

“e-Access II - Supporting Vocational Education and Training of Disadvantaged User Communities”



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Project Consortium (6 Partners, 4 Countries)



Centre for Research and Technology Hellas (CERTH)



Information Society Open To ImpairmentS (e-ISOTIS)



University of Thessaly (UTH), Department of Special Education



Marie Curie Association



Cyberall Access Ltd



Association "H-Foundation for Distance Learning of Disabled People"

Rationale (1/2)

- During the past years, accessibility has been recognized as a key design consideration for web-based educational systems [1]
- A number of systems have been proposed aiming to meet the educational needs of people with disabilities
- Most of these systems: (a) are typically supported only by training resources that are specially designed to meet the accessibility requirements of a particular user group and (b) their training activities are not represented in such a way that they can be identified and inter-exchange between the various systems [2,3]

[1] Mirabella V., Kimani S., and Catarci T. (2004). "A No Frills Approach for Accessible Web Based Learning Material", *International Cross-Disciplinary Workshop on Web Accessibility (W4A)*, 13th International World Wide Web Conference, New York, 2004

[2] Poulson D. and Nicolle C. (2004). "Making the Internet accessible for people with cognitive and communication impairments", *Universal Access in the Information Society, Special Issue on Guidelines, Standards, Methods and Processes for Software Accessibility*, 3, 2004, 48 - 56.

[3] Seeman L. (2004). "The Semantic Web, Web Accessibility, and Device Independence", *International Cross-Disciplinary Workshop on Web Accessibility 2004 (W4A)*, 13th International World Wide Web Conference, New York, 2004.

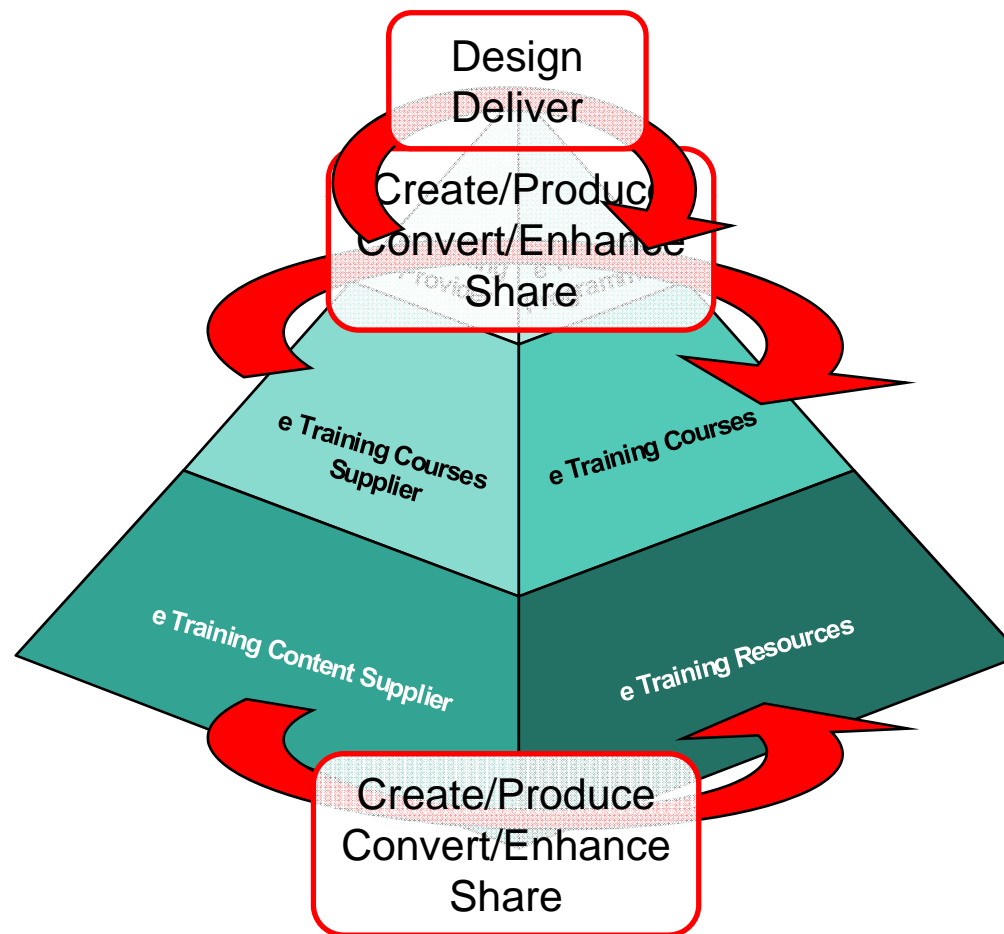
Rationale (2/2)

