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LEARNING
DESIGN

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MASARYK UNIVERSITY
TEIRESIÁS, SUPPORT CENTRE FOR STUDENTS
WITH SPECIAL NEEDS

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SECTION 1

Standards of Universal Learning Design at Universities and Testing of Persons with Special Needs

CHAIR: ALAN HURST

Skill: National Bureau for Students with Disabilities, London

The section focuses on:

- *The concept of a special need, diversity and its categories.*
- *Design for All (DfA), Universal Design for Learning (UDL), Universal Learning Design (ULD), Universal Design for Instruction (UDI) and Universal Instructional Design (UID).*
- *The confines of universal design and individual accommodation, the right for a universal learning design and its enforceability, the right for an individual accommodation and its eligibility, rights and duties of parties at a case.*
- *Legislative, methodological and technological standards of universal design and individual accommodation for persons with visual, hearing or mobility impairment, neurodiversity and chronic diseases.*
- *Management and financing of services providing universal learning design and individual accommodation in tertiary education.*
- *Universal design of Learning Potential Tests and Qualification Tests, standards for individual accommodations of partial subtests, and measurably of results.*
- *Universal design in national and international contexts: cooperation of schools during transition between various levels of education; school networks providing students' mobility.*
- *Universal design of science and research.*

Plenary keynote

Universal Design and Disabled Students: From Inclusion to Excellence

ALAN HURST

Skill: National Bureau for Students with Disabilities, UK

Alan Hurst, formerly Professor in the Department of Education, University of Central Lancashire, Preston, England is a trustee of Skill: National Bureau for Students with Disabilities. Alan has degrees from the universities of Hull, Manchester and Lancaster. He has published books and articles and been invited to lecture and lead workshops on disability in higher education in many countries. He was awarded an honorary doctorate by the Open University in June 2005 for his contribution to developing policy and provision for disabled students. Having retired from his full time post in 2007 he is currently working with many organisations and institutions in both the UK and abroad on developing high quality inclusive policies and provision. He was a member of the group established by the Higher Education Funding Council for England to review its policies on disabled students since 1997 and of the group set up by the Quality Assurance Agency to devise an updated version of the Code of Practice. In 2007 he was the recipient of the Myriam Van Acker Prize, an award made every three years by staff working worldwide in disability support in higher education in recognition of his work over many years.

Specialist disability staff in universities in the UK consider that their biggest challenges when trying to ensure that disabled students are fully included originate in lack of access and participation in classroom activities – in learning, teaching and assessment. Some progress has been made towards minimising the challenges through the introduction of the idea of universal design as a fundamental principle when course are designed and delivered. Having introduced this, the keynote presentation will go on to consider in greater detail what universal design means, especially for members of Faculty. It will move on to consider three other factors which can assist in promoting and developing universal design: the need to comply with anti-discrimination law, the importance of maintaining and enhancing the quality of education for disabled students, and the key role of effective staff training and continuing professional development.

Plenary keynote

Personal Autonomy and Educational Inclusion – SZS – A Holistic Approach

JOACHIM KLAUS

Study Centre for the Visually Impaired Students, Karlsruhe

Joachim Klaus is one of the first pioneers who worked on removing barriers on the scientific and technological education of blind students. In 1986, he started at the Technical University (now: Institute of Technology) Karlsruhe inside the Faculty of Informatics with a special programme “Informatics for the Blind” dedicated to opening new study and professional possibilities for visually impaired people by a methodical use of new information and communication technologies. He has been the Head and Founder of the “Centre for Open and Distance Learning” since 1990 and he was the Head of the institutionalized “Counselling and Guidance Centre” at the University in Karlsruhe from 1976 to 1993. From 1998 to 2000, Joachim Klaus was the President of FEDORA (Forum Europeen de l’Orientation Academique / European Forum for Student Guidance). Since 1993, Joachim Klaus has been the Managing Director of the “Study Centre for Blind and Partially Sighted Students” at what is today Karlsruhe Institute of Technology. He headed and cooperated in various programmes of the European Commission. He was a member of various regional, national and international associations and working groups. He initiated and participated in national and international conferences and congresses.

The “Convention on the Rights of Persons with Disabilities” is adopted on 13 Dec 2006 at the United Nations Headquarters in New York. The purpose of the Convention is to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities.

In the meantime all European Countries and the European Union signed the UN-Convention. As from 1 Jan 2011 the EU decided that these topics fall under the portofolio of the Directorate-General for Justice with its five directorates – Civil Justice, Criminal Justice, Fundamental Rights, Union Citizenship and Equality.

“Justice, fundamental rights and citizenship policies are based on Euro-

pean's most cherished values and principles, such as democracy, freedom, tolerance and the rule of law", as the official mission.

The presentation will express the complexity of inclusion of persons with disabilities concerning education and profession. The SZS – starting in 1986 at the University of Karlsruhe – is an example for a social, educational, legal and – above all – interpersonal approach and underlines the interdisciplinary and transversal functions and necessities of inclusion and equal rights.

Consequently all political areas should follow this multifunctional aspect and include it as a horizontal task into every concept, programme and innovative structure.

Transition to higher education and to employment: international trends and challenges

SERGE ÉBERSOLD

National Higher Institute for Teacher Training and Research for the Education of Young Disabled Persons and Adapted Teaching

Access to tertiary education increases the employment opportunities persons with disabilities have as well as their ability to maintain their employability and is therefore a key factor for their social inclusion. Inclusive education policies developed in the last decade by most OECD countries improved substantially the access of persons with disabilities to tertiary education. They supported a developmental approach of disability, led education institutions to open up to diversity and to focus on quality and effectiveness for all students. As a result they increased the number of SEN students accessing to upper secondary education and meeting prerequisites made to access to tertiary education and enhanced their chances to complete their courses. For example, in the United Kingdom, the proportion of SEN students with a known disability grew from 2 % of the student population in 1994–95 to 6,5 % of the student population in 2006–2007. In France, 695 students with disabilities were registered in 1981, a number which grew to 8,763, or 0,4 % of the population in the year 2006–2007. However, young adults with disabilities are still facing difficulties in accessing tertiary education since their access to tertiary education may not be as fluent as for non disabled peers or not reflect personal choices. These difficulties may be related to early tracking systems leading preferentially SEN students to less demanding and effective courses after lower secondary education as well as to barriers rooted in changes in definition of disability and in requirements made to institutions as well as to individuals. Existing data show also that SEN students are more likely to face difficulties in achievement and have more erratic pathways within tertiary education: for example in Germany, they change over proportionally study programs or institutions compared to their peers and are more likely to drop out. These difficulties are rooted in higher education institutions' ability to be receptive to diversity and tend to maintain and even widen the qualification gap between them and non disabled persons and perpetuate their difficulties in entering employment, especially for those with mental, emotional or behavioral disorders.

The presentation builds upon an OECD study on transition to tertiary education and to employment of young adults with disabilities among 6 OECD countries that is coordinated by the author since 2006.

Modifications of the admission tests at the Faculty of Arts of Charles University in Prague – options and limits

ILONA GILLERNOVÁ

Charles University, Prague

Modifications of study requirements are a basic condition for a successful start, progress and completion of university studies for persons with special educational needs. The modifications are based on applicants' or students' needs as well as characteristics of the study program, graduate profile, and equipment for employment.

