Hanko, 1990; Lumer, 2001, Wade et al., 1992) on mainstream versus 'special' education, including case studies, measures for making integrated education successful and data and experiences from a number of different countries, either in Western Europe or the OECD. However the project from which these results have been obtained is believed to be the first one looking at these issues in the context of central and eastern Europe.

Integrated education has a number of advantages, including the following:

- Better integration of children and adults with disabilities into the local communities.
- A potentially wider choice of subjects and better laboratory and other facilities than is often possible in a 'special' school.
- Shorter travel times, due to going to the local school, whereas only a limited number of 'special' schools are available.
- Countering the isolation and invisibility and stereotypes about people with disabilities by allowing non-disabled and disabled children to interact and play together throughout their school life.

In addition a survey of young people with disabilities in the UK found that young people with disabilities who had been educated in 'special' schools had less self-esteem and sense of control than those educated in mainstream schools and these differences remained even after they had left school (Hirst et al., 1994).

Particular issues are raised by the situation of deaf people who are either native sign language speakers or whose preferred language is sign language. They will generally require either education in sign language or bilingual education in sign and spoken language. There are further issues of balancing their need for interaction with a peer group who communicate in sign language with the disadvantages of cutting off deaf young people from mainstream social contacts, while ensuring that they obtain a high quality education and good qualifications.

Public policy in all four countries in general supports integration in mainstream schools and a number of different measures are being applied to achieve it. However some of the preference for 'mainstreaming' may be due to increases in numbers of (identified) children with SEN, and desires to reduce costs. Available data (OECD, 1999) indicates that there are considerably lower student: teacher ratios and consequently much higher costs when children are educated in 'special' rather than mainstream schools. This may also be the case in central and eastern Europe, though no data on this is currently available. However additional resources and lower student: teacher ratios might enable additional students and students with more severe disabilities to be educated in mainstream schools. In addition increasing resources for education would probably have benefits for all children, whether or not they have disabilities, as well as for society as a whole.

A small percentage of disabled children are educated at home in all four countries. For instance 400 children with severe mobility problems are educated at home in Romania. Home education for children with severe disabilities raises issues of social isolation and the adequacy of the resulting education. It may also reduce the pressure to adapt and modify schools to make them more accessible. On the other hand home education may be the only practicable option for small groups of children with (serious) disabilities for the immediate future.

4 Legislation

The legislation in all four countries includes provisions guaranteeing access to education. However in practice this legislation has not been particularly effective historically in ensuring access to education for disabled children and young adults. In addition to general educational legislation, many countries have legislation guaranteeing the right of disabled children to be educated in mainstream schools, with certain exceptions, and sections of disability legislation concerned with education.

In Germany the different Bundesländer have their own school laws, whereas in the UK there are significant differences between the education systems in Scotland and in England and Wales, with regards to curricula, the main school qualifications and the average age of starting higher education, amongst other factors. Education comes under the remit of the Scottish Parliament, whereas disability issues in Scotland are still the responsibility of Westminster.

In the UK the Special Education Needs and Disability Act 2001 (which has become part IV of the Disability Discrimination Act 1995 (DDA)) makes it unlawful for education providers to discriminate against a 'disabled child' (with disability as defined in the DDA) by treating the child less favourably than a non-disabled child in the arrangements made for education. The main requirement is reasonable steps to change policies, practices and procedures which would otherwise put a disabled child at a substantial

disadvantage in accessing education or for alternative provision where a physical features puts a disabled child at a substantial disadvantage. In addition local education authorities in England and Wales are required to plan to increase accessibility over time for disabled children in all maintained schools, nursery schools and pupil referral units. In Scotland legislation on accessibility strategies falls within the remit of the Scottish Parliament, though disability issues are the responsibility of the Westminster Parliament. The Education (Disability Strategies and Pupils' Records) (Scotland) Act 2002 requires for the preparation and implementation of a written accessibility strategy for each school. This strategy should aim at increasing participation in the curriculum by disabled pupils, making the physical environment more accessible and improving communications to disabled pupils.

The Education Act, 1981 and the Education (Scotland) Act 1981 stipulate a formal process for recording schoolchildren identified as having special educational needs. The recording process can be initiated at any time from pre-school to the statutory school leaving age. In addition these acts require a 'Future Needs Assessment' to be carried out to consider and report on the provision that would most benefit each recorded child after reaching school leaving age (Thomson et al., 1987).

The initial motivation for this legislation was the Warnock Report (DES, 1978), which contained more that 200 recommendations for improving the welfare of disabled children and their families. The implementation of some of these recommendations was a consequence of the exclusion of parents of disabled children from provisions for parental choice of school in education legislation. This resulted in a free-standing Act on Special Educational Needs alone for England and Wales. In Scotland the SEN provisions were included in the Education (Scotland) Act 1981, since proposals for amending educational legislation in Scotland were fairly advanced when the decision was made to include some aspects of the Warnock Report in legislation (Thomson et al., 1987).

In the Education Act 1996, a child is considered to have special educational needs if they have a Learning difficulty which requires special educational provision. A Learning difficulty is defined as significantly greater difficulty in Learning than the majority of children of the same age, a disability which prevents or hinders them making use of the facilities provided in the schools in the area or likely to fall into one of these categories when over five if currently under five. Special educational provision is defined as additional or different educational provision from that in maintained schools other than 'special' schools. The use of the term 'Learning difficulty' in this act is unfortunate, as it is sometimes assumed that all disabled people have cognitive impairments. The definition of a child with SEN is different from the definition of a disabled child used in the Disability Discrimination Act (DDA) 1995 and the Children Act 1989.

In the DDA a person is disabled if they have a physical or mental impairment which has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities. This definition includes a significant proportion, but not all children with

SEN. In the Children Act 1989 a child is considered to be disabled if they are 'blind, deaf or dumb' or suffers from a 'mental disorder of any kind or is substantially and permanently handicapped by illness, injury or congenital deformity or such other disability as may be prescribed'. It should be noted that the Children Act uses terms such as 'dumb' and 'mental disorder' which could be considered offensive, whereas the language in the DDA and the Education Act is more neutral. The expectation in the Education Act 1996 is that pupils with SEN will be educated in mainstream schools. All schools are required to admit pupils with already identified SEN, as well as identifying and providing for pupils not previously identified. Admissions authorities for mainstream schools are not allowed to refuse entry to a child, because they feed unable to meet their special educational needs.

In Germany all educational institutions are required by law to provide all necessary measures to ensure equal access by students with disabilities. In Hungary Law 11/1994 requires all educational institutions to provide special equipment or furniture for disabled children to make the institutions accessible and Law 14/1994 states the obligations of all institutions of primary, secondary and further education to provide equal opportunities and access to students with disabilities. In Romania Education Law no. 84/1995 allows disabled children to be educated in 'special' schools, 'special' classes in mainstream schools and mainstream schools. There is also a legal requirement for free and equal access to all educational institutions, but this is qualified by rehabilitation potential and functionality. This qualification could clearly be used to exclude some disabled children from mainstream schools

5 Access to and Exclusion from the Education System

Amongst the most serious issues of concern are the disabled children who, for whatever reason, do not receive any or only receive minimal education and the children whom the education system fails in that they learn very little and obtain no qualifications. There are particular problems in Romania, with an estimated one quarter of disabled children, generally from those not living in institutions, not receiving any education. (Muşu et al., 2000). Data has not been obtained on the number of disabled children who are in practice excluded from the education systems in the other three countries, but this does not indicate that there are no problems in this area.

