Workpackage 2: Data Collection

Deliverable D2.3 Case Studies

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Content

- Selection of Case Studies

- Annex A: Desired Preparation of Case Studies

- Annex B: Complete Set of Case Studies

Dissemination level		
PU	Public	**X**
PP	Restricted to other programme participants (including Commission services and project reviewers).	
CO	Confidential, only for members of the consortium (including the EACEA and Commission Services and project reviewers)	

Selection of Case Studies

This deliverable comprises eight of the twelve case studies received by the author. They are taken from different countries and consider the exemplary use of ICT to support learning by disabled people in different types of adult education. This includes adult education centers and distance learning. The case studies are organized in accordance with a framework, which are drawn up as part of the project. In addition to a description, there is a brief discussion of the factors with which the respective ICT learning tools can be evaluated and the study-related evaluations of the tools on base of these factors. Conclusions are drawn with regards to both the general conditions required for success for ICT-supported learning by disabled people and how educators can use factors specific to their own situations to make ICT use more successful. The case studies and resulting conclusions will feed into the development of methodological and pedagogical principles in WP3 and recommendations for good practice in WP4.

The factors used in this deliverable are i) relevance of the learning tool to the ENABLE project, ii) case study application, iii) user evaluation, and iv) promotion of the abilities of the users. Each factor can reach a maximum of five points, so that the maximum number of points for each ICT learning tool is 20.

All partners were given a text on how to select and document the case studies, which was proposed by P5, University of Glasgow, M. Hersh. This text can be found in Annex A.

The received case studies on ICT tools can be found in Annex B.

Case study 1: In-Folio

Short description

In-Folio is an easy to use Open Source e-Portfolio that enables learners, particularly those with disabilities or learning difficulties, to store and arrange multimedia content into simple online pages. Learners can upload their own material or it can be uploaded in bulk by others for them to use, selecting appropriate resources from a gallery of personally chosen material. In-Folio is essentially a secure system but each user can choose to share specific parts of it to those who may be able to help and support them as well as potential employers, friends and family.

Relevance:	5/5 (does not fully meet the requests in Annex A)
Application:	5/5 (case-study shows 5 examples for a successful use)
User evaluation:	5/5 (2 positive user evaluations)
Promotion of learning:	5/5 (promotes the application of digital media)
Total points:	20/20

Case study 2: DAF

DAF is an application to reduce stuttering with the help of a double presentation of the own voice during speaking (original plus shortly pitch-shifted/delayed). An individual user can also use the application on his iPhone, iPod Touch or on the computer. The necessary pre-

requisites is a headset with a built-in microphone. DAF Assistant is based on the fact that often, stuttering is reduced less if speaking in company, and there is also the idea of re-applying the differential sounds received by bone-conduction and air conduction in the inner ear. The application provides short delay (and also possible shift) of someone's own voice.

Relevance:	5/5 (does not fully meet the requests in Annex A)
Application:	5/5 (does not function during phone calls with the iphone)
User evaluation:	5/5 (for some users, stuttering is reduced, others are confused)
Promotion of learning:	5/5 (promotes free speaking in front of groups)
Total points:	20/20

Case study 3: Vocational training of disabled

This case study describes an online vocational training/rehabilitation programme. A number of students are fed through 23 vocational rehabilitation programmes for adult disabled and/or unemployed people; they are disabled because of illness, car accident, heart attack or another disturbance. They are not able to work in their previous job and must change their previous occupation and are in the risk of social exclusion. Adult disabled people get a referral to vocational rehabilitation programme from the Lithuanian labour exchange. They are trained in new RTVMC specialties within nine month.

Relevance:	5/5 (learning tool as required)
Application:	5/5 (is successfully used since 2008)
User evaluation:	0/5 (no quantitative or qualitative evaluations given)
Promotion of learning:	5/5 (promotes persons who have to give-up their jobs due to illness or desease)
Total points:	15/20

Case study 4: DSpeech

DSpeech is a PC-based text-to-speech app to easily create and read an audio-version of text-only content (books, university course materials, webpages), thereby facilitating the learning processes for blind people. The ICT tool makes textbooks for vocational training or in higher education and respective course material accessible for persons with visual impairments who read well. Possible and desired improvements are i) a web-based version (web content or web based learning platform) and ii) a plugin to import accessible pdf files.

Relevance:	5/5 (learning tool as required)
Application:	4/5 (no text-to-speech engine included)
User evaluation:	5/5 (considered a very useful tool by the teachers, learners and the Italian Association for the Blind)
Promotion of learning:	5/5
Total points:	19/20

Case study 5: ELoQ

ELoQ is a barrier-free e-learning tool that helps learners to get a qualification in the very specific field of storage logistics. The tool was developed within the ELoQ project with one major focus being the design of an easily accessible learning content. Accessible means that the resulting product is not exclusively tailored to a special group, e.g. people with low vision or hard-of-hearing persons. 'Barrier-free' e-learning is interpreted so that content and activities of the learning material can be used by people with disabilities in a 'natural' way without particular difficulties and without the need for additional assistance.

Relevance:	5/5 (learning tool as required)
Application:	4/5 (no exact explanation how contents are processed to become barrier-free)
User evaluation:	0/5 (no quantitative or qualitative evaluations given)
Promotion of learning:	5/5 (According to the study, "Learners found the tool very helpful in order to qualify themselves for future work and jobs. Learners liked the tool and were very motivated in using it.")
Total points:	14/20

Case study 6: MTN1, offline & online Greek sign language learning

This case study describes an ICT learning tool for Greek sign Language. It uses an intelligent video animation of a full-body avatar, a larger dictionary for static and dynamic signs (with moving parts of the body) and a pedagogic background programme. The case study describes the technical ICT tool/engine and some implementation in the form of a scientific publication, but it has not yet been evaluated with users or user organizations.

Relevance:	5/5 (learning tool as required)
Application:	4/5 (no exact explanation how contents are processed to become barrier-free)
User evaluation:	0/5 (no quantitative or qualitative evaluations given)
Promotion of learning:	5/5 (The MTN1 software obviously promotes learning and communication of deaf persons or persons with sudden deafness, which is essential for late vocational training and adult learning).
Total points:	14/20

Case study 7: Napo's Best Signs Story

Napo is the hero in a series of animated films, co-produced by a small group of European organizations. It introduces important workplace safety and health topics in a memorable, light-hearted way. The likeable character with strong, funny and sweet reactions and emotions symbolizes an employee who could be working in any industry or sector. He can be the victim of situations over which he has no control but he can also identify hazards or risks,

and make good suggestions to improve safety and work organization. The case study describes the application of one specific 'story' concerning the importance of a specific warning sign in an organization for people with learning disabilities. The software is regularly used by the participants of the courses, who are formed into groups of 6-10 persons. The funny stories as well as the simultanious audio-visual presentation in a cartoon-like manner is very attractive and motivating for the users and helps the teachers to discuss important content issues. The tools can be used in a large number of European languages.

Relevance: 5/5 (learning tool as required)
Application: 5/5 (many different workspace environments available)
User evaluation: 4/5 (application for many years but only qualitative evaluation)
Promotion of learning: 5/5 (relevant promotion of vocational training for an
                              integration or re-integration into the job market).
Total points: 19/20

Case study 8: Nala WriteOn

Nala WriteOn is an execise-based online learning tool developed for persons with literacy and numeracy difficulties. It is a very useful online tool on a website accessible for people who would possibly not attend a face-to-face class but can easily manage to apply a computer to train literacy and numeracy. Feedback from individual users or user organizations is encouraged and online mechanisms for submitting comments and suggestions are provided. The website is reviewed and updated annually and new content is regularly added. NALA reports that over 28,000 people have created learning accounts on WriteOn, that 5,000 minor award certificates have been issued since the website went alive, and that approximately 1,000 new awards are issued every year.