A model of Accessibility Service Provision for Students with Disabilities in Higher Education

GEORGIOS KOUROUPETROGLOU, ALEXANDROS PINO, HERNISA KACORRI

University of Athens

The number of universities offering services for students with disabilities has grown considerably over the last decade worldwide. Nevertheless, not all students with a disability receive adequate level of support, even in the same country. Providing effective academic services for students with disabilities demands among others thorough planning, appropriate organizational scheme, human resources with specific expertise, advanced technological support, considerable implementation effort and functional evaluation. This paper presents a model of accessibility service provision for students with disabilities in higher education. The development of the model is based on the analysis of the requirements of students with disabilities. The methodological designing of the services critically takes into account both Design for All and Individual Accommodation approaches. We emphasise the important role of advanced ICT systems for the effective service organization, management and provision and we describe the necessary specific applications. The involvement of public (environmental modifications e.g. in the libraries, student laboratories, infokiosks, etc.) as well as personal Computer Assistive Technologies is also presented. The services for the students with disabilities discussed in the paper include: recording of the needs of the students, evaluation of students' abilities, provision of Personal Assistive Technologies, accessibility of structure environment, transportation, psychological counselling, provision of accessible text books and other educational content, training of the staff and the volunteers, developing of guidelines (e.g. for tests and examinations, for producing accessible educational content), accessible workstations in libraries and labs, evaluation of websites' accessibility, structural arrangement of volunteer work for helping the disabled students, Video Relay Service and Sign Language Interpretation for deaf students, organizing seminars and meetings, dissemination of accessibility know-how (website, leaflets, posters, booklets). The organizational structure (at university, faculty and department levels for both the academic staff and the other employees), the involvement of disabled students in the decisions along with legislative, financial and standardisation issues are also discussed. The application of the above model over the past few years in the University of Athens, the largest higher education institution in Greece, will be also presented.

To the Analysis of Professional Competences, Professional Qualification and the Quality of the Advisory Services Provided by Special Education Counsellors at Universities

BEÁTA KRAHULCOVÁ

Charles University, Prague

Twenty years of experience in providing study support to students with severe physical disabilities and disadvantages in the process of tertiary education, gives an opportunity to carry out quantitative and qualitative analysis and searching for new higher quality guidance. Number of guidance centres aimed at study support to students with special needs has been explicatively increased. Meta-analysis of the structure of the student community, the number of students in relation to their special educational needs, the preferred fields of study and the actual graduates of Bachelor, Master and PhD. Study programmes forces us to be more effective. The processes of increasing quality in the university guidance by standardization of guidance services will become the most important issue.

Fostering mobility of students with disabilities

ELENA MENDELOVÁ

Comenius University, Bratislava

International study experience offer unique opportunities and challenges generally, and for students with disabilities particularly. Students obtain new contacts, develop friendships, test their own abilities and skills, develop their independence.

For various reasons, not many students with disabilities participate in exchange mobility programmes. Demanding and time consuming preparation, lack of relevant information, need for many adaptations, societal and cultural differences between home and host country – these are a few reasons that prevent them from active participation.

Students with disabilities considering studies abroad should be provided with realistic information about the host university and living environment in the country. Very advanced preparation is essential. Flexibility in communication among stakeholders of the host and sending universities and creativity in providing adaptations and finding solutions are expected.

As a result, each opportunity for international education may be subject to the university's equal opportunities policy development and removal of existing barriers.

One of the latest initiatives to raising awareness and promoting dialogue on mobility of students with disabilities and increasing their number within the Erasmus programme is an international project ExchangeAbility: Fostering mobility of students with disabilities. Five universities from Estonia, Hungary, Cyprus, Belgium and the Slovak Republic and two international organizations UNICA – Network of Universities from the Capitals of Europe and Erasmus Student Network will monitor study conditions, organize visits, meetings and seminars and exchange experience within the project programme. The site visits will serve as brief mobility schemes. In the project activities several bodies / stakeholders, students with disabilities, universities, local authorities and student representatives will take an active part. Project results may help the participating and also other universities maintain cooperation and improve study conditions.

The paper will present aims, objectives, activities and expected results of the project.

Meaningful means of making universities accessible and their meaning(fulness) in practice

PETR PEŇÁZ

Teiresias Centre, Masaryk University, Brno

Universal Learning Design has been a key political issue for several decades and during that time, its terminology and concept have changed several times. Although it remains a key issue, efforts in the area have resulted in mutually incompatible concepts while education of persons with special needs has often remained unchanged. The paper mentions controversial issues of inclusive measures in the Euro-American area and it suggests some standards in legislation, methodology, and technology as a condition for a necessary economic solution.

HEAG – A Survey on Accessibility and Universal Design provided by European Higher Education Institutions

ANDREA PETZ, KLAUS MIESENBERGER

Johannes Kepler University of Linz

This paper presents the work carried out within the HEAG framework amongst a joint European group of service providers for people with disabilities in Higher Education – and what is missing or better what could foster equal access to higher education of people with disabilities and mobility.

Higher Education institutions from all over Europe were screened following a standardized questionnaire on their activities for students with disabilities in terms of Universal Design as well as support given and accessibility services provided. The gained data was published online and enables up to date information on studying in a specific country at a specific institution and has the potential to foster European exchange and students mobility even amongst students with disabilities, a group underrepresented in Higher Education mobility programs so far as well as on the degree of inclusion of domestic students with disabilities on site that has to be discussed based on the observation that in most cases students with disabilities can cope with traditional (often technological) barriers but run the risk of failure and drop out because of lacking social links and skills – a topic also to be discussed concerning eLearning activities.

SECTION 2

Linguistic Competence of the Hearing Impaired and the Role of Sign Languages in Tertiary Education

CHAIR: ARNFINN MURUVIK VONEN

Department of Special Needs Education, Faculty of Educational Sciences, University of Oslo

The section focuses on:

- *The issue of native language and language of communication among persons with severe hearing impairment; the issue of official, instruction, foreign and world languages of persons with severe hearing impairment compared to other linguistic minorities.*
- *Linguistic standard and linguistic diversity in speaking and writing of persons with severe hearing impairment.*
- *Language instruction and the achievement of prescribed linguistic competences of persons with severe hearing impairment.*
- *Spoken language visualisation, speech-to-text reporting, and other systems of communication for persons with hearing impairment usable in tertiary education.*
- *E-learning systems, videoconferencing and instant messaging in sign languages.*
- *Sign language as a tool in tertiary education and specialized communication, its stylistic diversity and standards.*
- *Application of the Common European Framework of Reference for Languages on sign languages and testing of linguistic competences in these languages.*
- *Phonology, morphology and syntax of sign languages, their interference with spoken languages and influence on communication within a university environment.*

- *Lexicology and lexicography of sign languages, development of vocabulary, issues with terminology and internationalisms.*
- *Sign languages recording and noting systems, creation of databases and linguistic corpora, software tools for handling databases and corpora.*
- *Linguistic, organizational, didactic and legal issues of translation and interpreting in academic settings.*

Plenary keynote

The Language Situation of Deaf and Hard-of-hearing Students in Higher Education

ARNFINN MURUVIK VONEN

University of Oslo, Department of Special Needs Education

Arnfinn Muruvik Vonen is a professor (since 1997) at the Faculty of Education Sciences, University of Oslo, Norway. With his professional specialisation in linguistics, he is currently responsible for courses in the sign language theory at the Department of Special Needs Education. His research in Deaf Studies has focused on linguistic and educational issues of bilingualism involving a signed and a spoken language, mostly in affiliation with Skådalen Resource Centre, a state-run centre for the education of deaf, hard-of-hearing, and deafblind individuals in Oslo. He is involved with the Signo Foundation (Norway) and the Amity Foundation (PR China) in a bilingual deaf education project in China (“Si-Am”). His research interests include also the grammar of Norwegian Sign Language.