In the UK an increasing number of children with difficulties at school are being excluded and receiving some sort of part time provision (DfEE, 1997). The total number of excluded children in the UK rose by 13% in 1995/6 (Evans et al., 1999), at least in part as a consequence of the use of more rigorous attainment targets and league tables. Clearly these children have educational, social and other needs which are not being met in schools, but it should not be assumed that the majority of them are disabled or have SEN in the sense of the legislation, though many of them have statements of needs (Of-

sted, 1996). Another problem, encountered in Romania and probably to a lesser extent in the other three countries is the attitudes and lack of special training of teaching staff. A UNICEF (Muşu et al., 2000) study found that teaching staff in both mainstream and 'special' schools are not adequately trained to teach disabled children and that many teaching staff believe that children with severe or multiple disabilities should be in re-education and rehabilitation centres rather than schools.

The education system in some or all of the four countries may be failing young people with disabilities, in other ways, including with regards to the qualifications they (do not) obtain. For instance 35% of people with disabilities of working age in Scotland have no qualifications (Riddell et al., 2001). However further qualitative and quantitative research will be required to investigate how well the education system in the four countries is serving young disabled people in terms of qualifications gained, social and psychological development, opportunities to make friends and develop their social lives, and their personal experiences of education such as whether they in general enjoyed the experience or felt isolated and alienated.

6 Vocational Training

Integrated vocational training clearly has an important role in preparing (young) disabled people for mainstream employment, whereas there is probably a tacit assumption that most people who require special or segregated vocational training are only capable of or likely to obtain employment in sheltered workplaces with other disabled people. Although further investigation will be required, this assumption is probably borne out in practice, since segregated vocational training will often not adequately prepare disabled people for working in an integrated workplace. However less progress seems to have been made in moving to the provision of integrated vocational training than integrated schooling.

In Germany there are 18 vocational rehabilitation clinics which provide a mixture of vocational and medical rehabilitation, and vocational training centres for young people and adults, who are considered unable to participate in integrated training programmes due to their disabilities. The vocational training centres have close links with industry and provide nearly 17,000 places for young people and 15,000 for adults. The curriculum or vocational training measures for a particular occupation can be modified to meet the needs of a disabled person, but there is some evidence that increasing competition for jobs is leading to such modifications devaluing the resulting training and therefore not helping disabled people into employment (Stadler, 1995).

In Romania the nature of the provision of vocational training for disabled people still seems to be largely dependent on the nature and severity of their disabilities rather than their skills, aptitudes and interests. People with Learning disabilities and severe physical

disabilities are given training in vocational therapy centres and school homes for jobs largely determined by the nature and extent of their disabilities. Young people with less severe disabilities are given training in special vocational schools and post-secondary schools (of which there is currently only one). There has been a considerable change in the numbers of special educational units of different types between 1994/5 and 1999/2000, in most cases first increasing and then decreasing. This has resulted in a reduction from 52 special vocational schools in 1994/5 to 32 in 1999/2000.

In Hungary disabled people have access to most vocational training centers. There are also special courses, such as the distance education programme provided by the National Union of Societies of Handicapped People. In addition there are a number of vocational and professional training schemes for disabled people provided by NGOs and private companies. The subjects covered include basic accountancy, editing and office management. An important feature of many of these schemes is that the training is for professional or semi-professional jobs, rather than craft and light manual work, and therefore better matched to available employment opportunities, as well as giving disabled people the possibility of obtaining slightly better paid jobs with real career prospects.

In the UK disabled adults between 18 and 63 years of age can access a programme of residential training aimed to help unemployed disabled people obtain employment or self-employment. This training is available to unemployed disabled people who are unable to access suitable local training. Each trainee has an individually tailored programme, consisting of guidance, work experience, Learning in the work place training and courses leading to qualifications in a residential setting. There are over 50 courses of vocational training available, many of which lead to National Vocational Qualifications. Course topic include accountancy, cycle mechanics, information technology, tourism and travel and rehabilitation work, and are therefore reasonably well matched to current employment opportunities. Trainees receive an allowance and the residential costs are covered. Course length varies, with duration not exceeding 52 weeks. Training is provided at 13 specialist centres located throughout England.

7 Further and Higher Education

In Germany all institutions of further education are legally required to ensure equal access for disabled students by providing all necessary facilities. The situation of students with disabilities and long term illnesses improved in the 80s. However budget constraints, increasing student numbers and increasing competition between institutions of higher education have halted these positive developments. These factors are a feature of the higher education system in all four countries. In the UK, on the one hand there is increasing encouragement to disabled people to enter higher education, whereas on the other the introduction of tuition fees (which have been abolished in Scotland) and the

replacement of student grants with loans are presenting new and significant barriers. The increasing cost of studying is likely to have a detrimental effect on the participation of disabled students.

A social survey by the German Student Agency in 1994 (www.fernuni-hagen.de) found that 2.3% of respondents had disabilities and 10.4% a long-term illness, giving about 3,900 students with disabilities and 177,000 with a long term illness, which has resulted in a medium to severe disability in about 50,000 cases. In Scotland 5% of undergraduates declared they had a disability and there are probably additional students with undeclared disabilities (Riddell et al., 2001). This figure contrasts rather sharply with the 17% of students admitted to higher education in 1994 found to have some form of disability (OECD, 1997).

Many students with disabilities in Germany and Hungary (and probably the UK and Romania) require longer to finish their studies and a higher proportion of disabled than non-disabled students drop out (Bundestag, 1998). It is therefore important to investigate what support disabled students require and what additional measures can be put in place to enable them to finish their studies, where possible in the same amount of time as other students. The most common grievances relate to the lack of accessibility of university buildings and the lack of sufficient student accommodation for students with disabilities. These problems are also found in the other three countries. In Romania and the UK many university buildings are very old, making adaptation difficult and expensive. In Romania there are no mechanisms for recording the numbers of disabled students and no studies have been carried out, so no data is available.

In Hungary there seems to be a preference for setting up special higher education programmes for disabled people. This has both advantages and disadvantages, in terms of making education available to disabled people, but may reduce pressure to make higher education fully accessible.

Although there are several surveys of disabled students in further education in the UK, this area has been relatively neglected compared to access to other types of education. In the UK, recruitment levels of young disabled people to further education have risen from 3 – 4 % in 1982 (Bradley et al., 1994) to 5 % in 1992 (NATFHE, 1993). A postal questionnaire survey of further and higher education institutions in October 1985 found about 43,540 mainly part-time students with disabilities (Stowell, 1987). A summary of inspections in the period 1983-89 found that, although the level of provision had increased, colleges still only catered for a small number of students and enrolment was haphazard, with no college fully accessible (HMI, 1989). Another HMI (1990) document considered that the substantial developments since the 1980s were not sufficient and that there was a need both for trained staff who could develop appropriate curricula and for a more systematic consideration of special needs in courses of initial teacher training. There have also been a number of regional studies and studies of the levels of provision for students with particular types of disability. All the studies indicate that a

lack of awareness amongst staff and a failure to use up-to-date information is increasing the difficulties experienced by young disabled people in further education (Bradley et al., 1994).

8 Distance Learning

Open and distance Learning is becoming increasingly popular in many countries for a number of reasons. While it does provide genuine possibilities of opening up education to previously disadvantaged groups, including disabled people, it also has a number of disadvantages. In particular the availability of open and distance Learning programmes could be used as an excuse not to make traditional educational facilities accessible to disabled people and distance Learning could have the effect of continuing the social isolation experienced by many disabled people, though the availability of networking and support facilities and the development of a Learning community could prevent this.