- The main drawbacks of these approaches is that (a) the development of special-purpose digital training resources is costly and thus, their limited sharing and reuse increases the barriers of certain categories of learners to access training and (b) valuable experiences on best training practices, gained through local use, can not be easily identified and adopted by the communities of practitioners and training organizations.
- The e-Access II project addresses directly these issues by providing **tools and services** for the **development** and **sharing** of **accessible eTraining Resources and Courses** that bare the potential to be inter-exchanged between eTraining Platforms and Programmes.

Key Objectives

- Representation of established training practices in a formal and technically reusable way using international specifications (such as IEEE LOM and IMS Learning Design), so that both digital training content and e-training practices can be reused and inter-exchanged between different platforms and systems.
- Set-up of a Web-based Repository with accessible e-Training Resources and Courses, facilitating their storage, search and retrieve.
- Validation of the key project concepts and results in different European countries (Greece, Bulgaria, Romania and Cyprus)

Main Stakeholders in e-Access II (1/2)



Main Stakeholders in e-Access II (2/2)

- **eTraining Content Suppliers:** the entity responsible for designing and developing independent eTraining Resources in the form of "Learning Objects" verified in relation to accessibility requirements
- **eTraining Courses Suppliers:** that is, the entity responsible for designing e-Training Courses as a synthesis of a number of appropriately selected e-Training Resources based on a predefined Generic eTraining Scenarios (Course Plans) that reflect the eTraining Design of this particular eTraining Course, so as to meet the eTraining needs of the targeted user group.
- **eTraining Services Providers:** that is, the entity responsible for designing e-Training Programmes as a synthesis of e-Training Courses and delivering e-Training services to their end users (visually impaired motor disabled people).

The Needs of Main Stakeholders in e-Access II Framework

- **eTraining Content Suppliers:** need to convert their existing eTraining Resources (or create new digital resources) so as to meet accessibility requirements of people with disabilities
- **eTraining Courses Suppliers:** need to define training scenarios populated with appropriately selected accessible eTraining Resources in order to develop their accessible eTraining Courses.
- **eTraining Providers:** need to have access to accessible eTraining Activities and Courses in order to provide eTraining Services (activity and course delivery, as well as, educational support) to their end users (visually impaired and motor disabled learners)

The eAccess II Project Services/Tools

The e-Access II Guidelines for the development of accessible web-based training content

- A set of mandatory guidelines, based on the W3C Web Content Accessibility Guidelines 1.0
- Ensure the accessibility of the produced eTraining Resources and eTraining Courses for visually impaired people and people with motor disabilities.
- By following these Guidelines existing eTraining Resources can be verified and upgraded, in relation to accessibility requirements.

The e-Access II Accessibility Style Sheets (1/2)

- Cascading Style Sheets (CSS) for HTML-based content
- Facilitate eTraining Content Suppliers to make their eTraining Resources accessible and eTraining Courses Suppliers to make their eTraining Courses accessible.
- By applying the e-Access II Accessibility Style Sheets the presentation of the e-Training Resources are becoming accessible for people with certain disabilities.