This keynote lecture will begin with a brief general description of the situation of Deaf and hard-of-hearing people with respect to language access and language proficiency, including both spoken languages and sign languages, and both local/national languages and foreign languages. Then, some of the particular challenges for students in higher education who are Deaf or hard-of-hearing, and ways of meeting these challenges, will be addressed. The discussion will include such diverse activities as sign language interpreting, interpreting into spoken language with sign support, speech-to-text reporting, sound amplification systems, acoustic facilitation, note-taking services, and computer resources. Also, the lecture will address the issue of whether/how curricula, teaching methods and examinations should be modified for the benefit of Deaf and hard-of-hearing students. Special attention will be paid to issues concerning the use of sign languages in academic discourse.

Linguistic Competence of the Persons with Severe Hearing Impairment in English as a Foreign Language

EWA DOMAGAŁA-ZYŚK

The John Paul II Catholic University of Lublin

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Contemporary deafness is understood not as a condition of total lack of cognitive abilities but as a situation when properly recognized competencies and talents of the hearing impaired students can be magnified and can lead to successful cognitive development. The task of the professionals working with the hearing impaired students is to carefully diagnose the individual student's conditions and potentialities in order to find ways to support his/her education. In such a perspective students with severe hearing impairments can be also perceived as persons who present specific predispositions to learn foreign languages which might be connected with their experiences as users of more than one language (national and sign) before starting to learn a foreign language, their ability, gained through extensive lip-reading, to decipher meaning out of the context that is not fully understood, and their consciousness of speech production process that they received during their speech therapy classes. These predispositions are magnified by the contemporary technological development that offers new generation of hearing aids, cochlear implants and other equipment.

The aim of this paper is to present the language competence of Polish students with severe hearing impairment which they present during the English as a foreign language classes learning to speak foreign languages. The paper is based on the authors' 10-year experience as a teacher of English for the deaf and on scientific research conducted in this field during last two years.

A Methodology for Automatic Sign Language Dictionary Creation

JAKUB KANIS, PAVEL CAMPR, MAREK HRÚZ

University of West Bohemia, Plzen

PETR PEŇÁZ

Teiresias Centre, Masaryk University, Brno

2

In this article we present the methodology for creation of sign language dictionaries minimizing human labor for video and annotation data collection. The aim is to create both an explanatory and a translation dictionary with respect to the linguistic needs. The dictionary is designed as an on-line application with access for all registered users who compose a hierarchical structure to ensure a lexicographic consistency of the dictionary content. This consistency should be based on wide consensus of responsible dictionary users. The basic structure of the dictionary is proposed according to the linguistic research of sign languages. We use written text to represent spoken languages and several representations are supported for sign languages: videos, images, HamNoSys, SignWriting and interactive 3D avatar. To decrease the time required for data collection and publishing in the dictionary we use computer vision methods. We detect sign boundaries and analyze the manual component of performed sign for automatic categorization. The content is being created by linguists using both new and already existing data. After publication the dictionary is opened to the users with possibility to add, modify and comment data. We expect that this possibility of on-line elicitation will increase the number of informants, cover more regions, and make the elicitation cheaper and the evaluation easier. The structure of the dictionary enables to group particular signs. This functionality can be used for lecture purposes and education of sign languages. An offline version of the dictionary can be automatically generated from the online content and downloaded for offline usage.

Multimedia Dictionary of Terms for Drama Education, Czech – Czech Sign Language

RADKA KULICHOVÁ, ROBERT MILIČ

Janacek Academy of Music and Performing Art, Brno

Subject Drama Education for Deaf was founded in 1992 and was the first subject for deaf students in the Czech Republic. In June 2009 began realization of the project Study Programme Innovation of the Drama in Education for the Deaf Department in the Faculty of Theatre JAMU. Thanks to this project are innovated some subjects and was also created brand new subject – Sport-Movement Games. Sign language course is being lectured by deaf teachers from partner organization Trojrozměr and provide students with theoretical knowledge of sign language and Deaf culture as well as practical sign language lesson. Furthermore, innovations and work experience placements are being made thanks to the project. Project partners are also involved in these activities, where students can gain valuable practical experience.

Partial aim is also Systematization terminology of drama education in the Czech sign language. In this activity are taking part sign language tutors and foremost partner of the project – the Czech Chamber of Sign Language Interpreters. The aim of systematization of terminology is to enrich the character-stock and clearly define the technical terms of drama education. The dictionary contains about 400 terms from the drama education that are presented in Czech language and Czech sign language. The dictionary contains also commentaries written in Czech, which explains each term. For each term is there also a contextual sentence in Czech sign language. Thanks to this students will understand the importance of the term and at the same time they can see an example of an adequate use of the term.

This multimedia dictionary will be used mainly by students of the subject Drama Education for Deaf during their studies and later they will use the correct terminology in schools during their practice.

This project is cofinanced by the European Social Fund and the Czech Republic state budget.

OCELLES Project – Concepts and Lexicons in Written and Signed Languages Observatory

CEDRIC MOREAU

INS HEA

2

The Académie Française institution is assigned and devoted to defending the French language and to making it a common heritage for all French speakers. The French Sign Language (LSF) has never had such a support.

To face this situation, a reference tool has been created, supported by the French Ministries of Education and Culture. This tool is a collaborative website entirely bilingual French and LSF, which proposes for each concept at least one definition and its associated descriptors in various knowledge fields. Before being spread on-line, the information given by users is examined by experts on form and content, and is validated or rejected by these experts. Several signs may be proposed and validated for one concept. Our project does not wish to choose the “ideal sign”, but wants to submit to our identified users all the proposals and to list their comments. A set of information is thus collected for each sign and can be related to users profiles. The website is therefore an exchange platform, but can also be used as a linguistics observatory.

One of our main issues concerning the data organization was to manage to adjust users different viewpoints and different uses of the website. Indeed, our platforms goal is not to make a simple dictionary but to create a network of ontologies. We cannot use a rigid organization model, because our website must constantly evolve and include new concepts and new descriptions or functionalities.

We will first describe our platforms goals, then present our specific data organization which allows for example several classifications to be used simultaneously. We will finally present our current work on integrating direct resources in LSF through linguistic’s descriptors defining a sign. We will also show that this data organization allows an easy conversion to other countries sign languages.