In addition there is a tendency for governments and some education providers to consider distance Learning as a way of providing cheap education, whereas the provision of high quality distance Learning can be cost intensive. A number of issues relating to open and distance Learning for disabled people are discussed in Hersh et al. (2000, 2001), Hamburg et al. (2001) and Ionescu et al. (2001).

9 Conclusions

This paper has presented results obtained from national studies of the education and training of young people with mobility impairments in Germany, Hungary, Romania and the UK. Although care has to be taken in making comparisons, particularly of statistical data, due to differences in definitions and approaches to data collection, the work has shown that there are both similarities and differences in the different countries.

In all four countries disabled pupils can be educated in either main stream or special (segregated) schools and disabled pupils have the right to mainstream education with certain exceptions. In both Romania and the UK some disabled children are educated in either special units or special classes in mainstream schools. Public policy in all four countries supports mainstream education for disabled children and measures are being applied to achieve this. However this support may be on the grounds of cost saving rather than principle. Although the research evidence points towards the benefits of integration, it is important that policy is not applied dogmatically and the interests of each child are considered.

The term children with Special Educational Needs (SEN) is used in all four countries. In both Germany and the UK the term is used to refer only to disabled children, though

there are several sub-categories in Germany, but not in the UK. In Romania it may also include children who may be disadvantaged or discriminated against due to their ethnic or social background. In all four countries at least some children with SEN have particular educational programmes, which may be different from those of other children. The UK differs from the other three countries in having a statutory document which specifies the needs and resources of children with SEN, who are considered to require additional resources. It should be noted that the legislation on which it is based and title of this document is different in Scotland and England and Wales.

The legislation in all four countries includes provisions guaranteeing access to education, including for disabled children. However it has not been very effective historically in ensuring that disabled children have access to mainstream education. All four countries have legislation which requires educational institutions to make adjustments or provide all necessary measures to ensure equal access by disabled students.

Lack of access to the education system is a particular problem in Romania, where about a quarter of disabled children are not receiving any education. Exclusion of children from school is an increasing problem in the UK. Many of these children are not disabled, though they may have statements of need. There are also problems with inappropriate attitudes and inadequately trained staff to different extents in the four countries. In the UK the best qualified teachers generally work in areas of higher prestige, so that additional personnel working with disabled children in mainstream schools will generally have low level qualifications, though they may have considerable experience and motivation. In Romania teaching staff in both mainstream and special schools are inadequately trained to teach disabled children and many staff in UK schools are concerned about their ability to do so.

There is more information available on disabled students in higher than further education. In the UK recruitment levels of disabled young people into further education have risen and there have been considerable developments since the 1980s. However there is still a lack of awareness amongst staff. In Germany and Hungary many disabled students take longer than non-disabled students to complete their courses. Inaccessibility of university buildings and the lack of sufficient accessible accommodation for disabled students present particular barriers. Despite apparent government commitments to increasing the proportion of disabled students in higher education, economic changes in the UK and Germany to more market based approaches are unlikely to benefit disabled students.

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e-Course Module for Vocational Training of Young People with Locomotory disabilities

1 Introduction

The explosive growth of the Internet has led to the increasing popularity of the online Learning. According to a U.S. Department of Education study [1], about 76 % of all higher education institutions with enrollments of 10.000 or more were offering online education programs in the fall of 1995. 61% of medium-sized colleges and institutions already offer online education classes, and an additional 24 % plan to add such courses.

Also modern companies, using new management techniques, realize that in the process of continuous vocational training and institutional development which are important factors of long-term success, online Learning has an important role.

One of the essential success factors of online Learning is the building-up of virtual Learning communities or Learning networks, connecting tutors, experts and participants from all parts of the country or even in the world, in a common course by using the Internet.

While bringing courses online still is a critical component of online Learning, the Internet offers tremendous potential for enhancing academic, vocational programs and communities beyond the walls of the classroom or campus.

This becomes possible by developing software platforms encompassing a course management system, customizable institution-wide portals, online campus communities, and an advanced architecture allowing easy integration of multiple administrative systems.

2 Informational Process and Benefits of Online Learning

Educational institutions agree that Web-based Learning environments offer sound pedagogical benefits. According to a study by the U.S. National Education Association (NEA) released in June 2000, faculty teaching Web-based courses give this course a similar or better rating than their own traditional courses on meeting the following seven pedagogical goals:

- Giving students access to information
- Developing student interactivity

- Providing students with high-quality course material
- Improving quantitative skills
- Assessing the educational effectiveness of the course
- Addressing the variety of student Learning styles
- Helping students master the subject matter.

The benefits of e-Learning are becoming more and more evident as an increasing number of institutions – large and small, public and private – adopt the medium. Far from being impersonal, standardized, and bland, online Learning environments provide highly individualized and exciting educational experiences for students. Meeting these pedagogical goals should be a key objective in the development of any e-Learning software platform.

Access to information. Students have access to course materials, communication tools, and external resources any time of the day or night. If a student prefers to work at 4:00 AM rather than 10:00 AM, he or she can still ask a question to an instructor, take a quiz, or participate in an ongoing discussion with classmates. Accessing external resources for research can be done from home and during times a trip to the library may not be possible.

From this point of view, a software platform for online education has to provide course materials, handouts, quizzes, and other information, which is uploaded to the course site, so students can access them any time.

Message boards allow instructors to post announcements to keep students up-to-date about assignments, changes, or other class information. An online Resource Center should be available featuring news and links to relevant external Web sites. Instructors can customize listings and search options to ensure relevance to specific courses.

Developing student interactivity. Using the Internet, each person in a discussion group makes comments at the same time. Students can participate in online discussions more easily, and absorb more information in a shorter time. Instructors can establish "online office hours" or answer student emails on set schedule, which is most convenient.

The software platform for online education has to supply important communication tools. Discussion and collaboration tools can be customized to create smaller groups within a class for a project work.

Providing high-quality subject matter. In an on-line environment instructors can provide students with the same high-quality, discipline-specific course materials that they offer in traditional classroom settings. However, instructors spare the time-consuming, expensive processes of copying or purchasing multiple copies of textbooks

or handouts. Slides, videos, audio recordings, assessment tools, and other materials can easily be uploaded to a course Web site and edited as needed. Many publishers now offer extensive compilations of course materials specifically designed for online education.

Improving quantitative skills and assessing educational effectiveness. Quantitative skills – those that can be measured based on retention of specific facts or data - can constantly be challenged in an online Learning environment. Quizzes and other assessment tools provide valuable information about a student's grasp of particular concepts or skills. Instant feedback helps student and instructor to identify specific knowledge gaps and address them before the student falls behind.

Addressing a variety of Learning styles. Students learn at different places and in different ways. Some students are visual learners – a video may be the best way for them to learn a particular piece of content. Others feel and learn their best at 3:00 AM, when the instructor may be fast asleep. On-line Learning allows some students to focus on specific course sections, without restricting their classmates' ability to move ahead. The ability to overcome these types of obstacles may be a big benefit to on-line Learning.

Helping students master the subject matter. All of the benefits discussed above lead towards achieving the most important benchmark: helping students master the subject matter. Current research suggests that the benefits of on-line education cuts across the boundaries of student age, type of institution, and proximity to the physical classroom. The on-line Learning environment helps the instructor to show students how to use self-direct Learning. Success leads to improve motivation and ultimately to better learners.