Examples of Using eAccess2Learn Cascading Style Sheets

First Generation of Modern Computers

The Harvard Mark I

The Harvard Mark I (officially, the Automatic Sequence Controlled Calculator) was a general purpose electro-mechanical computer built with IBM financing and with assistance from some IBM personnel under the direction of Harvard mathematician Howard Aiken. Its design was influenced by the Analytical Engine. It used storage wheels and rotary switches in addition to electromagnetic relays, was programmable by punched paper tape, and contained several calculators working in parallel. Later models contained several paper tape readers and the machine could switch between readers based on a condition. Nevertheless, this does not quite make the machine Turing-complete. Development began in 1939 at IBM's Endicott laboratories, the Mark I was moved to Harvard University to begin operation in May 1944. Unlike Konrad Zuse's 1941 programmable machine it still used the decimal system instead of the binary one.

ENIAC



The US-built ENIAC (Electronic Numerical Integrator and Computer), the largest-scale computing. This was crucial for the development of modern computers for miniaturization. Built under the direction of John Mauchly and J. Presper Eckert, it was 1,000 times faster than its contemporaries. Remarkably, even ENIAC was still decimal instead of binary. That is, modern machines in many ways are conceptually more similar to Konrad Zuse's 1941 binary programmable machine than to ENIAC.

ENIAC's development and construction lasted from 1941 to full operation at the end of 1945. When its design was proposed, many researchers believed that the thousands of delicate valves (i.e. vacuum tubes) would burn out often enough that the ENIAC would be so frequently down for repairs as to be useless. It was, however, capable of 5,000 simple calculations a second for hours at a time between valve failures. It was programmable, not only by rewiring as originally designed, but later also with fixed wiring executing stored programs set in function table memory using a scheme named after John von Neumann.

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Von Neumann machine

By the time the ENIAC was successfully operational, the plans for the EDVAC were already in place. Insights from experience with ENIAC led to the EDVAC design, which had unrivalled influence in the initial stage of the computer revolution. The design team was led by von Neumann.

The essentials of the EDVAC design have come to be known as the von Neumann architecture: programs are stored in the same memory 'space' as the data, although this possibility was already mentioned in Konrad Zuse's 1936 patent application (Z3:139/GM Nr. 005/021). Unlike the ENIAC, which used parallel processing, it used a single processing unit. This design was simpler and was the first to be implemented in each succeeding wave of miniaturization, and increased reliability. Some view the EDVAC design as the "Eve" from which nearly all current computers derive their architecture.

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The first working von Neumann machine was the Manchester "Baby", built at the University of Manchester in 1948; it was followed in 1949 by the Manchester Mark I computer.

HTML Content without Style Sheets

HTML Content with Style Sheet for People with Low Vision

HTML Content with Style Sheet for People with Color Blindness

HTML Content with Style Sheet for Motor Disabled People

The e-Access II Accessible Learning Objects Metadata Authoring Toolkit (1/2)

- Facilitates eTraining Content Suppliers and eTraining Courses Suppliers in their educational metadata authoring
- Provides eTraining Content Suppliers and eTraining Courses Suppliers a user-friendly authoring wizard for describing their eTraining Resources and Courses with educational and accessibility metadata conformant with IEEE Learning Objects Metadata Standard
- By using the e-Access2Learn Accessible Learning Objects Metadata Authoring Toolkit, eTraining Course Suppliers can provide descriptions of available eTraining Courses with emphasis to accessibility aspects, so that to enable eTraining Services Providers to take more informed decisions on the design of their eTraining Programmes.

The e-Access II Accessible Learning Objects Metadata Authoring Toolkit (2/2)

The screenshot displays the e-Access II ASK-LOM-AT software interface. The main window is titled "e-Access II ASK-LOM-AT" and contains several panes:

- Search Local Repository:** Includes input fields for Title, Author, and Publisher, along with search options (AND/OR) and a "Locate" button.
- Learning Resource Types:** Shows a green oval icon and checkboxes for "eTraining Resources" and "eTraining Courses".
- Metadata Management:** Features buttons for "Create New LOM Object" and "Insert a LOM Object".
- LOM Object (Text View):** Displays XML code for an LOM object, including source and aggregation level information.
- The eAccess2Learn LOM-AT Wizard:** A modal window titled "Step 5/31" with a "General: Keyword" section. It contains a text area with the keywords "Business English" and "Business Meetings". A cartoon tiger character is shown with a speech bubble explaining that a keyword is a phrase describing the topic of the learning object. A "Next" button with a blue arrow is visible at the bottom right.