Hearing Impaired Persons' Notions of Ways in Which Speech-to-Text Reporting Is Provided at Universities, with a Practical Demonstration of Some of the Possibilities, Including On-line Speech-to-Text Reporting

MARTIN NOVÁK

Czech Union of the Deaf

The paper deals with selected hearing impaired persons' notions about simultaneous speech-to-text reporting at universities in the future. Masaryk University was the first educational institution in the Czech Republic that offered speech-to-text reporting services to its hearing impaired students and the Czech Union of the Deaf has been offering the simultaneous speech-to-text reporting services to hearing impaired citizens since 2008. The Czech Union of the Deaf has been offering simultaneous speech-to-text reporting to some universities as a part of its pilot research project. This service differs from the common one as offered by Masaryk University. During the presentation, we will introduce individual types of simultaneous speech-to-text reporting (simultaneous speech-to-text reporting with a text reporter present on the spot, on-line simultaneous speech-to-text reporting with a text reporter, and on-line simultaneous speech-to-text reporting with a shadow speaker) which will be offered for use to universities with support centres for students with special needs in the future.

Educational Technology and other Learning Resources in English Language Instruction for Students with Hearing Impairment

ANNA PODLEWSKA

The John Paul II Catholic University of Lublin

Learning foreign languages is becoming more and more appealing these days due to a highly diversified base of educational aids available on the market: textbooks accompanied by various components that work together for more effective learning, teaching videos, CD-ROMs, audio CDs, graded readers, websites and other multimedia resources which are developed in a very interesting way in terms of factual information and design. However, better situation in the area of language education does not involve everyone. As most educational materials are inaccessible to them, students with disabilities, including those with hearing impairment, encounter numerous obstacles to acquiring foreign languages. Adaptation of teaching materials for use in foreign language instruction for deaf and hard of hearing students has rarely been the subject of any broad research. The lack of generally applicable guidelines on preparation of language materials for students with hearing impairment has made their teachers design and prepare teaching aids on their own.

The aim of the paper is to present basic adaptation tips for developing educational materials appropriate for teaching English to students with hearing impairment. The author suggests several ways to adapt language materials available in the form of audio and audiovisual recordings to special needs of deaf students. The solutions presented in the paper can become inspiration for a creative search for one's own adaptive methods.

The Role of E-Learning in the Education of the Deaf

[Presented in CSL]

TOMÁŠ SKLENÁK, LUCIE ŠTEFKOVÁ, ALEXANDR ZVONEK

Teiresias Centre, Masaryk University

2

The paper deals with the role of e-learning in education of deaf students and the relationship between ICT and deaf students. It is a well-known fact that the term “e-learning” has been widely used in all its aspects for the last five years. It is an educational process which consists in the use of multimedia and information technologies to facilitate access to study materials and support the learning process (in more general terms). The level of computer usage depends on current technological possibilities as well as access to the technology for intended users.

The introduction of the paper describes the relationship between ICT and deaf students in general as well as in the educational process. It introduces e-learning, defines it and classifies its types. It briefly describes technological aspects necessary for a creation and management of an e-learning course. Further, it presents e-learning in Deaf education in general. It incorporates deaf teachers’ findings and experiences with blended e-learning teaching of common subjects at the primary school for the Deaf, high school for the Deaf and university, in particular Masaryk University. The paper refers to several e-learning courses of various high school subjects and university language courses (in Czech and English); it also deals with their specifics regarding needs of deaf students. Based on a research conducted among deaf students at Masaryk University and a similar research at the National Technical Institute for the Deaf, Rochester Institute of Technology, the paper discusses advantages and disadvantages of the ICT usage in many areas of Deaf education, primarily in the field of language learning, as well as the importance of e-learning for future education of deaf students.

The results of these investigations clearly show that the use of e-learning unquestionably improves the quality of Deaf education. This fact is seen as salient enough to remain in the centre of our focus.

TV Subtitles as a Tool for Enhancing Language Skills for Deaf Persons

VĚRA STRNADOVÁ

Czech National Disability Council

2

The paper presents the results of a survey held in the Slovak Republic in 2006. The research investigated relationship of adult deaf users of sign language to TV subtitles. The investigation also dealt with subjective opinion of deaf Slovak respondents and whether watching Czech subtitles on television helps them learn Czech language.

A Wireless System for Real-Time Distribution of Visually Accessible Synchronous Transcription (Speech-to-Text Reporting) Targeted to Larger Group of Users with Hearing Impairment in Environment of (Not Only) Tertiary Education

JIŘÍ TUŽIL

Teiresias Centre, Masaryk University, Brno

Masaryk University provides supporting services for approx. 100 students with severe hearing disabilities. One of the means of the provided services is a visually accessible synchronous transcription (speech-to-text reporting) of spoken language. Increasing number of students utilizing this service has created situations when a larger group of students has to follow the same educational event, hence to follow the same source of transcription.

A transitory solution applied at Masaryk University in the past was based on a multiplication of a display of a speech-reporter's computer, which did not meet requirements and expectations of either students or speech-reporters.

To enhance the method of providing this service, Masaryk University has developed its own system for real-time and wireless distribution of synchronous transcription named Polygraf that is presented with this paper. In the system, the speech transcript typed by a speech-reporter on his/her computer is continuously transmitted to and displayed on any number of handheld displays which are used by those who has to follow the transcript. Transmission of the data between a computer of the speech-reporter and handheld displays takes place within a closed wireless network provided by any portable access point independently on local technical conditions. Additionally, the system allows the transcript view customization on side of the handheld device user, and features supplementary text messaging between users and a speech-reporter.

Visualization of Spoken Language by a Visually Accessible Synchronous Transcription, Speech-to-Text Reporting, and Other Systems of Communication for Persons with Hearing Impairment Usable in Tertiary Education

GABRIELA VOJÁČKOVÁ

Teiresias Centre, Masaryk University, Brno

The paper summarizes main theoretical foundations, legislative measures, as well as technical and organizational specifics of a visualization of spoken language by a visually accessible synchronous transcription at universities. It further deals with other mechanisms of providing access to spoken language. It analyzes current rules for note-taking at Masaryk University and summarizes main positive and negative experiences based on rich practice.

A visualization of spoken language by a visually accessible synchronous transcription has been a well-established service in the world for many years, known as CART (Communication Access Real-time Translation). In the Czech context, this service became more prominent in 2005 when it was used at Masaryk University and the public sector at the same time.

The visualization of spoken language by a written transcription was codified by the Czech legislation in 2008. Masaryk University included this service in the Rector's Directive on the Standing of Sign Language and Other Communication Systems for the Hard of Hearing at Masaryk University.

Masaryk University offers visualization for access to spoken language when a person with a hearing impairment understands Czech, but a lecturer's speech is incomprehensible because it is too quick, the speaker's articulation is not distinct, the board is frequently used, or the lecture is so scientifically specific that its unambiguous meaning would suffer from a translation into a sign language. All parties of communication may require the service at Masaryk University whenever a communication takes place between persons with hearing impairment and hearing persons, or when audio-materials are offered.

Just as in the case of interpreting into a sign language, the aim of this offered service is to allow a student to participate in the educative process. The way this service is offered and the codes of ethics of visualizators and interpreters into sign language are similar. It is an undisputable advantage of the transcript that it is possible to further edit the created text and use it for future work and study.