3 Training Module on Word Processing by e-Learning, for Young People with Locomotory Disabilities

3.1 Software requirements identified for the environment used in e-Learning for young people with locomotory disabilities

- The software system used for online Learning should be flexible to accommodate a variety of Information Technology (IT) environments today and positioned to scale and integrate with next-generation technologies.
- It has to be built for scalability to support entire institutions and systems within institutions.
- It must have an advanced object-oriented design and modular architecture that provides the flexibility needed to scale individual parts of the platform over time.

For example, the teaching and Learning environment may incur greater functional use than the Web-based e-mail or information service portal. To accommodate for varying usage levels among parts of the product, the application engines can be deployed on separate hardware systems, allowing for better system management and performance.

3.2 E-Learning System

The system used in our project is a comprehensive and flexible e-Learning software platform that delivers a course management system, customizable institution-wide–portals, on-line communities, and an advanced architecture that allows for Web-based integration with multiple administrative systems.

The e-Learning system proposed for developing the online vocational training module for young people with locomotory disadvantage took count of requirements presented above and results as a useful e-Learning system tool, suitable for the present and the future purposes of our project.

Industry research and feedback from several users of software platforms for e-Learning reveal that most organizations need a flexible and comprehensive way to:

- Deliver course material and Learning via the Internet
- Create effective social Learning communities
- Provide educational information services
- Increase richness, reach, and relevance of educational content
- Extend the "bricks and mortar" Learning environment by reaching a broader base of students, learners, alumni and communities

The integrated system is developed on three levels of functionality and complexity:

Level one – Course Manager: delivers powerful course management tools that enable instructors to provide their students with course materials, discussion boards, virtual chat, online assessments, and dedicated resource center on the Web.

Level two – Course & Portal Manager: expand beyond the course manager and provides customizable institution-wide portals for faculty, students, staff and alumni with access to a large number of personalized news and information services from across the Web. The platform can be customized with institutional branding and tailored look and feel. It facilitates on-line communities, Web-based e-mail, calendar, announcements, etc. It also may function as a central access point to all institution's online services.

Level three – Advanced Course & Portal Manager: represents a complete end-to-end e-Learning solution. In addition to the Course and Portal Manager, level three provides

advanced Java-based API's unifying diverse on-line systems into one integrated platform allowing user-driven single log-in service delivery, as well as capabilities that allow each group, school, department or campus and within the institution to maintain its own customized environment.

In this approach, the community members are divided into three groups: users (students), instructors, administrators.

Further on, we focus on the Course Manager, the main tool used for developing the training module in Word Processing.

The Course Manager provides the following core features and functionality:

- Course development and management tools
- Content management tools
- Communication and collaboration tools
- Assessment tools
- Personal information management tools
- Academic Web resources
- Systems management tools

The phases in a development process of training modules are:

a) Design curricula of the training module
b) Design the set of practical application and exercises
c) Design the assessments forms
d) Design the manual for students
e) Design the manual for instructors and course author
f) Implement and test the course module with a pilot group of students
g) Installation and configuration for common use of the target group.

Training materials are hosted on Web-sites. The student subscribes to the course with a username and a password. He only needs an Internet connection and a Web-browser. For more functionality also an e-mail count would be useful. Therefore, through the e-Learning system proposed, both the pedagogical goals and marketing goals of Euro H Center could be reached.

The pedagogical goals may include:

- Providing an easy-to-use interface for young people with locomotory disabilities and instructors to get the most out of their online educational experience;
- Developing an on line community with institution-specific resources for staff, students and other constituencies;
- Offering access to subject-and discipline-specific external resources.

The marketing goals may include:

- Attracting new students;
- Promoting the institution's brand and mission to a wider audience;
- Meeting security requirements.

3 Conclusions

On-line Learning used for vocational training of young people with locomotory disabilities brings seven important pedagogical benefits.
On-line Learning generates virtual communities essentially supporting the process of knowledge acquisition by creating a sense of synergy, an excitement atmosphere and passion for Learning and working together.
Management of virtual communities of young people with locomotory disabilities can be made by a software platform that delivers a customisable course management system, institution-wide portal, on-line communication and an advanced architecture on three levels of complexity allowing Web-based integration with multiple administrative systems.

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Gelu Vasilescu
S.C New Systems S.A., Bucharest Romania

Database System of Euro H Center – Workpackage 2 Goals

1 Main Goals

The aim for this workpackage is the design and development of a database system for Euro H Center. Within this package the main goals are the usage of a common Internet browser to access the database functions, to provide a replicable solution for the fair national databases in order to ensure compatibility at data type level, to avoid multiplying of design and implementation costs and to permit an easy way of applying future extensions in the four national sites.

2 Relationship to Other Workpackages

As provided by Contract database design is influenced by results from the other workpackages in Leonardo da Vinci Project. This influence was less than in the first stade of development. But the existence of the national databases is intended to be an active one. That is the cause its development covers the entire period of Project. Information obtained from that databases might influence decisions in the objectives of other actual or future workpackages.

3 Solution Description

3.1 Solution in non-technical terms

After long but useful discussions with all partners in the Contract was adopted a solution considered being the best choice that combine professional tools and support with limited costs. **The main idea was to lower the costs for the four national sites to the level of a single site costs, developed in a professional manner.** This is achieved by:

(1) Using a single hardware platform and related services for the four sites
(2) Using a single software solution that made possible
- to use the best database support for the four national sites but buying it once;
- to develop the related applications in a single place with the advantage of limited costs and use them after that in all four national sites.

3.2 Status, Schedules

At the moment a full functional database and associated applications at New Systems location are available. A detailed presentation is available as PowerPoint slides.

Databases may be implemented as Web applications for the four national sites, after buying the necessary Oracle licenses, according to the following schedule:

- in one week the English version for all four sites
- in three weeks application in national languages

Technology being used is mainly based on Oracle's products:

- Oracle designer
- Oracle 9i Database
- Oracle JDeveloper

4 Benefits

The main benefits are:

- Using perfect compatible tools.
- The sites will accept theoretically any number of concurrent connections.
- The amount of data is limited only by physical storage capacity on database server.
- Hardware and software extensions might be done any time.
- Using a top existing solution on market with greater guaranties of ensure compatibility with future versions.
- Using perfectly compatible tools:
  The sites will accept theoretically any number of concurrent connections.
  The amount of data is limited only by physical storage capacity on database server.
  Hardware and software extensions could be done at any time.
  Using a top solution with guaranties of compatibility with future versions.

5 System Architecture

Three tiers: database server, applications level, and thin client level.

Some additional technical specifications:
These applications were build using JDeveloper and Oracle Server. JDeveloper is a full-featured, integrated development environment for creating multi-tier Java applications. It enables to develop, debug, and deploy Java client applications, dynamic HTML ap-

plications, Web and application server components and database stored procedures based on industry-standard models.

So the applications are multi-tier Java applications. Applications use instances of objects on middle tier that manages the access to databases. These objects are instances of JavaBeans classes that implement multithreading processing and provide an efficient way of sharing the resources.

6 Main Modules of Application – Short Description

Module Employers:

- Companies that wish to hire people with disabilities or wish to hire people with special competencies to work with people with disabilities make an account in the database and introduce information about their companies and available jobs.
- The information are introduced in the database through Internet;
- The data are public for everyone, but can be modified by the owner's account;
- Immediately the information is introduced in the database, can be visualized in every place. There is no need to transfer them by a disk, or a support and to import in the database a.s.o.