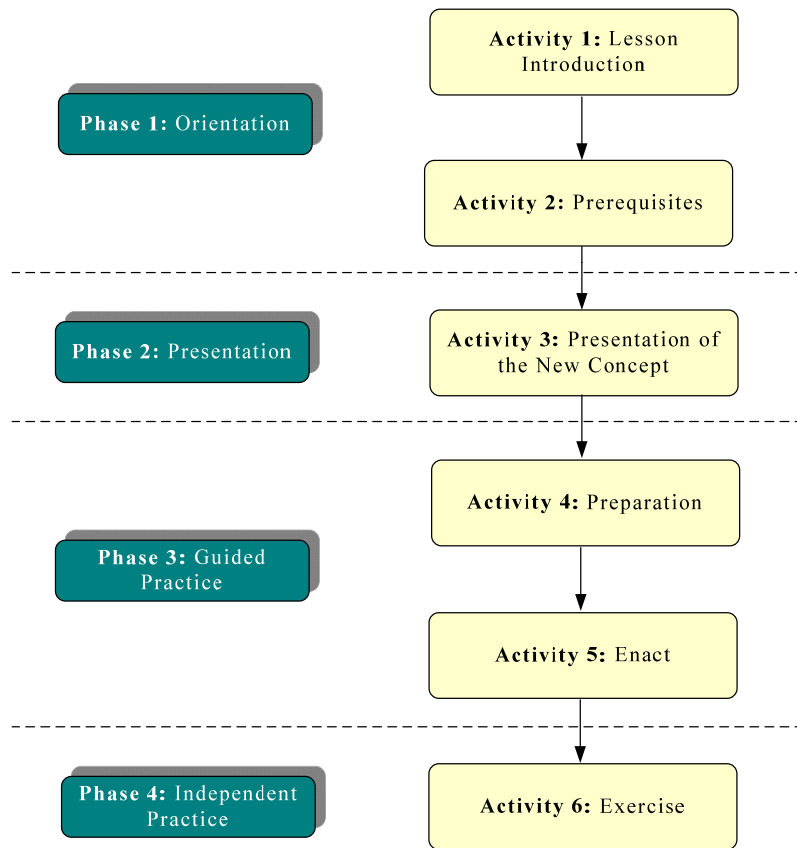
[Play Video >>](#)
[04:50]

The e-Access II Reference Set of e-Training Scenarios Templates (1/2)