Relevance: 5/5 (learning tool as required)
Application: 5/5 ()
User evaluation: 4/5 (all test candidates found the site attractive/ enjoyable to
                              use and had no problems accessing or navigating screens)
Promotion of learning: 5/5 (easy to access online e-learning tool).
Total points: 19/20

Annex A: Desired Preparation of Case Studies (P5, U. Glasgow, M. Hersh)

A case study is a narrative or story plus analysis. It provides detailed or descriptive information which gives an illustration of how e.g. a learning technology is used in a particular circumstance. The story or picture in the case study can give a more in-depth understanding than a more technical description would. It also is more personalised and may help readers to understand e.g. how they could apply the particular technology in their learning situation.

The Enable case studies will generally involve a narrative about the use of a particular technology in a particular learning context by adult learners, which may be formal such as a training or adult education centre or informal such as learners learning at home. It may therefore be difficult to anonymise the case studies and also more interesting if the name of the learning centre, college etc is given. It is essential that you discuss your case studies with the organisation or learners involved and obtain permission to use the information.

In addition to a narrative case studies also involve commentary. For instance you should discuss why the particular technology worked well in the particular learning context and why it was suited to the particular group of learners. You should also discuss lessons learnt such as any problems or ways the use of the technology could be improved.

Case studies can be used to illustrate good or bad practice. It would suggest that it is more useful to use these case studies to illustrate good practice and positive outcomes.

There are many different ways to write a case study.   However, case studies should always be written as a narrative. This could involve the use of formal sentences. It could involve a more colloquial style e.g. as narrated by a particular student or member of staff in the form of a conversation between a group of students. In that case you would need to obtain details about the students and permission to use this information.

The Enable case studies will use a narrative approach and have the following components in the given order.

Title which could include the name of the learning tool and the learning college, centre etc. (the real name if permitted, otherwise an alias) possibly in the form of a positive statement e.g. Tool x has helped disabled learners in college a improve their confidence and get jobs If you use aliases you should state they are alisases to protect identities.

Description of the learning situation: name, where it is situated, possibly a sentence about the area, information about the learners.

Description of the learning tool: Why did the learning centre decide to use it. Was the decision made by a particular member of staff. What features of the technology attracted them.

Use of the learning tool: Which classes is it used in, what sort of students, what subjects.

Comments by learners and teachers: What do they think of the tool. Do they like it. How has it helped them. Has it had any wider impacts on their lives.

Evaluation: What has been learnt from the use of the tool. Why was it successful. What about the tool made it suitable for the group of students and subject Could its use be extended to other groups of students, other subjects. Are there features of the tool that could be improved. Would it be useful to add additional features. Are there features that are rarely used and that it would be better to hide or remove.

Learning and other outcomes: How has the tool improved learning. Has it had any wider impacts such as improving confidence, helping people to get qualifications and jobs.

Tool URL:
You may want to include a photo or picture in your case study. This can help to draw attention to the case study. This will also depend on the tool. A picture of a Braille notetaker is useful as it shows what it looks like. A picture of someone wearing headphones and using a screenreader is less informative.

The case studies should be two A4 sides in length with 2.54 cm margins. They should be written in English. If possible, please get the language checked by a native speaker. You are also encouraged to produce versions of your case studies in your own language for your web site. Title: 16 pt arial bold, first letters capitalised. Section heading: 14 pt arial bold, first letter capitalised. Text: 12 pt arial.

Each partner should submit at least one case study as a word file to Hans (hhb@ieee.org). The deadline is 12 noon CET on Friday 25 January.

It is essential that all partners meet this deadline. The quality of the deliverables and avoiding further delays is very important for the success and even the continuation of the project.

Annex B: Complete Set of Case Studies

Case Study 1: (P16)
In-Folio – an accessible e-portfolio for learners with learning difficulties or disabilities

Description of the learning situation

In-Folio is used with learners with learning difficulties or disabilities in a range of education and training settings in the United Kingdom. There are currently 30 hosted learning provider installations which are for Independent Specialists Colleges, mainstreamFE colleges in England and Scotland andother organisations. Some of the ways it has been used include to:

- record information during the 'Expressive Arts Group'
- support the 'Moving on to Independence' group.
- support learners in a 'SkillStart' course.
- add value to the 'New Skills Link Course'.
- provide evidence for validation as part of the 'Lifeskills' City and Guilds programme.

Description of the learning tool

In-Folio is an easy to use Open Source e-Portfolio that enables learners, particularly those with disabilities or learning difficulties, to store and arrange multimedia content into simple online pages. Learners can upload their own material or it can be uploaded in bulk by others for them to use, selecting appropriate resources from a gallery of personally chosen material. In-Folio is essentially a secure system but each user can choose to share specific parts of it to those who may be able to help and support them as well as potential employers, friends and family.

The first phase of In-Folio in 2009 saw design of the prototype interface with a switch access facility, a gallery of images and objects, both assisted and graphical log on mechanisms and models showing the proposed text-to-speech and administration facility.

These are the basic elements in an application that will provide a simple robust application capable of being 'tuned' to suit the level of the user. The objective was to have a model based on the 'loose-leaf binder' approach, able to be set so that it has a variety of folders

available to the user or just one. The structure of each installation can be decided by the college to suit their students' needs. Students can add content to their pages by uploading themselves or by choosing from a gallery of materials.

The application is as accessible as possible with systems to allow easy logging on and built in text to speech of content and navigation for the learner. The capabilities of the application will allow, or not, various types of social interactions and for almost the first time, giving users control of their own pages/information, a new venture for most ISCs.

Comments by learners and teachers

A previous ISC student and keen advocate of In-Folio is now living in supported accommodation and using In-Folio for evidencing his performing arts course at the local FE College. He commented "In-Folio is great as I can upload photos and videos of the stuff I've done at college and then use this as a digital CV and to show off what I've been doing." This student has complex medical and physical needs and is a wheelchair user. Another learner said, 'It has been a life change, from doing nothing to doing something.'

Comments from teachers include

- Not only could the platform record a reflective log but also examples of student work and assessments could be attached;
- It meant a lot to students' families because they were able to see what they could do;
- In-Folio was easy to use and I like the fact that you can add video links.

Evaluation

One benefit is that other teachingand support staff have now been able to see the potential of In-Folio and can now appreciate the opportunities that the simplicity of the system In-Folio affords. They can see the benefits for the users and have become keen to enable them to add evidence from different curriculum areas. One other consequence is that staff and students are now asking for further developments and increased functionality.

In-Folio has raised awareness of the ability of learners to manipulate and use digital media. It demonstrates an increasing digital literacy among many young people who may not be able to access print in the traditional form.

Suggestions for improvement from learners and teachers

- We would like room to put more information in the first tag 'About Me';
- Screen reader functionality;
- Another view of the site - a bit like a family tree, accessed by an extra button at the top level.
- We would like more blocks for photos.

Case Study 2: (P1)
DAF Assistant use in the university environment

Description of the learning situation

The tool was mentioned by female speech therapist who works with children and adults with speech/language disorders. She actually uses the tool in the process of speech therapy with people who stutter but she told us that the tools that works on the princip of DAF (delayed audiofeedback) can be effectivley used by individuals in other kind of settings too (for example telephone call to obtain an employment). In the learning situation DAF Assistant can be used for speaking in front of the class (for example seminar presentation at the university level).