SECTION 3

Universal Design of Electronic Documents and Public Electronic Libraries for Purposes of Tertiary Education

CHAIR: KLAUS MIESENBERGER

Institute “Integrated Study”, Johannes Kepler University Linz

The section focuses on:

- *WCAG and comparable documents, their enforceability, advantages and imperfections in relation to persons with various types of special needs; web accessibility and usability.*
- *Transferability of WCAG and comparable documents to E-learning environments and digital documents; accessibility, readability and content comprehensibility of official and specialized documents.*
- *Standards for digital documents intended for tactile or auditory perception, hybrid documents and the Digital Talking Book.*
- *Digital documents intended for reproduction of tactile, audio or visual documents, hybrid documents and DAISY.*
- *Universal design of video and audio formats.*
- *HTML, XML, MathML standards and digital tools for handling mathematical, physical, chemical and other symbolic notations via tactile or audio outputs.*
- *Digital libraries and their accessibility, digitization and standards for conversions among formats.*
- *Copyright issues related to universal design and individual accommodation of documents and individual access at national and international levels.*
- *Public library catalogues and their accessibility, sharing and internationalization.*

- *Cataloguing of tactile, audio and graphical documents; cataloguing of digital documents intended for individual reproduction of tactile, audio or graphical documents; cataloguing of the Web.*
- *IT literacy of persons with special needs, its standardization for individual impairment categories and academic public's awareness of the specifics of such literacy.*

Plenary keynote

Universal Accessibility of Documents: Workflows and Tools for Efficient Service Provision

KLAUS MIESENBERGER

Klaus Miesenberger is the Vice Head of the Institute Integriert Studieren at the University of Linz, Austria. He has a background in computer science and economics. He is responsible for R&D and teaching at the Institute which also runs a service centre for students with disabilities. In 2000, he was a guest professor at Université Claude Bernard, Lyon II. He gives lectures at various Austrian universities and teacher training academies. His research and teaching are related to Assistive Technologies, eAccessibility and Design for All. He has been involved in more than 60 national and international R&D projects in these fields. He:

- *chairs the working group “Computer Science with/for People with Special Needs” of the Austrian Computer Society,*
- *acts as the organising and publishing chair of ICCHP (International Conference on Computers Helping People with Special Needs,*
- *is a member of the scientific and professional societies IFIP, working group 13.3 (HCI and People with Special Needs), OCG, AA-ATE and FEDORA,*
- *is a member of the board of ALS (Arbeitsgemeinschaft zur Lehr- und Lernmittelerstellung für Sehgeschädigte), responsible for access to school books for school children in an electronic form, collaboration with their authors and publishers and general management,*
- *is the founder and chair of the international association “International Computer Camps”, organising annual computer training events for young blind and visually handicapped students. More than 1000 blind and visually handicapped students from more than 30 countries have participated in these events since 1993,*
- *is the co-founder of the association UNIABILITY, the organisation of professional counsellors for students with disabilities or chronic diseases at universities in Austria,*
- *acts as the managing director of National Contact Point for EDe-AN (European Design for All e-Accessibility Network),*

- *is the scientific co-ordinator for two university distance learning courses: “bfwd: Barrier Free Web Design” and “assistec: Assistive Technologies”,*
- *has set up and chairs the Regional Competence Centre IT for People with disabilities (KI-I) for the Regional Government Upper Austria, and*
- *is the President of the Association for the Advancement of Assistive Technology in Europe (AAATE).*

This paper will outline the need for efficient workflow support for service providers to address the diverse needs of diverse end users with disabilities using a diverse set of end user devices and software including Assistive Technologies. A special focus will be given to get access to documents from right owners highlighting the recently archived “Memorandum of Understanding on access to works for dyslexic or visually impaired readers”.

Access to Maths and Science for Print Impaired People

DOMINIQUE ARCHAMBAULT

University Pierre et Marie Curie, Paris

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Access to Mathematics have always been a problem for print impaired people. The problem is not in the understanding of Mathematical semantic, but in the access to the mathematical content through non visual modalities. Indeed the graphical layout helps a lot sighted people to understand the mathematical semantics, while print impaired people need to memorise a whole expression to catch its overall structure, and as well to do calculations. Another help for sighted mathematicians is the possibility to draw lines and graffiti around expressions, which cannot be done with non visual modalities. Unfortunately this situation leads to a lack of mathematical literacy by print impaired people, and consequently prevents them to access to a large range of scientific studies and therefore forbid them a lot of employment opportunities.

Since a couple of decades, a number of projects have been carried out aiming at overcoming the difficulty of accessing mathematical content via non visual modalities. A first series of works dealt with the problem of generating mathematical content in Braille or speech from mainstream formats, and vice versa. Later interactive systems have been designed to facilitate understanding of mathematical content in Braille or speech, and we assist now to a new challenge: doing mathematics, that is providing support to actually perform calculations, problem solving.

In this paper we will discuss the main difficulties encountered by print disabled people to access mathematics, then we will review the state of the art of researches carried out in this domain, and present the current existing technologies that can be used by pupils and students who need to learn mathematics and to people who need mathematics in their work. Finally we will introduce the ICCHP Summer University on Maths, Sciences and Statistics, which aims at providing students with hands on workshop to actually learn to use these tools and assistive technologies.

odt2daisy: Preparing Accessible Documents at the DTBook Format with OpenOffice.org

DOMINIQUE ARCHAMBAULT

University Pierre et Marie Curie, Paris

JAN ENGELEN

Catholic University of Leuven

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odt2daisy is an OpenOffice.org extension, which enables users to author accessible documents into valid DTBook files and DAISY talking books, with a rich, cross-platform, accessible, free and open source environment. DTBook, part of DAISY, is a standard for storing and exchanging accessible documents. OpenOffice.org allows to prepare accessible documents, using a number of styles which are converted to DTBook tags by odt2daisy. As OpenOffice.org itself has improved accessibility features, odt2dtbook makes it possible for print disabled people to author DTBook documents.

The Hybrid Book – Just One Document For All

PETR HLADÍK, TOMÁŠ GŮRA

Teiresias Centre, Masaryk University, Brno

There are many ways to perceive desired information from a source that cannot be reached directly due to a type of a user's disability. There are lots of adaptive technologies solving these situations. These technologies are often targeted to a specific group of users, for example visually impaired users. As the number of such user groups grows, the number of adapted versions of the original source equally increases and their management becomes demanding.

The Hybrid book brings a solution for various groups of users in one electronic document. It combines a textual record for viewing and reading by touch via Braille display, an audio record to capture information by hearing, and a video recording of the text translated to a sign language. All these recordings are synchronized and may be simultaneously played and navigated by intuitive navigation functions. A Hybrid book document can contain a variety of record types and a number of recordings of any specific type. Hybrid book documents are primarily intended to be viewed on-line on the World Wide Web.