Module People with Disabilities:

- This module contains information about people with disabilities:
- About their education, life and adaptations, their jobs, actual and past jobs, and about their knowledge about computers and internet;
- These information are from a questioner that can be filled directly by the people with disabilities on the Internet, or can be on paper and somebody else has to introduce them in the database;

Module Courses:

- In this module are introduced information about the courses how the courses are categorized and the number of courses.
- Also information about exams, the results and jobs that can be practiced after the course is delivered.
- This module can be extended to contain the lessons with audio and video information in a multimedia environment.

Module Organizations:

- This module deals with information about local, regional and European organizations from this domain;
- And how you can contact these organizations;

- This module also contains information about the local, regional and European legislation from this domain;

Module Technologies and Companies:

- This module is developed to store information concerning companies which offer specialist services such as equipment for people with disabilities, rebuild services to adapt houses or workplace etc.
- And information about the technology needed, or about the necessary adaptations.

Module Administration and Monitoring:

- From this module, all applications, modules and the database can be monitored and help quickly to discover the potential problems, and to resolve them.
- The monitoring and administration can be accessed online, in order not to interrupt the work of any module.
- The entire system and the information already introduced in the database, including the database, the users and theirs roles can be very simply exported or imported, or made a back up.

7 Conclusions

First implementation was made on New Systems Internet server.
Functional software for Euro H center was presented to all partners during the meeting in Germany.

General impression was a positive one. There were some comments and suggestions that may be considered normal for the first view. It was as settled also that during the next three weeks after meeting partners will make further suggestions in order to make the software more useful.

New Systems were agreed to make all necessary updates to software based on partner observations.
A final implementation will be made at Coordinator's site as soon as it will be disposable.
Anyway there is no major problem with respect to the main schedule of the Project.
Some additional technical specifications:

Steffi Engert,
Sokom Internetprojekte GmbH.
Ileana Hamburg, Institut Arbeit und Technik

Web-Based Learning for People with Disabilities: Environments and Training Modules

1 Introduction

Recently, Learning processes and products both in organizations as well as for individuals are subject to many far-reaching changes. The main trend is due to Internet technologies, driving a profound revolution in Learning, which is becoming firmly based on the interaction of services for information and communication. Besides traditional class room instruction, virtual environments and virtual Learning communities based on the Internet play an increasingly important role. The training industry discovers special authoring software to provide training over the Web and "portals" to consolidate and distribute content from multiple sources.

Internet technology facilitates Learning as a continuous cultural process not simply as a series of events, particularly because access and opportunities to learn are, in principle, available to anyone, anywhere and any time.

The question today is no longer whether organizations implement e-Learning, e.g. Internet-enabled Learning, but whether they will do it well; it requires the building of effective e-Learning strategies, which in most cases ought to be Web-enabled Learning strategies, or "blended" Learning, i.e. combining Web-based Learning with other forms, because the Web is the Internet service most used (e.g. CEDEFOP-Study, 2002), most easily accessible and most flexible.

Web-based Learning is expected to be an efficient solution also for improving the qualification of disabled people and therefore their chances of integration into work and society (Hamburg, 2001). This context is the main focus of the current project EURO H in the framework of the EU Leonardo program . The project is carried out by the IAT and CePTIC in cooperation with non-governmental organizations, universities, research institutes and other partners from Great Britain, Hungary and Romania.

After a short presentation of some recent results about Web-based Learning for the disabled (part 2) and some requirements for Learning environments in this context (part 3), developments in this field within the project EURO H are presented in the last part of this paper.

2 Web-based Learning and Disability

Already the “founding document” of the Information Society in the European Union, the EU Commission's White Paper on "*Growth, competitiveness and employment: the challenges and courses for entering into the XXIst century*” of 1993, emphasized the key role of IT-based Learning for the Information Society. It also underlined the anti-discriminatory potential of these technologies and new forms of Learning. Ever since, **social inclusion** has been high on the agenda for the European Information Society. When the “*eLearning initiative*” was launched in May 2000, this was underlined prominently in the documents. Currently, a special server SEN-IST-NET (European Network of Excellence in Information Society Technologies for Special Educational Needs) is being set up at http://www.senist.net/

E-Learning, particularly Web-based Learning offers a number of opportunities for persons with disabilities to overcome certain handicaps (e.g. visual deficiencies, hearing problems, difficulties resulting from reduced mobility):

- by facilitating access to new services, new knowledge and new forms of work from any place without having to travel,
- by breaking the isolation that disabled people feel in life and Learning through their integration into a virtual Learning community
- by restoring a social identity for them through giving them access to work or helping them to maintain a job by improved qualification.

A *CEDEFOP-EU-Study* (2002) with 350 European participants from private and public training organizations, research, decision makers, organizations responsible for the disabled presents the current situation about e-Learning in relation to the disabled. Results of answers of some questions of the study are listed in the Figures 1, 2 and 3.

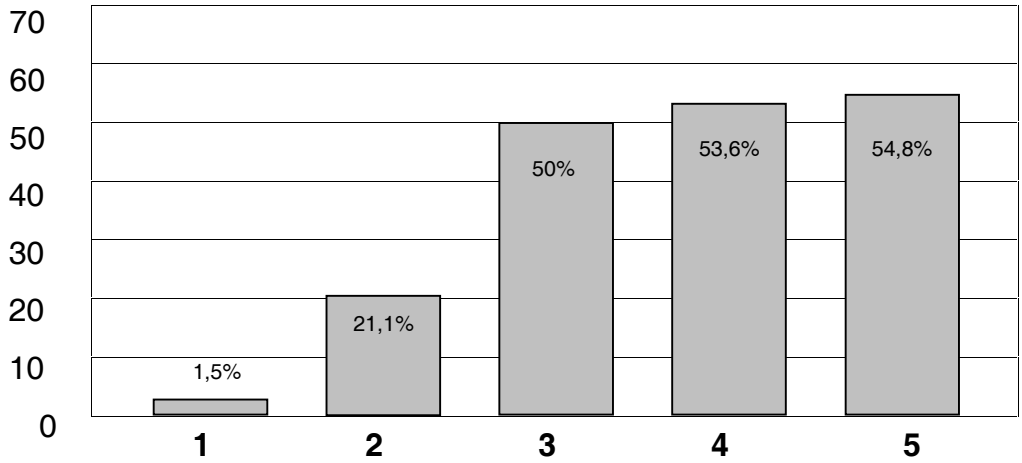

Figure 1: How important is e-Learning for people with disabilities ?

1. e-Learning is not suitable for most disabled people
2. e-Learning can supplement current training if certain preconditions are met
3. e-Learning offers more Learning possibilities for people with disabilities
4. e-Learning should be accessible for all learners without consideration to impairments
5. e-Learning gives new and innovative Learning possibilities to many disabled people.