Description of the learning tool

The use of DAF Assistant was proposed by the staff member for ease of use and affordable price. The interviewed speech therapist uses DAF Assistant on her iPad. An individual user can also use the application on his iPhone, iPod Touch or on the computer. For using the application someone would also need a headset with a built-in microphone or Bluetooth headphones (on iPhone).DAF Assistant is based on the fact, that many stutters stutter less if they speak together with someone else. The application provides short delay (and also possible shift) of someone's own voice. The person's own voice now actually acts as the voice of an interlocutor. The application allows the user to choose the wanted audio delay and frequency shift.
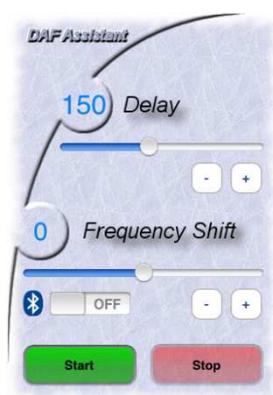
Picture 1: Screenshot of DAF Assistant
(Source:http://www.artefactsoft.com/iphonedaf.htm)

Use of the learning tool

DAF Assistant can be used in various learning situation. Since the application makes all surrounding sounds sound in the same way as user's own voice (that is delayed and shifted), it is important that application is used when actively participation in a conversation is expected. Some users recommend that it should be used when speaking in front of a silent class (for example when performing presentation).

Comments by learners and teachers

Some learners report that they benefited from using the tool. For some users the application does not work since the delayed audiofeedback can be too confusing or weird to them.

Evaluation

The use of DAF Assistant can be beneficial, especially in circumstances when there are not many surrounding sounds and actively part in conversation is expected. When looking from the point of an university student it can be effectively used when speaking in front of the class. The current version unfortunately does not work during the phone call, which is it's disadvantage. Some other applications, based on DAF, however do provide this option. This is quite important feature, because making successfultelephone call can decide whether someone gets a job or not (first impression).It is known that making public speech or a telephone call with unknown person can be quite stressful experience for those who stutter. Because of the emotional stress someone may even become less fluent in speaking and stutters even more. As we see, for learning situations the tool can be used as some kind of a situational solution. But the tool is also used in therapy settings where it can have long-term effects if applied correctly.

Learning and other outcomes

If student gets some positive experiences with using application in stressful situation at the university setting, those experiences will probably contibute to better self-esteem and increased learning motivation.

Case Study 3: (P13)
Specialty tests for 8 vocational specialties

Created in Radviliskis technology and business teaching center (RTVMC) it's former name Lithuanian rehabilitational vocational training center, in 2006/2008 years in the frame of ESF

project "Adapting of methodical tools for vocational training of disabled", "Metodinių priemonių adaptavimas neįgaliųjų profesiniam rengimui". There were created tests for disabled students in 8 specialties: cooks, inside decorators, metal workers, hotel workers, tailors, carpenters, farm fields' workers, car repairers. Methodical tools available in Lithuanian language. Material issued in CD and online. Learning tool was created for students with special needs.

RTVMC is vocational training center for students with special needs and learning troubles, established in 1993 by LR government. It is situated in the same middle of Lithuania, in Siauliai County, Radviliskis town. It's location very good for students; they arrive to Radviliskis not only from Siauliai County, but from many other rayon of Lithuania. Center has two departments in Radviliskis and Raudondvaris. All students of Radviliskis department have special needs: hearing, vision, movement problems. Biggest part of those students has light mental disability, diagnosed by Pedagogical psychological bureau. Those students are 15- 25 years old. Part of them graduated after 10 grade of special school, another part learned in primary school by special or by adopted programs. All of them are disadvantaged youth. Students goes from many Lithuanian Counties, they attend theory lessons and training practice in RTVMC workshops. Youngsters live in two hostels beside the school, get meal in canteen nearby and only at weekends they go home. Here in RTVMC learns about 600 students; about 300 youngsters from this amount are students with special needs. Young people learn their specialty in RTVMC tree years.

There are also 23 vocational rehabilitation programs for adult disabled unemployed peoples. Those adult people are disabled because of illness, car accidents, heart attacks or other troubles. They not able to work in previous job and must change occupation which had before. They also are in group of risk of social exclusion. Adult disabled people get referral to vocational rehabilitation program from Lithuanian labour exchange. They learns new specialty in RTVMC 9 month.

The tools have name "Tests", but they are used not for examination, but for learning. Initially it was idea, that only youngsters will use those specialty training tests. Later was found, those online tests fit for adults disabled from rehabilitation program as well. The same specialties' teachers from RTVMC work with disabled youngsters and later with adult disabled in vocational rehabilitation program. Teachers of specialties decided that tests, created for young students, can be applied for adult learners.

Picture Nr.1. K. A. is adult learner from vocational rehabilitation program. He learns in Art wooden works' cutters program.

Picture Nr.2. Here adult vocational rehabilitation program participant K. A. learns Carpenter' online tests.

Picture Nr.3. Adult learner J.O. is on his starting week, assessment of ability in Carpenters' specialty vocational rehabilitation program. He learns to sign up for training test.

URL of online tests: http://www.lrprc.lt/testai

Those learning tools are used from year 2008 till today.

Tests give possibility for teachers use many methodical approaches: books, material examples, practical work, theory, CD, pictures, tests, exams and so on…

For learners those learning tests are very useful: if there were troubles in decision, students can repeat procedure.

The same tests can be used for some rehabilitation programs, as here, in this example: for Carpenters and Art wooden works' cutters programs. There are online tests in server for 8 above mentioned specialties, but they can be applied for all 23 formal rehabilitation programs.

Case Study 4: Dspeech (P12)

1.   The Learning Situation

The Italian Association for the Blind (Union eI Italiana Ciechied I povedenti- UIC) organizes vocational courses and training for visually-impaired adults for new job opportunities (e.g. to become telephone operator) or for those who have already been working and need to improve their skills.

Usually, various materials and documents are provided to the participants along the course. Teachers prepare the materials which must be accessible via assistive technologies, such as a screen reader. Thus teachers are asked to comply with basic principles to produce accessible electronic documents and materials as well. These documents can be read through the PC (usually in Word format) or can be turned into audio format (i.e. into mp3 files) to be preferably read via mp3-players and portable devices. In addition, many people learn to use the assistive technologies and the PC attending the course, so they need to have audio-based materials which can be read without the computer.
For this reason, the Association for the Blind prepares the materials in the audio format in collaboration with the teachers. Reading aloud and recording all the material require a lot of time. So a tool supporting this activity would be a valuable resource.
In our context, such a SW can be used in order to make the teaching material accessible.

In short, the tool can be used by: (1) teachers with no specific skills in computer science and accessibility in assistive technologies; (2) students/participants who have minimal skills in using ICT and assistive technologies; and (3) Centers and Associations with specific competences in accessibility and visually-impaired users' needs. According to the users' skills and the specific needs and preferences, the tool offers various basic and more advanced features.

2.   The learning tool

DSpeech is a TTS (Text To Speech)-based tool for generating audio contents starting with an electronic text. It is equipped with an additional functionality of ASR (Automatic Speech Recognition) integrated in the SW. It is able to read aloud written texts and to choose the sentences to be pronounced based upon the vocal answers of the user. It is specifically designed to quickly and directly provide the functions and to improved practical usefulness that are requested by this kind of tool.