Searching-by-Hearing: Sonification of the Search Engine WhatsOnWeb through a User Experience Design Process

MELE MARIA LAURA

ECoNA – Interuniversity Centre for Research on Cognitive Processing in Natural and Artificial Systems, Sapienza University of Rome

STEFANO FEDERICI

ECoNA/Department of Human and Education Sciences, University of Perugia

SIMONE BORSCI

Department of Human and Education Sciences, University of Perugia

In order to represent the information usually conveyed through visual interfaces, information representation research has increasingly centred its attention on the development of non-visual ways to transmit spatial data by means of sonification, namely “the transformation of data relations into perceived relations in an acoustic signal for the purposes of facilitating communication or interpretation” (Kramer et al. 1997, p. 3). In the present work we applied the Action by Design Component (ADC) sonification model (Zhao, Shneiderman, and Plaisant 2007) to the sonification of the visual Web search clustering engine WhatsOnWeb (WoW) (Di Giacomo et al. 2007; Di Giacomo et al. 2008). WoW is a search engine based on sophisticated graphic visualisation algorithms which conveys the information dataset by means of both semantic correlations and semantic clusters through graph-drawing methods. By following a user-centred approach, we developed and analysed three combinations between visual and auditory features, in this way, we obtained three sonification layouts, (PanAndPitch, VolumeAndPitch and BlinkAndPitch) transmitting both global and particular spatial information through sound events. A usability evaluation of the visual and the sonificated layouts has finally been carried out, with blind and sighted users. The results show similar levels of efficacy, efficiency and satisfaction for both information and presentation modalities. The usability index emerging from the performance evaluation of the two analysed groups seems to be homogeneous, therefore suggesting that the sonification of visual information makes visual content learnable for blind people in a comparable way to a sighted person learning from a purely visual environment.

Automatic Reading of Educational Texts for Vision Impaired Students

**JINDŘICH MATOUŠEK, ZDENĚK HANZLÍČEK, MICHAL CAMPR,
MARTIN GRŮBER**

Faculty of Applied Sciences, Dept. of Cybernetics, University of West Bohemia, Plzen

The paper presents the current state of the ongoing project “Automatic Reading of Educational Texts for Vision Impaired Students” (ARET). The project aims at an innovation and enhancement of schooling of vision impaired students and also at a facilitation of their self education. The project is solved at the University of West Bohemia (UWB), Department of Cybernetics, in cooperation with The Primary School and the Kindergarten for the vision impaired in Pilsen. Within the project, a specially designed system for automatic reading of educational texts for vision impaired students is developed. Teachers use the system for a preparation, management and administration of educational texts. In order to facilitate the maintenance of the final system, client-server architecture was chosen. The system is based on the Symphony PHP framework. The educational texts are available to students via system’s front-end; they are read aloud by means of computer speech synthesis (more specifically, using a text-to-speech engine developed at the UWB). The access to the system is highly configurable; different rights for editors, students and others can be easily set up. With respect to both the purposes of the ongoing project and the main partner (the primary school), the educational texts concentrate on Mathematics and Physics (ISCED 2 level). Hence, the presence of mathematical and physical formulas has to be dealt with, both in the phase of a creation of educational texts and in the phase of automatic reading of the texts. Automatic processing of the formulas, including a transcription of symbolic notations to corresponding word forms and automatic reading of such texts, presents a challenge to the current text-to-speech technology. Despite the current focus on primary-school subjects, the system is capable of reading any texts, including more advanced texts like tertiary level of mathematics, etc.

Possible Uses of a Multi-User Virtual Environment in the Education of Persons with Special Needs

HANA MAREŠOVÁ

Palacký University, Olomouc

3

The paper focuses on the issue of a multi-user virtual environment (MUVE) and its role in the contemporary educational process. It analyzes possible uses of MUVE in the education of persons with special needs and describes experiences with the use of a 3D multi-user virtual environment Second Life which was utilized in the teaching of the subject New Media and Cyberculture at the Philosophical Faculty of Palacký University in Olomouc.

“Guidelined” and “Principled” Web Content Accessibility – What It Means in Practice of Universities

SVATOSLAV ONDRA

Teiresias Centre, Masaryk University, Brno

This paper reflects the most inflected web content accessibility standards (primarily WCAG 2.0) in the practise of environment of tertiary education. The paper contrasts universality of accessibility guidelines and principles to the state-of-art of educational environment experiencing large variety of types of educational study materials, its structures, forms, complexity and variety of technical settings for publishing and distributing them. Moreover, the current tendency of educational environment that study materials no longer dominate in printed form published with standard procedures and manners but they are electronically issued and distributed to students, paradoxically does not cause immediately higher accessibility of documents for students with disabilities. These problematic aspects of digital content of educational environment are analyzed, and demonstrated on real examples emerged in practise of Masaryk University. The last part of the paper presents particular and practical means of non-trivial interventions/accommodations realized by Masaryk University to make study materials and environment more accessible which we can generally consider as applying the general web content accessibility guidelines.

The Guide to Accessible Digital Content

AFRA PASCUAL, MIREIA RIBERA, BRUNO SPLENDIANI, LLÚCIA MASIP, TONI GRANOLLERS, JOSÉ LUÍS GONZÁLEZ

University of Barcelona

3

This paper presents a joint initiative of the University of Lleida and the University of Barcelona (Spain) promoting inclusive education in the university by the adaptation of materials.

The initiative was formalized in a set of 13 guides “Guidelines for accessible digital content” (in Catalan and Spanish) that present detailed information to create digital documents accessible to people with disabilities. The guides cover common content editing tools (Microsoft Word, Open Office Writer or Microsoft PowerPoint), the conversion to PDF, and the publication of accessible web content via the FCKEditor available on LMS such as Sakai, Moodle or OpenCMS. The initiative also includes the creation of supporting material like accessible templates for common document types in teaching.

The main audience of the guides are university professors who must meet accessibility standards in their e-learning environments. However, the guidelines may also be useful to anyone who has the obligation or the desire to have their digital documents and publications on the Internet made according to the principles of Universal Design.

Perceptibility and Understandability of Documents in the Internet

RADEK PAVLÍČEK, ROMAN KABELKA

TyfloCentrum Brno

The paper focuses on accessibility principles crucial for creation of documents and presentations published on the web with educational and other aims.

The World Wide Web Consortium (W3C) recommends for an accessible web content WCAG 2.0 a new, but more direct and more universal concept of accessibility, which this paper explains. WCAG 2.0 is based on four principles of accessibility. Principles 1 and 3 are decisive for a creation of document content and web presentations:

Principle 1 – Perceivability: “Information and user interface components must be presentable to users in ways they can perceive.”

Principle 3 – Understandability: “Make text content readable and understandable.”

The paper presents guidelines included in these two principles. The most important principles will be supplemented by explanations of techniques from the related document Techniques for WCAG 2.0 which helps to deal with success criteria for accessibility implementation in practice.

Accessibility Issues in a Digital Mathematical Library

PETR SOJKA

Masaryk University, Brno

3

We will describe accessibility approaches used in the projects of The Czech Digital Mathematical Library (<http://dml.cz>) and in the development of The European Digital Mathematics Library (<http://eudml.eu>). We concentrate on the communication and information retrieval of mathematical content (formulae) and its representation and presentation in the documents of a digital library.