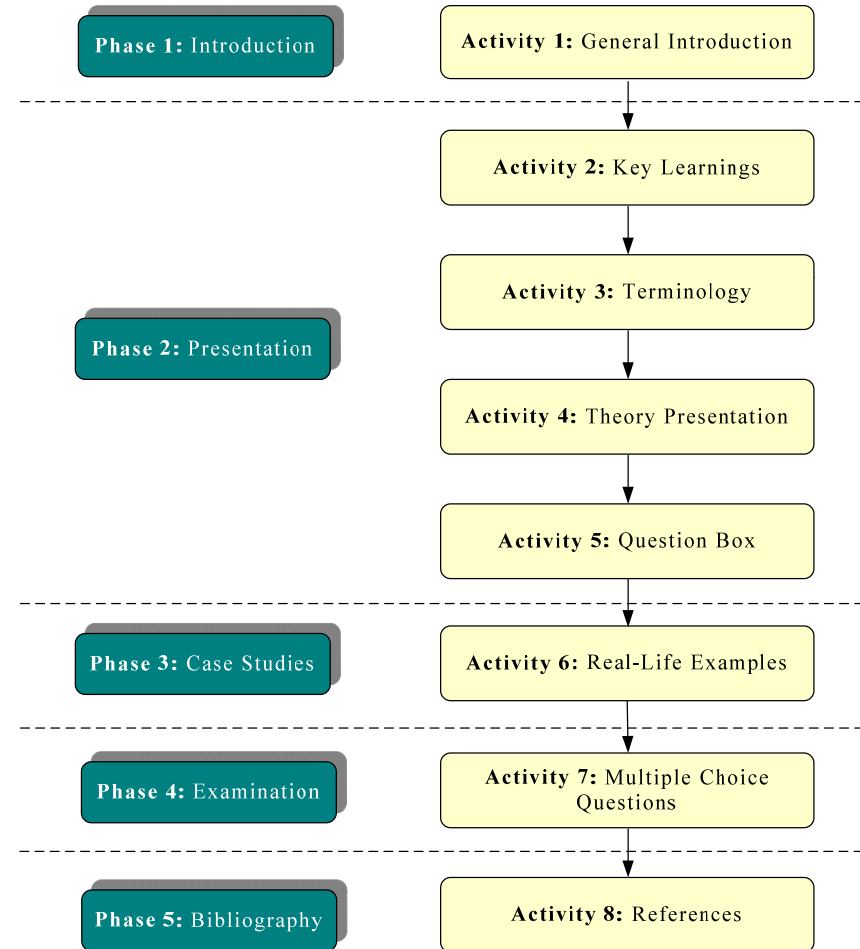
- Implement different eTraining Strategies for learners with disabilities and reflect partners' best practices from day-to-day training activities.
- Totally, nine (9) e-Training Scenarios Templates were developed:
 - Competence based Training (in two variations)
 - Learning Through Matching Needs and Solutions
 - Active Learning
 - Problem-based Learning
 - Nine Events of Instruction, Experiential Learning
 - Skills Development
 - ICT Supported Awareness Learning

The e-Access II Reference Set of e-Training Scenarios Templates (2/2)