DSpeech is a free tool and it is downloadable from the web site: http://dimio.altervista.org/eng/. It is characterized for the facility of use in terms of basic functionalities but it also provides advanced features. For instance, the tool allows the user to create split mp3 files according to marked blocks with appropriate tags. Furthermore, DSpeech offers the opportunity to read the content through different voices, thanks to different languages offered by the installed voice synthesizer, or to add sounds or other

audio files in any point of a single track along the read content. More specifically, it is possible combine different formats to obtain a mp3-based audio version (content enriched with sounds or other audio files).For these reasons the Italian Association for the Blind has chosen this tool for its training and educational activities.

The generated TTS-based audio format can be read especially by using portable mp3 players. This makes the contents readable by anyone, including who are not so skilled in using a computer via assistive technology. Finally, the DSpeech interface is been translated in several languages (English, Spanish, French, German etc…). The different interfaces are directly downloadable from the DSpeech web site.

3.   Comments by learners and teachers

The users consider the application very useful to generate automatically audio contents by exploiting a TTS voice. This makes the process very quickly and easy, especially in terms of skills and times. The tool is used also for obtaining audio-books especially for those blind and advanced users who are not interested in audio books read by a human voice (i.e. a voice synthesizer is equally fine).

To obtain an audio version for an input document is very easy and quickly. What require competences and a lot of effort is related to the more advanced features, such as well-split mp3 files; different voices used for specific and very appropriate contents; a combination of text-contents and sounds and multimedia contents, and so on. The tool allows the user to customize the SW, such as conversion tables, how to split the audio mp3 files, and so on. However, the SW is considered by the teachers, learners and the Italian Association for the Blind a very useful tool, for reading any kind of book as well as contents.

Concerning its usage and installation, on the DSpeech web site there is a link that allows the download of the SW as a compressed folder. The user has easily decompressed the folder and completed the installation process with no specific problems. It requires that at least a TTS engine is installed on the PC. At the end of this process, the SW is ready to be used. A short setting of the main features may be done if the user would like to customize them.

4.   Evaluation

Several features and potential improvement have been observed by the users when using the tool to generate the audio contents. In short, DSpeech allows to:

-       make textbooks and course materials accessible for visual impairments students specify, through the contextual menu or via precise tags, the voice type to read chosen sentence or content block. In this way, it is possible to create dialogues via different voices (e.g. by differentiating through male and female voice);
-       select the speaking voice characteristics (speed, volume, frequency, etc…);
-       generate mp3-based format with the opportunity to split the content into files.

This is especially useful for creating audio books or educational materials. This can be done by splitting the content according to file length (e.g. 5, 10 minutes) or in a customizable way by marking the blocks to split into separate files. To do this latter, it is necessary to manually add to the source document precise tags indicating to split the content in that point;

- add special voice emotional effects if the used TTS-based voice synthesizer allows it by marking through appropriate tags;
- control all functions of the interface through the keyboard shortcuts.

Since the tool has not an own TTS-based voice engine, a possible limitation is related to the voice synthesizer used and installed on the system to generate the audio contents.

An important limitation concerns the way used for splitting the source content into several separate files. Splitting into minute-based files is easy and simple, but the resulting audio-content is not particularly useful when using it to study. On the contrary, a content-based division is much more useful (e.g. an audio track for each section and sub-section, such as 1.1, 1.2, 2.1, and so on). Unfortunately, this can currently be done by hand with the addition of some specific tags. To overcome this limitation, the proposed tool at http://whitemoon.iit.cnr.it/test/user-test.htmlattempts to split the source content according to some text-based rules to identify each section and paragraph. The prototype offers other additional features not available with DSpeech, such as the opportunity to split by taking into account tables or other specified elements.

5.   Learning and other outcomes

The tool usage highlighted other aspects and features that could be useful to prepare the audio materials. In short, to improve the learning process and tool usage it could be useful to have:

- a web-based version to be included into a learning platform in order to allow to both teachers as well as students to easily and quickly obtain a downloadable audio version to upload on a mp3 player;
- a plugin to import accessible pdf files;
- additional markers (i.e. tags) to "differentiate" via voice other selected portions such as underlined and in bold as when a learner wants to highlight a block to read it more quickly in a second moment;
- other markers could be also useful to favorite the inclusion of figure and image descriptions, short sounds to inform the reader about on a specific event and situation (e.g., when there is more than one blank rows to better separate two blocks/paragraphs/sections, etc…);
- further generation functionalities to have various output versions, such as a short audio/text versions based only on the highlighted portions (i.e. those portions marked with given tags), an index generation according to the section titles, or different format such as ePub mobile version.

Case Study 5: (P9)
ELoQ Helps Learners Getting Qualification in the Field of Storagement Logistics

Description of the Learning Situation

The main goal of the German project ELoQ was the support of future-oriented education of people with disabilities. This was realized by the transfer of application concepts of new media to job-related qualification. Trainees with disabilities were qualified in the field of logistics supported by means of e-learning. This was not a replacement of the regular vocational education but rather complemented the established training concepts. E-Learning was established as a component of education, also for people with disabilities.

The research project ELoQ was done by the Institute of Rehabilitational Technology at Faculty of Rehabilitation Science of the Technical Unviersity of Dortmund together with Christliches Jugenddorfwerk Deutschlands e. V. (CJD). It was funded by the German Federal Ministry of Education and Research. For the evaluation phase the project ELoQ worked together with three partners located in the Ruhr area around Dortmund which are responsible for vocational training for warehouseman and warehouseman-helpers.

Description of the Learning Tool

ELoQ developed learning content for education in the field of storagement logistics. For this purpose an authoring tool for e-learning content was developed. Accessible learning content was developed with this authoring tool. Content is available free of charge. In order to show how the content can be presented in education ELoQ has developed learning scenarios. These scenarios can be found in the learn management system Moodle, which was adapted for the purpose of the project.

Main focus of the work in the ELoQ project was the designing of "accessible" learning content. "Accessible" means that the resulted product is not tailored to a special group, e.g. people with low vision or hard of hearing. Barrier-free e-learning means that the content and activities can be used by people with disabilities in the common way, without particular difficulties and without the need for assistance. In the design process aspects of Universal Design of Learning (UDL) and of Universal Design of Instruction (UDI) were considered. For sustainable anchoring of the use of e-learning, didactic scenarios were produced, verified and evaluated. The training staff of the involved partners was qualified respectively. The whole work was accompanied by evaluation and transfer actions.

Project modules:

- **Module I**: Development of a curriculum for a subset of jobs for people with disabilities (warehouseman and warehouseman-helper)
- **Module II**: Development of self-learning material
- **Module III**: Concepts for didactic scenarios

- **Module IV**: Qualifying of staff
- **Module V**: Management and evaluation

Use of the Learning Tool

A course was done with disabled and non-disabled students (90 in total) of the education training centers involved in the project.

Comments by Learners and Teachers

Learners liked the tool and were very motivated in using it.

Evaluation

An evaluation for redesign of EloQ was done with an observation of the learning situation and with an online-survey about the accessibility and usability of the learning content. Evaluation was done with 26 students of several vocational training organisations. Among these: 8 students of the special vocational training unit of "Josefsheim Bigge", an organisation for physically handicapped people and people with learning and sensual disabilities, 4 students of CJD Dortmund, 6 students of Dachser and 8 students of mmp coaching.

