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**TOWARDS AN ACCESSIBLE SCIENCE: FACILITATING
ACCESS TO SCIENTIFIC
DIGITAL RESOURCES FOR VISUALLY IMPAIRED
STUDENTS**

D6.2 @Science website

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- Università degli Studi di Milano

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EXECUTIVE SUMMARY

The @Science web portal is illustrated in the following sections. What is explained refers to the kick-off release of the web portal. In the coming stages of the @Science project, new features and new informational pages will be added without further annexes to this deliverable. Nonetheless, the overall framework will be the one described in this deliverable.

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1 INTRODUCTION

1.1 Scope of the document

This document illustrates the structure, the key features and the implementation choices which underlie the kick-off release of the @Science web portal.

1.2 @Science web portal overview

The @Science website is the access point to the thematic network @Science on Internet. It is hosted and maintained by the network co-ordinator. In order to properly execute maintenance activities and to maximize performance and resources for synchronous accesses, a dedicated server was set up. It hosts the @Science web portal and it will host the repository of documents and tools. The @Science portal can be visited at the web address: www.ascience.eu. The domain was registered in November 2006. This website is made up of several sections, which will be extended according to the future network needs. The main sections are: General Information, News, Events, Projects, Articles, Tools, and Contact Us. These sections deliver background information about the @Science network, news about the ongoing and upcoming activities (e.g. participation to conferences, new uploaded reports, articles or tools, etc.), up-to-date descriptions of national and international projects about issues of science accessibility, articles written by @Science network members about specific topics (e.g. experiences in science learning by visually impaired students, successful practices in studying advanced subjects, etc.), paper abstracts and references to papers or books recommended by @Science members, descriptions of tools assessed by @Science network and information about procedures to be involved in the network or to contact network members.

The main parts of the website are available in national languages. The language can be set in the home page and will be automatically available for further accesses. This website is also the portal to the repository of documents and tools. This repository will be enriched by the network members during the project lifetime. In particular, the web interface enables authorized users to upload documents after providing metadata for archiving purposes and to download the document collected in the repository. In order to support collaboration among universities about the problem of science accessibility, the website will provide access to distance collaboration tools. This website was developed taking into account strict guidelines for web content accessibility (WCAG 1.0). Further browsing features aiming to facilitate users to navigate the sections of the website are available in the web pages.

2 FEATURES OF THE WEB PORTAL

2.1 Access to the web portal

2.1.1 Users

The users of the @Science web portal are grouped into three categories: anonymous users, authenticated users and network members. Anonymous users can browse the public sections of the web portal. Public sections aim to inform about the main aspects of science accessibility by visually impaired students at university and to present the ongoing activities of the @Science network. Therefore, anonymous users can find general information about the network in national languages, the main news, the main events and they can read many articles, paper abstracts and references to recommended papers. Nonetheless they can download only some articles and tools and they cannot upload anything on the website. Furthermore, they can read the messages posted on the forum or in the mailing list archive, but they cannot reply or post new ones. Authenticated users have access to all the public sections and they can also browse private sections. In particular, they can download documents and tools delivered by the @Science web portal, they can upload comments and material to be published on the website (e.g. articles, project descriptions, paper abstracts and references, tools, etc.). Material proposed for web publishing by authenticated users is not automatically published on the website, but it needs the approval of the webmaster. Authenticated users have also full access to the forums: they can read messages posted by other users, they can reply to messages or write new ones and they can propose the creation of new thematic forums. New services which will be provided by the web portal (e.g. the online instant messaging or the access to the proceedings of the @Science conferences) will be dedicated to authenticated users. Network members have access to public and private sections and they can also add pages (e.g. about news and articles), translate the content published, upload and download documents in public or private sections and upload and download documents in the section for the network members (e.g. deliverables). Anyway, in order to maintain consistency in the structure and in the resources, each change has to be approved by the webmaster before being published.

2.1.2 Registration

Anonymous users can become authenticated users by creating a new account on the website. Network members are registered by the webmaster. The registration procedure aims to achieve two conflicting purposes: enabling anonymous users to become authenticated users straightforwardly thus taking part to the @Science web portal and collecting information for key performance indicators. Therefore, the registration form is made up of two sets of fields to fill in: user name and a valid e-mail address to send the password to are mandatory fields to get authenticated and further fields are not mandatory but they require details about the user, which can help the network members understand the sort of users who are getting involved and which

improvements can be made to the website according to the user needs. Some of the additional fields are: Personal information, Occupation, Area of interest, Accessibility special needs, etc. Before getting authenticated the user is asked to accept the privacy policy which complies with the European rules.

2.2 Layout of the web pages

The overall layout of the website is based upon a template which is divided in five main areas: the header, the left sidebar, the content area, the right sidebar, and the footer. The header and the footer remain unchanged while browsing the website, whether the content of the main area changes according to the page visited, and the two sidebars can undergo slight changes.

2.2.1 Header

The header contains first of all two characters (a “+” and a “-”) to allow users with special needs to enlarge (“+”) the font size of the website, thus obtaining a zoom effect, and to get back to its original size (“-”). On the same row, but on the opposite corner, we displayed all the languages the users can decide from to browse the @Science website.

Central to the header there is the logo of the @Science project and the title of this website, namely “@Science Network”. Just underneath it we put the slogan “Towards an accessible science”.