SECTION 4

Specific Learning Disorders and Other Types of Neurodiversity in Tertiary Education and Compensation Devices

CHAIR: WILLY AASTRUP

Counselling and Support Centre of the Danish School of Education,
University of Aarhus

The section focuses on:

- *Typology of specific learning disabilities and other types of neurodiversity, testing and measuring of these among adults.*
- *Compensation strategies, their practicing and approach to persons with a compensatory disability.*
- *Individual accommodation of testing environment and technological compensatory devices.*
- *Differences in work with a screen reader, voice output and electronic formats between persons with specific learning disorders and the visually impaired.*
- *Electronic libraries and their usability by persons with specific learning disorders, digitization and standards for conversion among formats.*
- *Copyright issues related to universal design of documents for persons with specific learning disorders.*

Plenary keynote

Specific Learning Disorders – Principles for an Equal Opportunity Learning Environment

WILLY AASTRUP

The Danisch School of Education, Aarhus University

The founder and centre director of the Counselling and Support Centre at the University of Aarhus, Willy Aastrup has his professional background in philosophy and is trained psychotherapist with 20 years of practice in existential and philosophical counselling. For several years he has been an associate professor at the University of Aarhus, reading besides other fields psychology and modern philosophy and is now officially appointed as an external examiner.

With more than 15 years of experience in counselling and practical services for students with dyslexia and other special needs, he has been chair and co-chair of professional and research seminars and congresses, giving numerous speeches and presentations in psychology, counselling and services for students with disabilities.

Considering his experience in national and international teaching and training educational staff for persons with special needs, he is:

- *a member of several national advisory boards to the Danish Ministry of Education,*
- *the editor of the publication “Inklusion”, studies, reports and other research findings related to educational practices mainly in the field of special needs,*
- *a member of the steering committee for the HEI network on support to students with special needs in the Nordic Countries,*
- *a member of several professional associations covering psychology and educational inclusion,*
- *a coordinator of the Inclusion working group in FEDORA.*

His research interests are:

counselling and education of students with special needs; basic concepts, practical and methodical approaches and comparative studies, philosophy of counselling and education – theoretical assumptions, basic issues and concepts in counselling – and the development of practice.

In the past decades the primary focus for integration of students with disability in higher education has been placed on “the perspective of accessibility”. The perspective of accessibility is naturally important, but it is a perspective which emphasizes accessibility in relation to the physical surroundings, support of assistive technology and, according to the prevailing Social Model of disability, adapting the environment to the student with a disability. In my paper I shall propose a different perspective – a learning-oriented perspective developed at Aarhus University – where the emphasis is not only placed on physical and quantitative conditions but on educational qualitative conditions.

The combination of a general political insistence on “more candidates in shorter time”, the commitment that candidates on all levels also must meet the general and specific academic requirements for quality prescribed in the Bologna Process framework for qualifications for the European Higher Education Area, and the equally strong political insistence that the diversity in higher education should reflect the diversity in the population, presents a enormous challenge.

The purpose of special needs educational assistance is to be able to complete the education similarly to other students. Special needs educational assistance should therefore not be separated from the educational program, from the “main-stream” educational and working methods, from the objective of each program as a whole, or from the intermediate objectives of the individual disciplines that the programs are composed of. The students must also be capable of relating to these academic methods critically, analytically, and comparatively. Furthermore, they should be able to document that they master the required knowledge and skills, for example in connection with exams and other forms of evaluation.

In other words; the inclusion of students with specific learning disorders in the tertiary education is successful, has reached it's final goal, when the students in question have acquired the relevant skills and qualifications for the program and are employable at the open labor market.

In my presentation I will briefly analyze the concepts of learning, disability approach, Bologna process as a basis for a display of the practice of support at Aarhus University for students with specific learning disorders, i.e. dyslexia and psychosocial disorders.

The system I4Control® – Hands-free Interaction with a Computer

MARCELA FEJTOVÁ, MARTIN DOBIÁŠ

Faculty of Electrical Engineering, Czech technical university in Prague

VRATISLAV FABIÁN

Medicton group Ltd., Prague

The system I4Control® represents a novel type of computer periphery (an assistive technology), which enables handicapped people with various disabilities to control of a personal computer through movement of eyes or head. Since it emulates computer mouse, it provides its user by a unique chance to communicate with all installed SW applications by means of his/her eye movements. The system is based on the video-oculographic method of recording eye movements with a tiny camera, which catches up to the frame of spectacles. It is a simple, non-invasive and accurate method for monitoring eye movement. This solution does not require fixing the head.

There are several alternatives for the control of the computer cursor. However, neither of them enables direct gaze control, i.e. placing of the computer cursor at the observed spot on the computer screen. The basic control option is direct continuous control of the computer cursor in an incremental mode. In this mode, the user controls continuous movement of the cursor by deviating from the idle position. The actual eye position therefore has no direct effect on the position of the cursor on the computer screen; instead, it determined the direction and duration of the cursor motion (similar to the joystick). The system can control both a single and double clicks. Both functions are activated by an eye blink with a specified duration, filtering out natural blinking of the eye. Users can modify numerous settings prior to each launch of the I4Control® application. Another alternative of computer cursor control is a discrete control in an incremental mode. In this case, the cursor movement is controlled in the same manner as in the previous alternative, only the cursor moves on the screen differently. In the first case the cursor moves continuously, while in this mode, the cursor performs discrete jumps.

Diagnostics and Counselling for University Students with Dyslexia, Especially Students of Humanities

LENKA KREJČOVÁ

Charles University, Prague

4

The paper is based on practical work with university students with dyslexia which is carried out in the Faculty of Arts (Charles University, Prague) and in an NGO specialized in people with dyslexia.

First part of the paper focuses on various assessment approaches. It introduces an online screening questionnaire for adults which has been created in cooperation with British colleagues and has been currently adapted to Czech population. The paper further mentions assessment methods which are used in several foreign countries and appear noteworthy in our work. Since there is only one standardized Czech assessment battery for adults with dyslexia, we feel urgent need to broaden assessment devices suitable to adults with dyslexia.

Second part of the paper presents counselling work most frequently required in arts-oriented university. It particularly emphasizes modifications which are used in the course of foreign languages learning. Finally, the paper shows how IT can help students with dyslexia during their university study.

Techniques of Text Processing by Students with Dyslexia with Regard to Nature and Range of the Disorder

IVETA MACHÁČOVÁ

Teiresias Centre, Masaryk University, Brno

The paper outlines possibilities of a better accessibility of a text for a concrete student, based on the diagnostic process and cooperation with the student with specific learning disabilities. It summarizes the whole process, from diagnostics to the choice of the method of text processing.

The paper also speaks about a possibility of distribution of students with dyslexia into groups according to results in diagnostic test and about possible expectations of a preferred way of text processing based on these results.

The Significance of a Diagnosis and Analysis of Needs for Determining Modifications with Regard to Individuals with Specific Learning Disorders

VÁCLAV MERTIN

Charles University, Prague

4

The paper deals with a reflection of topical trends in attitudes to education of individuals with learning disorders at a university. A traditional attitude towards persons with SLD lies in diagnosing and subsequent modifications of the attitudes. Presently, much more emphasis is put on an analysis of these persons' needs and a determination of an adequate intervention following from the needs. The educational effect as well as justice in relation to intact individuals are ever important when taking the needs into account.