Results for redesign:

- revison of layout,
- integration of simple introductive task versions,
- correction of technical bugs

Results for optimization:

- navigation und integration of navigation aids,
- presentation and availability of alternative objects for multimedia objects,
- integration of additional hyperlinks to reach relevant areas on the quick,
- analysis of tests,
- presentation on displays with lower resolution and on mobile devices (e.g. smartphones, netbooks)
- auto-complete for search function for better navigation location of learning contents.

Learning and other outcomes

Learners found the tool very helpful in order to qualify themselves for future work and jobs.

Tool URL

General:

- English information: http://www.projekt-eloq.de/info-in-english
- German information: http://www.projekt-eloq.de
- Course examples (in German language): http://lernen.projekt-eloq.de

Partners:

- Christliches Jugenddorfwerk Deutschlands e. V.: http://dortmund.cjd.de/dortmund/pages/index/p/8684
- TU Dortmund: http://www.reha-technologie.de/index.php?option=com_content&view=article&id=448&Itemid=67&lang=de
- Dachser Dortmund: http://www.dachser.com/de/en/index.htm
- Bethel proWerk: http://www.prowerk-bethel.de/
- Josefsheim Bigge: http://www.josefsheim.net/

Screenshot with course examples
(http://lernen.projekt-eloq.de/AContent/home/index.php?&p=2)

Case Study 6: Napo's 'Best Signs Story' (P3)

Napo is the hero in a series of animated films, co-produced by a small group of European organizations, to introduce important workplace safety and health topics in a memorable, light-hearted way. The likeable character with strong, funny and sweet reactions and emotions symbolizes an employee who could be working in any industry or sector. He can be the victim of situations over which he has no control but he can also identify hazards or risks, and make good suggestions to improve safety and work organization.

Napo is acting in a variety of critical situations, which demonstrate the principal problem(s) and show how to avoid them. The episodes are ordered with respect to typical learning situations. They are available for many European languages; the avatars in the clips do not use any language but rather natural symptom interjections (as hmm, ohh, ahh) that can be understood in most European cultures. The episodes are online available via the website given at the end of the description.

Figure taken from http://www.napofilm.net/en/the-napo-story

The Napo clips were developed by the NAPO consortium and produced and distributed by the European Agency for Safety and Health at Work. The NAPO consortium consists of the following national worker's compensation boards:

1)   Allgemeine Unfallversicherung für Gewerbstätige (AUVA), Germany,
2)   Health and Safety Executive (HSE), United Kingdom,
3)   Hauptverband der gewerblichen Berufsgenossenschaften (HVGB), Germany,
4)   Italian Workers Compensation Authority (INAIL), Italy,
5)   Institut National de Recherche et de Securite (inrs), France,
6)   Schweizer Berufsunfallversicherung (suvaPro), Switzerland

The following list of animation clips shows an excerpt of the available workspace situations:

1)   Working together (how to create a safer and more productive workspace),
2)   Lungs at work (why to create a smoke-free workspace),
3)   Save moves (savety at the workspace transport),
4)   Save maintanance (good practice to avoid accidents and occupational diseases),
5)   Protect your skin (dangers of exposing the skin to harmful substances),
6)   Danger: chemicals,
7)   Stop that noise,
8)   Napo in clean sweep,
9)   The adventures of Napo (understanding warning labels in a variety of situations),
10)   Best signs story (health and savety signs and symbols found in the workspace).

The case study was recorded at Stephanus-Werkstätten, Berlin, Germany, an organization to promote people with mental, psychological, or learning disabilities who want to find a workspace with guided help for the integration or re-integration into the commercial labor market. Courses at Stephanus-Werkstätten are generally composed by a set of modules for individual learning groups or single individuals, running over a period of 24 months.

Courses focus on the four professional measures 1) training of employment, 2) promotion of occupational measures, 3) promotion of personality measures, 4) music, culture, and sports. Stephanus-Werkstätten make extensive use of computer-based ICT learning tools, one of which is governed by the hero Napo. Courses are given for groups of 6-10 persons and have a duration of approximately 45 minutes including approximately 20 minutes of film. The films are often interrupted by the teacher for questions, discussions, and explanations. The case study shows an exemplary employment of Napo's Best Signs Story concerning the sign "inflammable". A tank contains an inflammable liquid and is marked with the respective sign. Napo wants to fill a bottle with liquid from the tank. The film is stopped with the question, what special sign(s) the course participants recognized at the tank. Design and meaning of the sign are discussed. The film continues, Napo fills the bottle; what did he wrong, what error can be recognized? Also the bottle must have the same sign "inflammable" to mark it for later use. A question and discussion follow on what could happen if the bottle did not carry this sign. Hint: Never fill dangerous or inflammable liquids into food bottles in order to prevent major health damage or risks. A companion of Napo spills a bit of the liquid on a lope on the ground. Napo is welding nearby; sparkes reach the lope and inflame it. The lobe starts burning, the room starts burning, the fabric starts burning, the city starts burning. Resume: Better use the sign "inflammable" on bottles you fill with respective liquids.

The participants "love" and enjoy the funny and motivating hero Napo and the audio-visual cartoon presentation of his actions. They participate very actively in the discussions with the trainer and make regular use of repetitions of the episode on their own computers. Small tests with the signs learned are made and demonstrate that most persons with severe

learning disabilities later on recognize the sign and the importance to use it in respective workplace situations. The teachers estimate the ICT learning tool as very appropriate for people with learning disabilities.

Websites: http://www.napofilm.net/en/napos-films,

http://www.stephanus-werkstaetten.de/de/regionen/berlin

Case Study 7: (P11)
Online Tool Designed to Fill a Gap in Adult Literacy Training

WriteOn is an online learning aid developed by the National Adult Literacy Agency (NALA), a charity whose aim is to ensure people with literacy and numeracy difficulties can fully participate in society and have access to learning opportunities that meet their needs.

Nala conducts research on literacy issues, advises the government on literacy policy, and also provides training and support to individuals . Research conducted by the agency shows that, while adult literacy classes are widely available in Ireland through the Vocational Educational Committees, 92% of adults identified as in need of support do not make use of them. The research suggests that there are a number of reasons for this, including reluctance among adults to 'go back to school'. The problem is particularly acute among men.

WriteOn was developed to meet this need. It allows people to improve their reading, writing, numerical and learning skills at their own pace, in their own time, and in complete privacy if desired. It also allows users to measure their progress and, when ready, to have their skills assessed for a recognised, national qualification.

The tool was not specifically designed for those with a disability but was created with the needs of disabled users in mind.

WriteOn Literacy Tool

WriteOn provides a series of graded exercises on a variety of topics. Learners first create an account and choose a literacy level to work towards (the exercises are geared to the requirements of the Irish Further Education Training and Accreditation Council Level 2 and Level 3 awards). They can then choose a skill category (literacy, numeracy or learning skills) and a topic (e.g., health, sport technology). Each exercise comprises a series of screens which presents questions in various formats, including type-in-the-box, matching and multiple-choice. On completion of a topic a grade is awarded, allowing users to work over time to improve their scores.

An example of the type of exercises used in WriteOn.

Note that the text is also available through speech.

The exercises are simple, enjoyable and well-presented, with plenty of images to enhance the visual appeal. The material covers many topics, accommodating a range of interests and allowing users to return to the site repeatedly without facing the same material and becoming bored.

Users of the site can have their skills assessed across a number of areas and then be prescribed an individual learning plan to improve their skills in these areas. At the end of the learning phase, users are presented with an opportunity to have their skills assessed and request a national qualification. This is the first time that accreditation at this level has been offered in Ireland using the Internet.

Feedback is encouraged and mechanisms for submitting comments, suggestions, etc. are provided. The site is reviewed and updated annually and new content added.