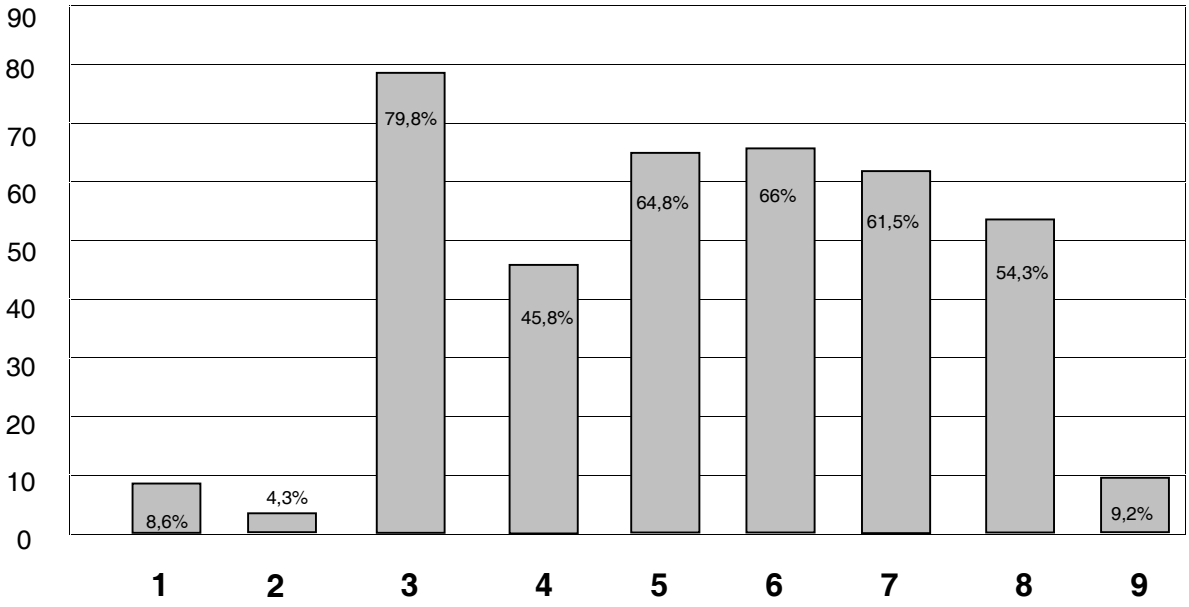

Figure 2: e-Learning offers and their implementation for people with disabilities

1. e-Learning is not offered to most disabled people, because it is too expensive
2. e-Learning is not implemented for the disabled because there is no need for it in the near future
3. e-Learning should be offered to the disabled in order to improve their equal opportunities
4. e-Learning is suitable for people partially sighted
5. e-Learning is suitable for people with language impairments
6. e-Learning is suitable for people with hearing impairments
7. e-Learning is suitable for people with locomotive impairments
8. e-Learning is not offered to most disabled people because the technology cannot be adapted to existing Learning methods and approaches

One negative aspect is that the latest developments in research about e-Learning for the disabled are not known in many European countries. Only 10% of the persons interviewed know these developments because e-Learning is important for their organizations.

A number of the important approaches of special e-Learning concepts and guidelines for disabled are shown in Figure 3.

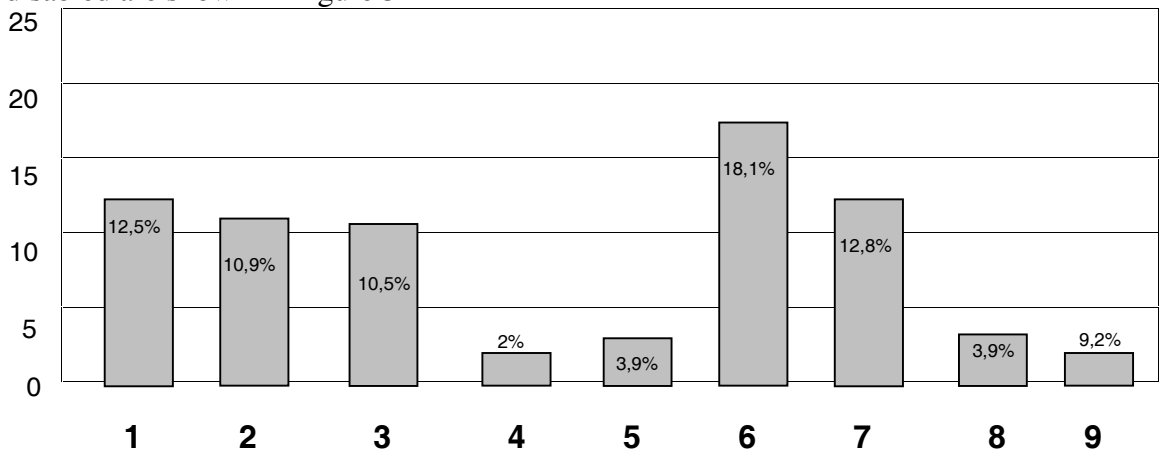

Figure 3:

1. W3C-specification for accessibility guidelines of Web-content 1.0
2. IBM accessibility guidelines
3. Microsoft online hub about accessibility and support technology
4. Paragraph 508 of the USA initiative
5. The publication "The 20011 U.S. market for Accesible e-Learning"
6. Report of the EU-Commission "Auf dem Weg zu einem Europa ohne Hindernisse für Menschen mit Behinderungen"
7. Bobby
8. "Design for All" CEN/ISS
9. Other initiatives, guidelines and publications

3 Developments within EURO H

The main objectives of Euro-H are

- Qualification of young people with mobility impairments (professionally and in social/political terms)
- Awareness-raising of employers for the situation and the potential of young people with mobility impairments
- Qualification and awareness-raising for educational and job-centers and their management
- Networking of all these groups.

These objectives have to be seen as components of an integrated strategic approach. For much of the integration, modern media are important tools. E-Learning is one of these tools. While it is first and foremost used for the qualification of young people with lo-

comotive disabilities, it may also play a role in the dissemination of knowledge and know-how in the framework of the awareness raising campaigns.

4 Web-based Learning Environments

4.1 Social Inclusion – Requirements for a Learning Environment

It is important to design e-Learning in such a way that the negative potential of e-Learning is held in check: This negative potential is social isolation, which is reinforced in systems, which rely heavily on self-Learning. To counteract this, the Learning paradigm should be "networked Learning", that is Learning in a Learning community and/or "blended Learning", that is the intelligent mix of e-Learning and traditional class-room tuition.

4.2 Key Aspects for a Positive Learning Experience

While these aspects are key for any learners' group, they are especially important for people with disabilities:

- Sufficient initial explanation and try-out of system, ideally in a class-room workshop (hence: blended Learning)
- Availability of tutors and peers
- Availability of technical support
- Understanding of tutor role as facilitator of group process
- Didactic design encouraging group-/project work
- Interlinking as much as possible internal work with outside contacts (e.g. job-centers, other educational institutes and learners' groups etc.)

Before the technical requirements are defined, the Learning objectives and the Learning model should be clarified. It is paramount that didactics are leading the technical implementation and not the other way round!

4.3 Technical Requirements for Learning Environments

The Learning environment is the "container" for the technical realization of Learning paradigms and objectives.

Ideally, software tools are open and flexible enough to accommodate a wide diversity of Learning models.

Technical implementation is possible on different levels. The choice is determined by a number of factors:

- expenditure
- technical skill level and availability of equipment on the part of the learners and/or educational institution
- Learning model (some techniques are more supportive to some Learning models than others)

4.4 The Learning Environment i-teacher for Euro-H and Sample Modules

The choice for Euro-H involved Learning environment the following considerations:

- Simplicity and clarity of the virtual class-room, i.e.
  - Division of areas according to function
  - Easy and multiple navigation
- Low technical requirements
- Support for networked Learning/development of a Learning community.

The Learning environment i-teacher for Euro-H is made up of the following components:

1. For the Learners:
   - The Lobby – is the first entry point, where users log into the environment. Navigation buttons lead on to all the other areas of the environment, e.g.
   - The "Classroom" with the Learning material provided beforehand ("lessons")
   - "Exercises" for all the lessons, where learners can control their Learning success
   - The "Library" with optional material for additional reading and Learning
   - "Discussion" leads to the discussion forum, which is the main tool for the Learning community. Here, students and tutors can interact with one another as a group and share experiences and views. The discussion forum can also be used for group collaboration, such as development of small telecooperative projects.
   - "Contact" allows the students to e-mail their tutor.