Competence Based Training – Learning Activities Flow



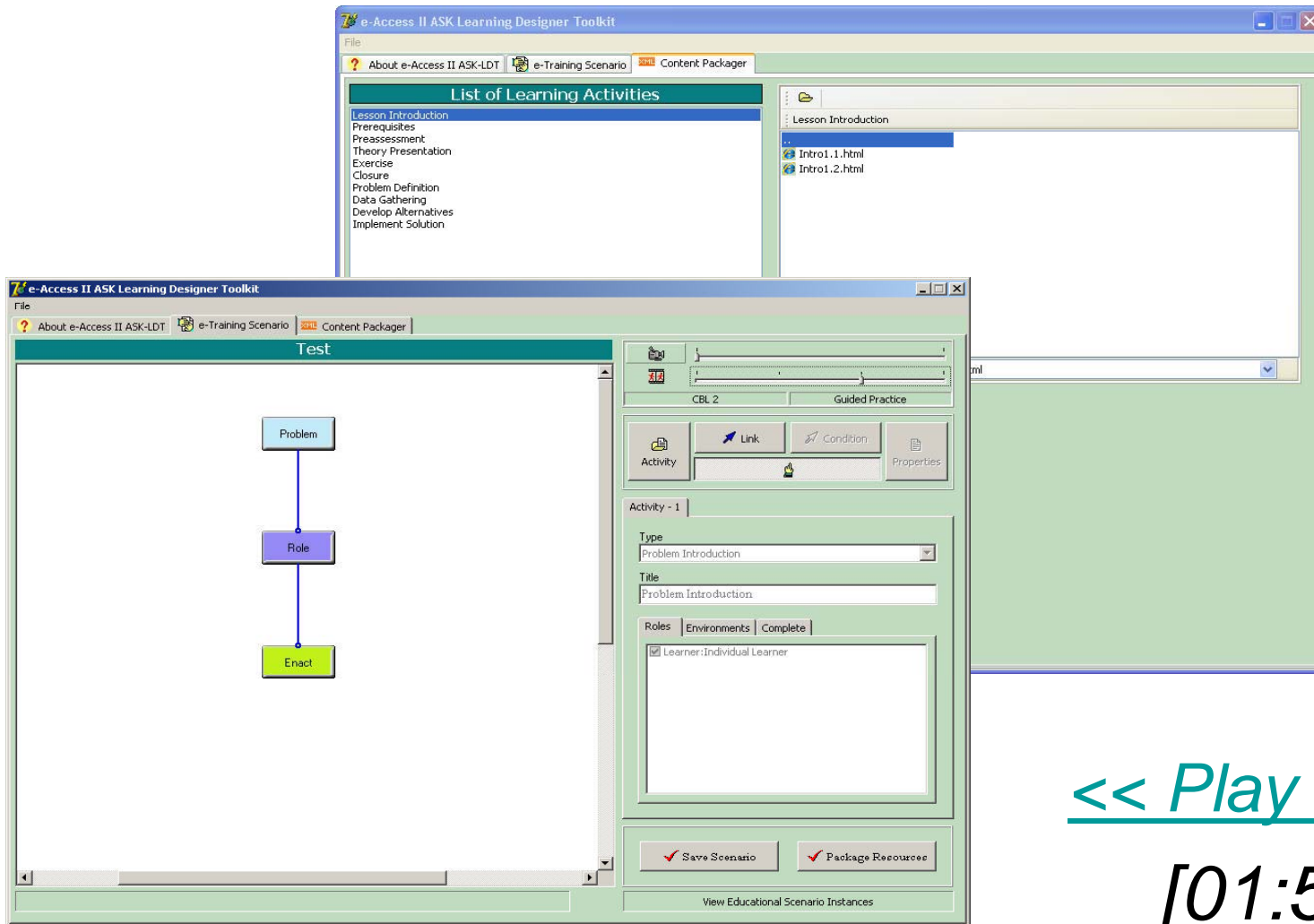
Active Learning – Learning Activities Flow



The e-Access II Learning Design Toolkit (1/2)

- Enables eTraining Courses Suppliers to design and develop eTraining Courses using a Reference Set of predefined Generic eTraining Scenarios Templates.
- Provides eTraining Courses Suppliers with a graphical user-friendly interface for creating eTraining Courses conformant with IMS Learning Design Specification and packaging them along with their related e-Training Resources following the IMS Content Packaging Specification
- By using the e-Access2Learn Learning Design Toolkit, eTraining Courses Suppliers for people with disabilities with similar needs around Europe (and globally) can exchange eTraining practices and assess their application at a local/national context of use.

The e-Access II Learning Design Toolkit (2/2)



[<< Play Video](#)

[01:58]

The e-Access II Repository of eTraining Resources and eTraining Courses (1/3)





- Web-based platform enabling eTraining Content Suppliers and eTraining Course Suppliers to share their eTraining Resources and eTraining Courses.
- Offers to eTraining Services Providers the ability to search and retrieve eTraining Courses for their end-users.
- Conformant with Web Content Accessibility Guidelines 1.0 enabling also accessibility to users with disabilities.
- Available to the registered users (free registration) of e-Access II Web-Site (<http://www.eAccess2Learn.eu>)

The e-Access II Repository of eTraining Resources and eTraining Courses (2/3)

Main Menu

- Home Page
- About eAccess II >>
- Users' Community >>
- Services and Tools >>
- Repository >>
- Press Room >>
- Announcements

Why Join eACCESS?