WriteOn in Use

WriteOn is designed to be used either in conjunction with other literacy training resources or on its own. NALA conducted a study of its literacy programmes and found that 17% of those enrolled on other programmes also used WriteOn (see http://www.nala.ie/sites/default/files/documents/cmcnally/NALA%20Distance%20Learning%20Service%20-%20an%20evaluation.pdf). However, this offers little guide to the popularity or usefulness of WriteOn since it is aimed in large part at those unwilling to participate in 'face-to-face' teaching and other traditional forms of literacy training. The real value of the tool is its potential to help those who might not otherwise participate in any form of literacy training, but by its nature this is difficult to measure. However, NALA reports that over 28,000 people have created learning accounts on WriteOn, that 5,000 minor award certificates have been issued since the site went live, and that 1,000 new awards are issued every year.

Since it is not easy to survey the experiences of actual users, we conducted a limited evaluation using volunteers, one of whom is blind and uses a screen-reader. All found the site attractive and enjoyable to use, and had no problems accessing or navigating screens. Several different browsers were used and the site worked reliably on all of them. Audio

alternatives for text are available. Whilst most of the site could be accessed using a screen-reader, some elements were quite difficult to use and a few presented significant problems, for example, a few questions that use drag-and-drop to match images to text descriptions.

The tool is available online and thus accessible from anywhere in the world, but it is intended for use in Ireland and thus is geared towards Irish users. For example, the sports questions mainly concern Gaelic Football and hurling.

WriteOn: http://www.writeon.ie
NALA: http://www.nala.ie/

Case Study 8: Lexland Dictionaries (P4)

Leksykonia – computer dictionaries on CD-rom – are published by the Polish enterprise Lexland. They are on the market since 2007. Before buying any of bilingual dictionaries, it is possible to order special version adapted to screen readers. This information is on Lexland's web site.

"In my job sometimes I have to write something in English. There are different online dictionaries, but to some of them you have to pay the access. Another problem is that not all of them are fully accessible for screen readers; there are many publicities and before I find a word I need, I lose a lot of time. Moreover, in the office sometimes we have problems with Internet, so an accessible dictionary installed on my laptop is very useful" – explains Marek.

"I am on European Voluntary Service in Belgium. Before going there, I was looking for a Polish-French dictionary on CD, because sometimes I don't have access to the Internet. I like Lexland's dictionary. It is easy to use and has good contrast" – adds Kasia.

"When I read on a mailing list for the blind that there are dictionaries on CD accessible for us, I was very happy. I bough immediately few of them, English and French, even these I didn't need in this moment, e.g. with economic vocabulary. As in this period I was very busy with postuniversity studies and work, I even didn't try the demonstration version. Lexland dictionaries are very easy to use. You write a word, press enter and have translation which you can copy e.g. to Word document. It was very useful for me particularly when I had problems with my computer and I couldn't write French letters with accents. Moreover, earlier I used another dictionary, but there were problems with its accessibility. The Polish distributor of Window-Eyes (my screen reader) made a special configuration for this dictionary, but to receive translation I had to press few buttons, go to another window and with every upgrade of Window-Eyes it was necessary to modify something, because it stopped working. I have been using Lexland dictionaries for more than four years, meantime had few upgrades of my screen reader and everything is OK. Moreover, for a blind person buying a dictionary or encyclopedia on CD it's a risk, because we don't know if it is accessible. Few years ago in a library

in Belgium I found a dictionary on CD on the box of which was written that it was compatible with Jaws. I bough it and it works with Window-Eyes too. In my opinion publishers of this kind of material don't appreciate the blind and partially sighted customers. If on the web site or box there is the information about accessibility, of course I will buy this product instead of something I don't know and I will express my opinion on forums or mailing lists of the blind people. The publishers aren't aware that they could have profit from it" – says Hanna.

The users how few ideas for improovments. They consider that it would be useful if the dictionaries have more words, expressions and idioms. In addition, if somebody has few dictionaries installed, it would be good to have the possibility to translate a word e.g. from English to French, without passing by Polish. "Finally, it would be also useful to put on the web site the information that if a blind user updates his dictionary, the files put on his CD by Lexland to make it accessible for screen readers won't disappear from his computer. Now often blind users are afraid to update their dictionaries, because they don't know if after this modification they are still accessible. Before contacting Lexland, I didn't have courage to check it on my one. I didn't have CD with me, so it was better to avoid such uncertain experiments" – says Hanna.

Case Study 9: (P7)

PROBLEMS OF ADULTS' VOCATIONAL LEARNING READINESS AND LIFE MANAGEMENT WITH ICT

DESCRIPTION OF THE LEARNING SITUATION

The target group is adults who have such life-management and problems of learning readiness, that they cannot start their studies in vocational training institutions. They have a range of learning difficulties, negative school background and work experience, school fear and other traumatic experiences, substance abuse problems, theoretical materials management and motivation shortcomings. Vocational skills required learning by doing, which the group experiences better than theoretical studies. Alternative adult education and training is arranged for the group. This aims for their better life-management and vocational education readiness (Light-Project). This educational project time is 6 months for one student. Training of the selected student's goal is to complete parts of the vocational exam. The student's purpose after the project is to start vocational training or self-employment after the project. The focus of this case-study is to identify the adults' limitations and learning problems with ICT by interviewing one of the head teachers.

DESCRIPTION AND USE OF THE LEARNING TOOLS

Students use Windows systems, for instance Words, PowerPoint and Exel programs. They use digital cameras, which they have to link and apply with windows programs. They have to

fill some forms in networks and search information in the network. They also use some mobile phone systems for communication between home and study place. With the tools and information they have to construct their life-management skills and vocational orientation skills to achieve some parts of the vocational education exams. The ICT tools are applied all of learning process of the project. Especially young adults also use social media and they play net games. This has influence to their learning and using other ICT tools in the learning process.

TEACHER'S INTERVIEW

The head teacher told that students often have a negative study or work experience. Using ICT is not in itself considered to be a negative. Students seldom experience that their ICT using and applying develop their life management and vocational skills. Students use social media and ICT games which cause some problems in their study learning process. For example gambling addiction causes problems between of their daily rhythm and study schedule. Their ICT using in everyday life and ICT using in the project does not work well together, if the teacher cannot be present and guiding that links. Some student shave only friends in the social media. This has an effect on the student's social skills in communications and contacts. Younger adults feel that ICT use natural parts of the project. Younger adults can search information well in network connections, but their using and applying for the purposes of learning are problematic. Their basic programs using is successful at the global level, but details needs individual guidance. Older adults, especially men, experience the use of ICT for their own life management and vocational education is worthless. The common core of the problem is the lack of learning time. Learners would need also clearer guidance to integrate the ICT programs and other practical vocational skills for learning process. Although most of the studies based on learning by doing, students have opinions that ICT using is not meaningful part of the vocational education. Smart phones are also used in the project. They seem to be important part of the guiding student's life management outside the study place, for example communication between their social life and learning goals.

EVALUATION AND DISCUSSION

Younger adults are able to use basic computer skills, but only superficially in their learning process. Older adults have difficulties to use and apply the ICT skills, because they have detraction attitude to it. All these adults have difficulties to apply different programs for the same learning purpose. Especially problematic in their studying is to describe learning process by written and visual illustration. This is one main difficulty for them to perform vocational skills in part of vocational exam. The development of these ICT skills is challenge for the future. Students should know how to present and market their skills. The ICT using in learning process is too separate of their ICT using and life-management skills in everyday life. Using ICT in everyday and work life is intertwined nowadays in such a way that the vocational professions need more and more flexible working management of workers. Workers have to plan and control their ICT skills so that both of them are in the balance. In

the interviewing there discussed, how students' life management skills and the vocational learning readiness by ICT could support by new ways, for example by some Mobile Technology and Geographical Information Systems (GIS) tools. They could help student's self-directed learning. In addition for developing teacher' and student's interaction and communication there was conceived to take in use some new learning platform.