2. For tutors/administrators/course leaders:

- There is an additional area "Administration" for user and course management. The discussion forum has in addition its own administration area.

Three sample modules have been provided together with i-teacher for Euro-H on the subjects

- IT-Basics, which is a very elementary introduction to computers, operating systems and requirements of basic maintenance (e.g. virus protection, defragmentation of hard disks etc.)

- Internet Basics: on the history of the Internet and the main services provided by the Internet
- Introduction to basic Internet technologies: This is at present focused on e-mail and newsgroups.

The sample modules consist of texts ("lessons") and exercises. The texts are illustrated, some of the illustrations are animated. Exercises are of two kinds: on the one hand, these are "self-Learning" exercises, checked by the program, which will return the results immediately on submission (e.g. multiple choice exercises). On the other hand, there are exercises, where the result has to be submitted to the tutor or fed into the discussion forum.

As the target groups of Euro-H in the present project are young people with impaired mobility, not too many specifics had to be taken care of. This would be different if the course was to be adapted, for example, to the hard of hearing, which usually have a restricted vocabulary or people with sight impairments. The sample modules have been provided as a material basis for further developments, especially based on debates between developers and specialist didactics for handicapped young people.

5 Conclusions

E-Learning is still a fairly new field. In its first stages, the emphasis has often been too much on technology and technical solutions. Meanwhile, it is recognized more and more, that technology has to follow didactics and Learning models and not the other way round.
The findings presented in this paper on e-Learning for people with disabilities are still very tentative. A more mature formulation will be possible, once the dialogue between specialist pedagogues and developers is fully on its way. For this we are providing a Web-based platform at www.virtuelleslernen.de.

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Protokoll AG I

(Moderation: Dorothea Berg)

Schwerpunktthemen des IAT im Rahmen des ÖFTA-Verbundprojektes sind zum einen die (veränderten) **Interaktionsbeziehungen**, zum anderen die **Akzeptanz** von technik- und Webbasierten Lehr/Lernmethoden. Hierauf zielten die folgenden Fragestellungen der Arbeitsgruppe ab.

Fragestellungen für Arbeitsgruppe I

- Wie wirken sich die multimedia- und internetbasierten Lehr- und Lernmethoden auf die Beziehungen zwischen den Lernenden und den Trainern sowie der Lernenden untereinander aus? Wie verändert sich die Rolle der lehrenden Person und was kann man tun, um diese veränderten Rollenbeziehungen zu gestalten?
- Wie werden solche neuen Lernkonzepte und –methoden bei den Teilnehmern akzeptiert?

Einführung

Das, was unter e-Learning verstanden wird, hat verschiedene Qualitäts- und Intensitätsstufen:

- Vom rein distributiven Werkzeug der Informationsdarstellung und -vermittlung, (Repräsentation von Wissen, das durch das technische Medium z.B. durch Visualisierung anschaulich gemacht wird) bis hin
- zur interaktiven und kollaborativen Technologie zwecks Wissensteilung und Problemlösung (Lernen in virtuellen Gruppen).

Lernen ist und bleibt ein Prozess, den man durch die Gestaltung von Lernumgebungen oder mittels Medien zwar initiieren oder begleiten kann; erzwingen oder gar steuern lässt sich dieser Prozess – da er ein psychologischer Vorgang ist – damit nicht. **Lernen ist und bleibt an Kommunikation und Interaktion gebunden**. Dies ist Konsens sowohl in der Lernpsychologie als auch in der Pädagogik.

Vergangene Projekte am IAT zum Thema Tele-Lernen/netzbasiertes Lernen haben gezeigt, dass Faktoren wie Lern-Motivation, Ergebnisorientierung, Verbindlichkeit im Team dadurch unterstützt wurden, dass es reale („face-to-face“) Beziehungen, Verknüpfungen und Verbindungen zwischen den Lehrenden und Lernenden sowie der Lernenden untereinander gab. Im Projekt FrauTelNet mit Teilnehmerinnen aus kleinen und mittleren Unternehmen war der **Präsenzauftakt** jeweils vor Beginn eines neuen Lernmoduls unverzichtbar. Dieser „Beziehungsfaktor“ erwies sich für Motivation und Durchhaltevermögen der Teilnehmerinnen als entscheidend. Die Workshops boten Raum für Begegnungen und Beziehungen; hier konnte Kritik geübt, konnten wesentli-

che Verbesserungsvorschläge gemacht werden; es entstanden Sympathien und daraus erwuchs ein hohes Maß an Verbindlichkeit.

Im Rahmen des lebenslangen, berufsbegleitenden Lernens tritt an die Stelle des reinen Wissenserwerbs mehr und mehr das selbstgesteuerte Lernen, aber auch das sogenannte „kollaborative Lernen“ in Arbeitsteams oder Learning communities sowie die mit ihrer Arbeitsumgebung vielfältig verknüpfte und kommunizierende Handlungskompetenz der Mitarbeiter. Es gibt Studien, die belegen, dass diese neu sich bildende Kompetenz **gerade** durch die technischen Errungenschaften der digitalisierten Bildungswelt gefördert wird, wie es auch in einigen Vorträgen des Workshops deutlich wurde.

⇒ Wie steht es mit der Akzeptanz der neuen Lernkonzepte u. –methoden bei den Teilnehmern Web-basierter Trainings?

⇒ Wie kann man die Akzeptanz herstellen, fördern, aufrecht erhalten?

Diskussion

- Das Rheinisch-Westfälische Bildungswerk (rwb) in Essen hatte vorübergehend 50% seiner Schüler/innen verloren. Als Grund erkannte man die Tatsache, dass es keinen Vorkurs zur Einführung in die internetbasierte Form des Lernens und Kommunizierens gab; die Teilnehmer/innen mussten parallel die Lerninhalte sowie den Umgang mit der ungewohnten Technik bewältigen. Inzwischen hat man einen Vorkurs installiert, um die Teilnehmer/innen dort abzuholen, wo sie stehen (Stichwort „Lernen des Lernens“). Das rwb bietet ihnen mittlerweile eine Zeit lang technischen support, bis sie selbständig mit Multimedia/Interaktivem Lernen umgehen können. Die Kompetenz im Umgang mit dem e-Learning braucht eine gewisse Zeit.
- Die Technikausstattung der Teilnehmer/innen ist ein nachrangiges Problem. Eine normale Internet-Verbindung ist ausreichend (und preisgünstig). Für das Durchhaltevermögen entscheidend ist, dass die Lernenden im Einklang mit ihrem Umfeld sind, sich in der Gruppe ein Zugehörigkeitsgefühl entwickelt („Klassenverband“) und dass die Teilnehmer/innen ein effektives Zeitmanagement haben, da sie berufstätig sind.
- Sowohl bei der virtuellen Fachschule als auch im Projekt FrauTelNet werden oder wurden Papierversionen der Unterrichtsmaterialien als Lerngrundlage bevorzugt. Die in der virtuellen Lernumgebung vorhandenen Lehrtexte wurden hier wie dort fast nicht genutzt. Am PC arbeiten die Teilnehmer/innen schon überwiegend in ihrer beruflichen Funktion. Ein Skript dagegen kann man entspannt im Sessel oder Liegestuhl lesen.