WORKSHOPS

Staff Training and Continuing Professional Development: Some Suggested Activities

ALAN HURST

Skill: National Bureau for Students with Disabilities, UK

After a short introduction which will consider issues relating to staff training and continuous professional development which focus on questions of who should be involved, when should it occur, and how it might be accomplished the remaining time will provide the chance for participants to experience a number of tasks designed for use in staff training sessions. The session will be as interactive as numbers and allocated room allow. The majority of the time will be spent applying some of the principles underpinning effective learning including the importance of variety of task, of perceived relevance, and of active involvement. Effective learning is associated also with interest, enjoyment and having fun!

W

ICCHP Summer University on math, sciences and statistics for print impaired persons

JOACHIM KLAUS, KARIN MÜLLER

KIT – Karlsruhe Institute of Technology

DORINE IN 'T VELD

Bartiméus Accessibility Foundation

DOMINIQUE ARCHAMBAULT

University Pierre et Marie Curie-Paris

SVATOSLAV ONDRA, PETR PEŇÁZ

Teiresias Centre, Masaryk University, Brno

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Small numbers of students, highly specialised knowledge, different math Braille codes per country, rapid technological changes, a wide geographical spread. How do we face the challenge of enabling access to Mathematics, Sciences and Statistics for print impaired persons?

At the ICCHP congress 2010, a group of researchers, students, developers and producers of assistive technology and supporting institutions initiated a Summer University. Hands-on workshops were organised where students could exchange existing problems and experiment accessible solutions. Our goal is to establish a yearly summer university on math, sciences and statistics in the future.

Integrating and Extending Vyhledávač, an On-line Digital Library Aggregator and Search Engine

MATĚJ LAITL

Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague

We are proud to announce that Vyhledávač web application will be publicly launched during ULD conference. Vyhledávač is an accessible web front-end to multiple online libraries of digitalised books and other materials. Currently, Vyhledávač indexes contents of 9 online Czech libraries and lets any visitor perform searches in a unified and screen-reader friendly fashion. Once a publication is found, the user is given a link to appropriate library.

Vyhledávač is especially designed to crawl smaller libraries that don't support professional-grade library querying protocols such as Z39.50, for those another independent project exists – Library Gateway for Visually Impaired [1] hosted at Masaryk University. Due to absence of such protocol support among smaller libraries, simple parsing of library web pages is used instead. The search engine functionality is additionally exported as a web service, allowing easy integration into any other web or client-side application.

Vyhledávač is being developed at the Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague (FNSPE CTU) [2] by a group of students and the development is supported by TEREZA, a centre for facilitation of university education for visually impaired students. One of the team and the key software developer, Matěj Laitl, will be present at the conference to introduce Vyhledávač, answer any question and to lead technical workshop.

Technically speaking, Vyhledávač is written in Java programming language and is divided into 4 parts: core (interface to internal database), gui (web front-end), webservice and importer, which is used to import book data from libraries into internal database.

The workshop will focus on 2 separate topics: writing a web service client and writing a parser for a new library. The participants interested in the first topic will learn how easy is to create their own Vyhledáč client using a high-level programming language. Knowledge of such programming language (Python will be used by the mentor) is required to actively participate. Bring your own laptop!

The second topic covers the situation when there is a need to add support for a new library into Vyhledávač and is suited for more advanced audience.

Using a pre-created stub, participants will have a chance to code a parser, a part of Vyhledávač that downloads book list from a library, parses it and feeds found publications into core. Moderate Java programming experience and own notebook with NetBeans IDE [3] installed is needed to be able to join the coding. However, everybody is welcome to watch and ask!

[1] <http://seth.ics.muni.cz/usr/portal/>

[2] <http://www.fjfi.cvut.cz/>

[3] <http://www.netbeans.org/>

Adapting mathematical tests for visually impaired – daily practice

LUKÁŠ MÁŠILKO, ONDŘEJ NEČAS

Teiresias Centre, Masaryk University, Brno

The common situation from integrated courses will be simulated in this workshop: a need to adapt an assignment of a mathematical test for a group of visually impaired students. Several types of tasks (arithmetic, geometry, symbolic, etc.) will be introduced and one solution based on the experience of the Centre at Masaryk University will be presented.

In the second part of workshop, participants will be involved in finding and discussing other possible solutions of these exercises.

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EU4ALL

LYDIA MONTANDON ET AL.

EU4ALL “European Unified Approach for Assisted Life Long Learning”, (EU4ALL project website: <http://www.eu4all-project.eu>; informative video on the project: <http://www.youtube.com/eu4allproject>) is a partially funded European project which is developing a generic framework and an open service platform focused on accessibility and customization to support the needs of higher education students with disabilities. After making one of the largest studies on known user needs on this project, specifications have been defined and practices and standards have been implemented by services of general interest in order to consider the various roles involved: students, teachers and administrative personnel. Currently, services are being evaluated on a large scale, involving hundreds of students in different countries supported by the responsibility for providing services (teachers, specialists, office workers).

EU4ALL results are expected to provide guidelines and ICT services that guarantee that people with functional diversity enjoy equal opportunities, face no discrimination and are given more accessibility options.

Guided by the needs expressed by users, and according to the methodologies of student-oriented design, the services to be validated relate to the following aspects of university life. These services require the participation of different actors from the university environment and society in general: students, professors, administrative officers, engineers in the production of materials, public officials, user organizations, ICT companies, etc.

Session 1

- The EU4ALL Project: An introduction (Jesus Boticario, UNED)
- Accessibility in Higher and Further Education: From the Physical to the Digital and Back Again (Helen Petrie, YORK)
- EU4ALL Services portfolio (Israel Rodriguez, ATOS)
- EU4ALL Scenarios at the Distance Education University in Spain (Alejandro Rodriguez, UNED)
- Technical considerations: Ontology, Device Model, eServices Server, Metadata repository, Authoring tools,... (Jaroslav Pullmann & Israel Rodríguez, FIT & ATOS)

Session 2

- EU4ALL in smaller universities: The case of Universidad Politécnica de Valencia in Spain (Felix Buendia, UPV)

- EU4ALL in smaller universities: The case of Instituto Politecnico de Leiria in Portugal (Vitor Rodrigues, IPL)
- EU4ALL at the Open University in the UK (Rob Farrow / Martyn Cooper, UKOU)
- How to promote the adoption of an open framework for Lifelong Learning accessible to all? (Lydia Montandon, ATOS)
- Open discussion with participants

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EasyTutor – Companion Software for Persons with Dyslexia

BŘETISLAV VERNER

Spektra, Czech Republic

EasyTutor is a software designed for persons with dyslexia and dysgraphia. The software reads the source text with a synthetic speech output and it simultaneously highlights the text which is being voiced on the screen (word, sentence, or paragraph): this way it connects audio and written variants of a word. Documents in Word, PDF or HTML formats may serve as sources. Text prediction helps do enhance writing. It is possible to save speech output as an audio file. The software is designed for persons with difficulties with reading and writing. The workshop will present principles of work with EasyTutor and give practical examples. Workshop participants will have a chance to try working with the software.

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Please note that the texts have not been proofread or edited by a native speaker.