Case Study 10: (P20)

CASE STUDY OF IT USE IN LEARNING

Background information

Since no group IT supported learning situations available in the country, this is an individual learner story that happened at interviewee 's home on the occasion of lesson preparatory activities aimed to produce a PPT presentation for students with or without visual impairment. Interviewee is female blind, age 54, with diagnosis of dystrophy of retinae involving a small residual peripheral ring vision (under 5%) not enough for independent walking in unknown area or for ordinary print use.

Learning tools used are:

- JAW - A screen reader software application that attempts to identify and interpret what is being displayed on the screen (sent to standard output, whether a video monitor is present or not). This interpretation is then re-presented to the user with text-to-speech, sound icons, speech to text software upgraded by AnReader software for Serbian language: these two software combined provide the user with access to all Windows applications, with Microsoft Power Point and Microsoft word in this case needed.

These two software have to be supported by hardware accessories like sound bluster, wireless ear phones, and a voice recorder.

Process:

She had to use two computers and voice recorder at a time since adapted software applications limit her computer performances so that simultaneously not more then two files can be open. So, at the same time one PPT file is open to be loaded for next lesson, and several word and PDF resource files at two computers and all managed by voice recording organizational clues (like "this goes with the slide No. …") and slide order. When all slides are created, with the help of recorded notes, they are organized in a presentation order and comments are added from voice recorded material. Then, she goes through the overall

presentation and writes on a Perkinson Briller notes for herself. The last thing she does is slide design limited to a background color.

When asked is this technology changed her life: "OF COURSE! I could not imagine how could I have been doing my job without any of these."

Limitations

Interviewee ascribes some limitations to continuously developing technology in relation with her age, i.e. lack of training provision in new technology usage. Also, across the city there are Cca twenty Braille output devices, i.e. printers, but they are not available to those who need them, with an excuse that they can not be used because the heavyweight paper is too expensive.

Computer usage limitations: can't figure out how to control shifts between resource files according to current need.

AnReader improvements needed: Recognition of a range of symbols, standardization in interpretation, better diction; extension of usability for a diversity of needs (like SPSS – Statistical Package for Social Studies)

Jaws improvements needed: Since my respondee is an academic, she has a need to use SPSS for research data analysis, but this software is not compatible with it (see Enable Newsletter 04).

Case Study 11: Thunder Screenreader in 11 Languages (P6)

Description of the learning situation: adult blind computer user(s) who use screenreader Thunder at home.

Description of the learning tool: Thunder is a free screen reading software, available in 13 countries (Austria, Germany, Italy, France, Ireland, Slovakia, Estonia, Great Britain, Spain, Poland, Turkey, Bulgaria, Greece) and in 11 languages - in German, Italian, French, English, Slovak, *Estonian*, Greek, Bulgarian, Spanish, Polish, Turkish.

Estonian blind computer users are using screenreader Thunder because this screenreader is free of charge, software interface is in Estonian and the user manuals are available in Estonian too.

Thunder screenreader doesn't require much hardware resources, it works well with Windows 7, Vista or XP. Thunder supports Estonian text-to-speech KALEV, which is also freely downloadable software. In some situations Thunder gives much better and detailed speech feedback than expensive commercial screenreading software.

Use of the learning tool: screenreader Thunder is suitable for the ordinary computer user, even for the beginners for the learning of various subjects The user will have full speech feedback for most text-based word processing tasks including editing documents in Microsoft Word, WordPad or Notepad and tasks in MS Excel. Thunder enables to receive and send e-mails by using Outlook Express and Thunderbird.

Comments by learners and teachers:

The users are very satisfied with screenreader Thunder because of easy use. Thunder interface is in Estonian and the user manuals are also in Estonian. If the users need consultation or advice it is possible to get support by e-mail or by phone. It is also possible to communicate with the other Thunder users in Estonia.

For the trainers it is easy to support screenreader Thunder users because there are manuals in Estonian language available and every beginner can install Thunder him/herself.

Evaluation

Screenreader Thunder is suitable for the wide range of users. Since it is free of charge it is available for everyone and even in native language(s). Thunder gives the blind adult learners possiblilty to participate in various training courses, read the training materials in their computer.

For screenreader Thunder it would be useful to add the following additional features.

1. during the installation it could be possible to select screenreader interface language

2. the localization of software updates could be more simple.

Learning and other outcomes

Thunder screenreader is one of two free screenreaders. Since it is free, it is <u>available for everyone</u>. Use of Thunder gives the adult blind learners opportunity to participate independently in training courses, read the training materials, communicate by e-mail with the other learners and trainers and also enables the access to social networks.

Tool URL: www.screenreader.net , http://thunder-screenreader.sharewarejunction.com/

Case Study 12: (P10)

Case study: EDUCATIONAL PLATFORM FOR SIGN LANGUAGE USERS

Description of the learning tool

The here described case study involves a platform environment that allows development of various educational applications fully accessible by deaf users. The platform is built on methodological principles which adopt sign language as the basic means for communication of linguistically uttered educational content. It also makes extensive use of visual objects to support comprehension and navigation at all levels of human-computer interaction.

Available instantiations of the platform environment have incorporated video for content presentation but it also allows for experimentation on dynamic sign formation incorporating the option for avatar based dynamic sign synthesis presentation.

Currently, a number of educational tools have derived from the platform. For the purposes of the case study, we will refer to two specific instantiations: i) a Greek Sign Language (GSL) vocabulary formation teaching environment (MtN-1), and ii) a vocational training support tool (DIOLKOS).

Name: MtN platform

Where it is situated: ILSP-Institute for Language and Speech Processing, Athens, Greece

Information about the learners

The different tools developed from the platform address learning needs of a wide audience which includes:

- Primary education level deaf and hard of hearing children
- High school level and older deaf and hard of hearing individuals in vocational training environment
- Secondarily, parents of deaf children and other hearing people who are interested in learning GSL

Description of the learning tools

i) MtN-1 is the only available educational tool for the teaching of GSL vocabulary formation based on linguistic theory for the proposed approach and exploitation of huge GSL vocabulary resources for the selection and organisation of educational content.
    The Greek national educational system has introduced it as educational material in all public mainstream schools as well as in all Deaf schools of the country.
    The features that made MtN-1 especially attractive include the interface design, which makes use of sign language and a number of visual objects with clear semantic interpretation along with the quality of the educational content including a repertoire of suitable exercises.

ii) DIOLKOS is a support tool for the teaching of computer skills. It basically involves a trilingual terminology dictionary of GSL-Greek-English for the fields relating to the Windows based human-computer interaction. The training material focuses on comprehension needs of deaf users, where presentation of term definitions is visualised,

search mechanisms make use of GSL handshapes and all peripherally needed information is presented in GSL.

The most important feature of the tool is that terminology content in GSL has been developed following the valid ISO standards for introduction and validation procedures of new terminology into a natural language and also that terms have been created on the basis of GSL grammar rules for the creation of lexical items (simple and complex signs). DIOLKOS is adopted by deaf vocational training centres as well as by high schools with deaf students. It has also been adopted as a quideline for the creation of similar content in a number of other sign languages.