-  Obtain Full Access to a Repository of Accessible Training Resources
-  Gain Full Access to a Repository of Accessible On-Line Courses
-  Contribute your Own Training Resources and Courses
-  Join the European eACCESS On-Line Community for Accessible Vocational Training

Login

user name:

password:

Go [Register](#) | [Lost Password](#)

Search e-Training Resources

[Advanced Search](#)

Title:

Language:

Description:


Key-Words:


Subject:

Resource Type:

Typical Age Range:

End User Role:

W3C  HTML 4.01





W3C  WAI-A WCAG 1.0

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Login

user name:

password:

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e-Training Resources: Search Results

Search has Returned 205 e-Training Resources

Exercise for Socializing (Part 3) (For Motor Disabled) ★★★★★	
Description:	Multiple choice quiz that assesses the learner's understanding about Socializing (Part 3)
Date Added:	19/05/2008
Statistics	
Metadata Previewed:	2 times
e-Training Resource Downloaded:	6 times


Exercise for Socializing (Part 2) (For Motor Disabled) ★★★★★	
Description:	Multiple choice quiz that assesses the learner's understanding about Socializing (Part 2)
Date Added:	19/05/2008
Statistics	
Metadata Previewed:	1 times
e-Training Resource Downloaded:	3 times


Exercise for Socializing (Part 1) (For Motor Disabled) ★★★★★	
Description:	Multiple choice quiz that assesses the learner's understanding about Socializing (Part 1)
Date Added:	19/05/2008
Statistics	
Metadata Previewed:	0 times
e-Training Resource Downloaded:	5 times

Exercise in e-Communication (For Motor Disabled) ★★★★★	
Description:	Multiple choice quiz that assess the learners' understanding on e-Communication
Date Added:	19/05/2008
Statistics	
Metadata Previewed:	2 times
e-Training Resource Downloaded:	3 times

Exercise in e-Customer (For Motor Disabled) ★★★★★	
Description:	Multiple choice quiz that assess the learners' understanding on e-Customer
Date Added:	19/05/2008
Statistics	
Metadata Previewed:	1 times
e-Training Resource Downloaded:	3 times

1 2 3 4 5 6 7 8 9 10 >>>

W3C  HTML 4.01

W3C  WAI-A WCAG 1.0

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The e-Access II Repository of eTraining Resources and eTraining Courses (3/3)

1. Upload eTraining Resources to e-Access II Repository [[Play Video >>](#)] [03:14]
2. Search and Retrieve accessible eTraining Resources from the e-Access II Repository [[Play Video >>](#)] [01:42]
3. Upload eTraining Courses (IMS LD) to e-Access II Repository [[Play Video >>](#)] [01:17]
4. Search and Retrieve eTraining Courses from the e-Access II Repository [[Play Video >>](#)] [01:26]

The e-Access II Portal in Numbers (1/2)

- **2.694 accessible e-Training Resources** (in the form of HTML Files) for three disability categories namely, motor disabled, low vision and color blindness. Consisting of:
 - 2.700 HTML Files
 - 1395 Images
- **198 accessible e-Training Courses** (for three disability categories), in the following, among others, subject domains:
 - *Introduction to Informatics*
 - *Software and Hardware Assistive Technologies*
 - *Business English*
 - *e-Business*
 - *Web Design*
 - *Introduction to Programming*
 - *Legislations about People with Disabilities*
- Based on different training strategies such as: a) Competence based Training (in two variations), b) Learning Through Matching Needs and Solutions, c) Active Learning, d) Problem-based Learning, e) Experiential Learning, f) Skills Development, g) ICT Supported Awareness Learning
- More than **850 Search Requests**
- More than **600 Downloads** of e-Training Resources and Courses

The e-Access II Portal in Numbers (2/2)

- 209 Registered Users
- 4.774 Unique Visits
- 20.661 Pageviews (browse portal pages, view metadata, download training content etc.)
- 76 Countries has visited the e-Access II Portal (Most Active: Greece, Romania, USA, Bulgaria, Cyprus, UK, Italy, Germany)
- Average Time on Site: 00:04:17

e-Access II Portal Visits



Thank for your attention!!

Register and participate to the e-Access II Portal at:

<http://www.eAccess2Learn.eu>

Contact Details

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