- Ein/e Dozent/in braucht für die inhaltliche und methodische Vorbereitung der Webbasierten Lerneinheiten bis zu doppelt soviel Zeit als für den Präsenzunterricht, da

der Ablauf des interaktiven, simultanen Lehr-Lerngeschehen weniger vorhersehbar ist. Auch mehr Vielfalt ist erforderlich, Anschauungsmaterial muss gründlicher ausgewählt werden, da bei dieser Form der Wissensvermittlung das übliche Beiwerk der Gesten, der Mimik und des wechselseitigen Feedbacks nicht gegeben sind.

- Die **Rolle der Lehrenden** ändert sich nicht: „Wenn der Lehrer bisher Frontalunterricht gemacht hat, macht er das im Netz nicht plötzlich anders." Diejenigen Lehrkräfte, die vorher Gruppenarbeit praktiziert haben, behalten dies auch über das Netz bei. Auch hat der/die Lehrende nach wie vor eine Kontrollfunktion für den Lernprozess sowie als Feedback-Geber für die Beurteilung des Einzelnen.
- Die **Beziehungen der Lernenden** untereinander braucht eine eigene Raum/Zeitdimension, um sich entwickeln zu können: erst als das virtuelle Klassenzimmer des rwb 24 Stunden geöffnet war, nutzten die Schüler/innen dieses als Forum, um sich über sich selbst und ihren Lernprozess zu verständigen (Selbstkritik zu üben, Regeln aufzustellen). Solche Gruppen-Prozesse lassen sich nicht verordnen. Dafür braucht es Freiraum, wo sich das entwickeln kann.
- Es gibt Unterrichtszuschnitte und -gegenstände, bei denen virtuelle Lerngemeinschaft keine oder nur eine Vehikelfunktion für den Lernprozess hat. Das positive Potenzial von **Lerngemeinschafte**n entsteht erst bei längeren und komplexeren Lerngegenständen sowie bei kollaborativen Prozessen.
- Bei kleinen und mittleren Unternehmen ist die Akzeptanz gegenüber den neuen multimedialen Lernmethoden noch sehr gering, oft fehlen den Teilnehmer/innen bei Schulungen die einfachsten technischen Grundlagen. In großen Unternehmen sind es laut Bundesinstitut für berufliche Bildung (BIBB) um die 50%, die e-Learning bereits einsetzen. Dort ist die Technikausstattung längst vorhanden und der Umgang damit für alle Mitarbeiterselbstverständlich. Dementsprechend ist die Akzeptanz bei den Lernenden hoch.

Protokoll AG II

(Moderation: Ileana Hamburg)

Die Fragestellungen in dieser Arbeitsgruppe (AG II) sind ähnlich denen der AG I. Diese werden aber im Fall von Lernenden mit körperlichen Behinderungen diskutiert, welche Zielgruppe der beiden EU-Projekten EURO H und REHA-INPROD sind.

- Wie wirken sich die multimedia- und internetbasierten Lehr- und Lernmethoden auf die Beziehungen zwischen den Lernenden und den Trainern bei Menschen mit Behinderungen aus?
- Wie können solche neuen Lernkonzepte und Lernumgebungen entwickelt werden, um auch von den Teilnehmern mit Behinderungen akzeptiert zu werden?

Es ist bekannt, dass die Sicherstellung des Zugangs zu den neuen, internetbasierten Lernmöglichkeiten (e-Learning, Web-basiertes Lernen) für alle Bürger und Interessenten weltweit ein vorrangiges Ziel der Politik ist. Diese können für viele Behinderte eine nützliche Ergänzung zur gegenwärtigen Ausbildung sein und so ihre Integration in die Gesellschaft und in die Arbeitswelt erleichtern. Leider liegt jetzt, sowohl in Deutschland als auch in anderen europäischen Ländern, die Arbeitslosigkeitsquote von Behinderten viel höher als bei Menschen ohne Behinderungen. Ein Grund dafür ist, dass diese Personen oft eine niedrige Qualifikation besitzen. Durch die Flexibilität und Anpassbarkeit, die neue Medien für Lernprozesse und Lernmaterialien bieten, sollen diese in erhöhtem Maße für Menschen mit unterschiedlichen Behinderungen angewendet werden.

Wie eine Cedefop Online-Umfrage (2002) zeigt, sind behindere Menschen oder die dafür in verschiedenen Organisationen Verantwortlichen häufig nicht über den aktuellen Stand der Forschung und Praxis in diesem Bereich informiert und nutzen die Möglichkeiten des Web-basierten Lernens für Behinderte nicht.

Es ist bekannt, dass ein Schlüsselfaktor von Computer-based-Training die Initiative und Motivation der Benutzer ist. Selbstgesteuertes Lernen war bisher dadurch gekennzeichnet, dass der Lernende alleine lernt und sich dabei Lerninhalte effektiv aneignet. Der Einsatz von Internet und Web bietet Abhilfe bei diesen Lernprozessen, weil der Benutzer sich über Kommunikationsnetze (wie z.B. Intranets oder Extranets) Lernmaterialien ohne Zeitverzögerungen von seinem Arbeitsplatz aus oder von Zuhause herunterladen kann (was für Behinderte von großer Bedeutung ist).

Ein wichtiger Aspekt ist, dass die Zweierbeziehung zwischen Mensch und Maschine, in der die Lerninhalte bearbeiten werden, die Isolation der Lernenden, die bei Menschen mit Behinderungen noch höher als bei den Anderen ist, in diesem Prozess verstärkt werden kann. Da Fragen auch bei einem optimal auf den Lernenden abgestimmten CBT-Kurs unbeantwortet bleiben, kann dies bei verzweifelten Lernenden zu einem Abruch des Lernens führen.

Hilfe schafft in diesem Fall:

- ein permanenter direkter Kontakt mit einem Tutor oder Experten,
- die Verbindung von Fernunterricht und Präsenzunterricht,
- vernetztes Lernen (Lerngemeinschaft),
- die Entwicklung von Lernumgebungen, die den Austausch und die Kollaboration der Lerngruppe fördert (z.B. im Rahmen von Diskussionsforen, Chats, Arbeit an Gruppenprojekten, Feedback zu Teilergebnissen, E-mail).
- lernfördernde Bedingungen für Behinderte in den Organisationen, was eigentlich mehr als "Kauf von Technik" bedeutet.

Das Initiieren einer Lerngemeinschaft oder eines Gruppenprojektes ist keine einfache Aufgabe und es bedarf einer sorgfältigen Vorbereitung durch den Tutor und Beitragsleistungen aller Beteiligten.

"Generische" Lernumgebungen, die sich laufend selbst überprüfen und angepassen, können die Lernprozesse effektiver gestalten.

Die Akzeptanz der Lernumgebung und des multimedia-basierten Lernmaterials, welches ein wichtiger Aspekt insbesondere für Behinderte ist, kann durch folgende Maßnahmen verbessert werden:

- Verfügbarkeit von adäquatem technischen Support,
- konkrete Einführung in die Lernumgebung und das Lernarrangement,
- Diskussion aller Eventualitäten im Vorfeld,
- Berücksichtigung dessen, was von der Zielgruppe realistischerweise erreicht werden kann (technische Ausstattung, finanzieller Rahmen, Qualifizierungsnineau).

Als eine Schlussfolgerung der Diskussion hat die AG II die Bedeutung der Integration von Behinderten in Arbeits- oder Lerngruppen mit Menschen ohne Behinderungen erkannt, was in einigen europäischen Ländern wie z.B. Italien bereits intensiv praktiziert wird.