Evaluation

MtN-1 has been evaluated and finally selected to become part of the official curriculum of Deaf Education in Greece among a big number of similar tools by the Pedagogical Institute of the Hellenic Ministry of Education, following an open call for candidate products.

DIOLKOS has undergone extensive evaluation by the Hellenic Association for the Deaf in order to validate its content and accept the tool functionalities.

Indicative MtN-1 figures

Figure 1. Handshape teaching.   Figure 2. Handshape checking exercise.

Figure 3. Handshape based interactive vocabulary presentation.

Figure 4. Commentary on exercise execution.
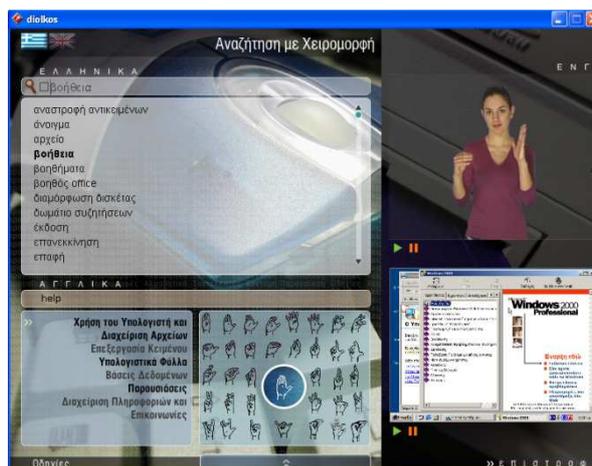
Indicative DIOLKOS figures

Figure 5. Trilingual terminology presentation for computer skills with term search by handshape and video capture example of term use.
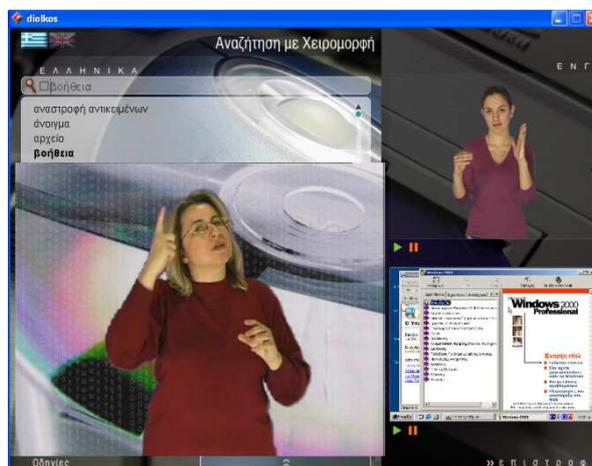

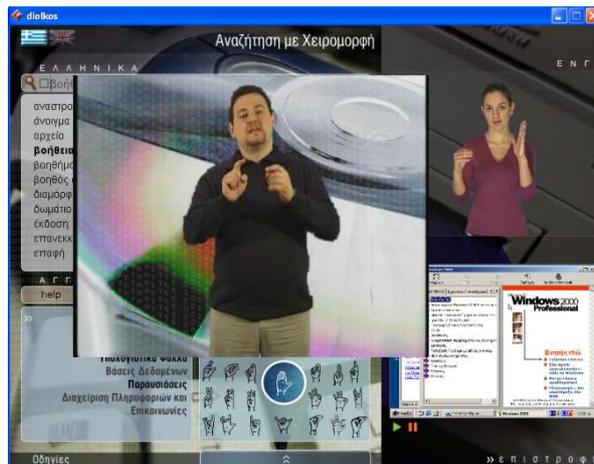**Figure 6. Instructions in GSL, supported by term presentation and example of use.**

Figure 7. On-line help in GSL.

Case Study 13 (P15)

SEVERI eLearning enviroment

Description of the learning tool

Severi was developed at Kuhankoski Institute in 2001-2007 during a "virtual school project" where the main aims were to study if the students with severe learning difficulties can use e-learning and to create a platform suitable for them. SEVERI, a special needs education e-learning environment, was devised to assist the learning of students with a range of physical, communicational, emotional and cognitive disabilities, which cause learning difficulties in reading, writing and perceiving. Practitioners from five European Union (EU) countries participated in a network, sharing experiences in the implementation, testing and evaluation of the e-learning environment and in the design of learning materials. Severi was originally developed in Finland and during the Equal eLearning project was translated to several European languages.

The SEVERI e-learning environment is designed for students who have difficulties in reading,writing and perceptive skills. Graphic interface design is provided in large and clear fonts, colours, symbols, pictures, photos and speech. Tools are designed and structured to be straightforward and easy-to-use and include: guidance messages, a learning diary, calendar, library, tasks, materials and group-specific discussions. The tools are designed to assist clearly structured activities which aim to attract learners and enhance the students' motivation and autonomy by facilitating the tracing and monitoring of their own progress.

Severi can be used on any computer with an Internet connection. With Severi you can send messages and discuss with your teacher and your group. In Severi, teacher can give students different tasks, materials and links. In Severi, every student have own calendar and a learning diary. If student find writing hard, can have a list of important words for support.

In the front page student can see:

1 Own picture and name
2 Links with different colours to Severi's sections.

3 Listen to buttons. By pressing these buttons student can hear instructions about how to continue.
4 A LOG OUT button for leaving Severi.
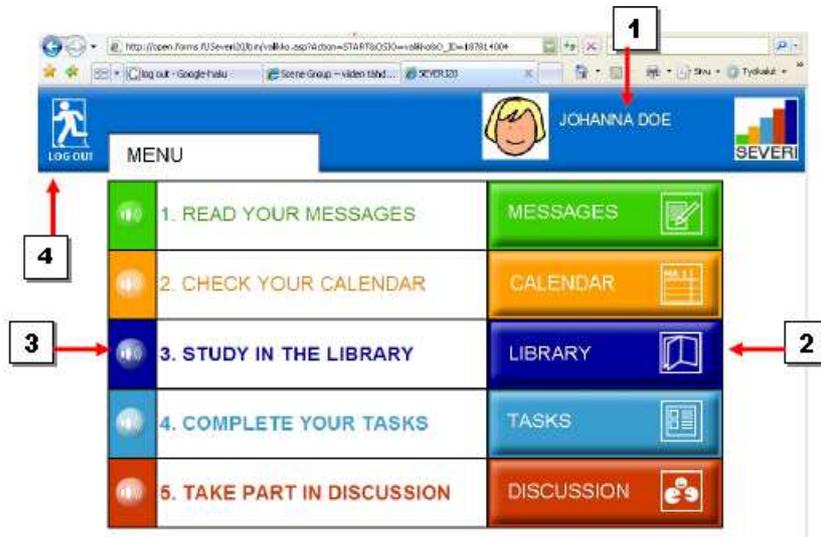
The second section of Severi is the CALENDAR. The calendar has two parts: the actual calendar and a learning diary.

Teachers evaluation

Presented are results of a case study with the aim to evaluate, how SEVERI assist individualisation and differentiation of students with special educational needs. Introducing internal and flexible differentiation, formative process evaluation of learning outcomes with final assessment took place. In addition students' motivation was observed. Special focus was on collaboration with teachers and between themselves. Achievements of students with special needs were compared with other students.

SEVERI supports student's guidance on the job. It facilitates organisation and planning, teachers' preparation for teaching and assessment. Students' individual progress is tracked and recorded. Digital literacy is fostered by introduction of SEVERI.

http://open.forms.fi/severi20

http://eevertti.net/equal-e