Below, the user can find on the left some quick links to the areas of major interest: the Forum, the Events, and the News. On the same row, but on the right, there is a small form to insert words the user wishes to look for in the website.

2.2.2 Left sidebar

The left sidebar contains the main navigation menu. It holds links to the static pages as well as to the dynamic sections of the site. Its content may vary in time because of new pages added, and it is also different if a visitor is logged in.

Below the navigation bar, the user will find a menu to subscribe to the @Science Network newsletter, to which also anonymous users can sign up.

Underneath the Newsletter block we can find the link to the advanced search.

2.2.3 Content area

The content area is the central and wider part of the website. Its content varies according to the section selected.

2.2.4 Right sidebar

The right sidebar contains the login form, if an anonymous or not yet logged in user is visiting it. Otherwise, it will display as first block some upcoming events (which are displayed under the log in block if it is shown).

Under the events block the users can find information about how many user are logged in or are visiting the website.

If a user is logged in, he/she will also see a “User list”, a link which displays information about users when clicked.

2.2.5 Footer

The footer holds the EU flag, the eContent Plus project number, a link to the disclaimer page and another one to the privacy policy we adopted.

In the next figure, there is a screenshot of the @Science website homepage.

2.3 Sections

The @Science web portal is made up of the following sections: General Information, News, Events, Projects, Articles, Tools, Contact Us. These sections group in categories the content delivered by the website. Even though the structure will not change much in the future stages of the @Science project, further categories could be added according to specific needs rising from the network members or from monitoring the users.

2.3.1 General information

This section provides background information about the @Science network, the network members and how to join to the activities. is divided up into three subsections: Overview, Consortium, Get involved. The subsection Overview describes the aims of the project and the methodology employed to achieve them. The subsection Consortium describes each network member according the following template: a general description, a website for further information, the role the member will have in the @Science network and whether it is a founding member or not. The Get Involved section provides contact references for the institutions to join the @Science network.

2.3.2 News

This section delivers the latest news about the @Science network. It is dynamically updated when new documents are uploaded and when new reports on events are added to the website. Other news are added by network members.

Zoom: + -

English Deutsch Français Italiano Nederlands Slovenčina

@science Network

Towards an accessible science

[Forum](#) [News](#) [Events](#)

Navigation

[General Information](#)
[News](#)
[Events](#)
[Projects](#)
[Articles](#)
[Tools](#)
[Forum](#)
[Contact us](#)
[Create content](#)

@SCIENCE Network newsletter

Stay informed on our latest news!

E-mail:

 Subscribe

 Unsubscribe

[Previous issues](#)

Advanced search

Welcome to the @Science network website!

The @Science network aims to share background information, specific articles, tools and up-to-date reports about access to science by visually impaired students. It also encourages mutual collaboration and the exchange of experiences through a forum and a mailing list. The available sections are:

- general information to learn more about the @Science network
- news to get the latest information about @Science activities, website updates, new services and much more;
- events to find details about conferences, workshops and meetings dealing with accessibility to science by visually impaired students. @Science members will contribute and participate to many events. Their reports will be available for download in the article section of this website;
- projects to find reviews about ongoing or coming soon projects addressing problems of science accessibility;
- articles to read in-depth reports about specific issues and about events attended by @Science network;
- tools to download demo or free releases and open source programs assessed by @Science members;
- forum and mailing list to learn from others' experiences, to share your background or to ask for help to a group of experienced people who participate to the discussions;

You are invited to join @Science by **registering** to this website.

---- SITE UNDER CONSTRUCTION ----

Attention! This website is under construction.

Thanks for visiting.

-- The @Science webmaster

🔗 aScience - Fri, 2007 - 03 - 23 16:43

🔗 [login](#) or [register](#) to post comments

User login

Username: *

Password: *

Upcoming events

ICTA
(2 days)

GES
(22 days)

W4A
(27 days)

Sight City 2007
Frankfurt
(29 days)

EIPub
(64 days)

[more](#)

Who's online

There is currently 1 user and 1 guest online.

Online users

valeria



2.3.3 Events

The Event section collects detailed descriptions of events about science accessibility available all over the world in the coming months. Each event is described according to the following template: name, start date, end date, location, description, reference to the event website and whether a member of the @Science network is going to attend or contribute to the event. Once a network member has attended an event, a reference to a report will be available, too. Many ways to browse the list of events are available: as a table, as a list, events in the coming week, events in the coming month, etc. A list of upcoming events is dynamically extracted and displayed in the home page. If the number of events increases in the coming stages of the project, categories will be set (e.g. national or international conferences, workshops, exhibitions, etc.).

2.3.4 Projects

This section collects information about ongoing or recently completed projects concerning specific topics about access to science by visually impaired people. Both national and international projects are reviewed. Description of projects can be submitted by network members and by authenticated users. Each submission has to be approved before publishing. The projects are presented according to the following template: project name, framework, summary, consortium, long description, reference to the project website.

2.3.5 Articles

This section aims to create a repository of informational resources about specific issues and solutions of interest. Articles can be written by network members, authenticated users after approval, taken from open archives or they can be abstracts of published papers with full reference. The articles are collected into two main groups: articles about how educational resources accessible by visually impaired students can be provided (e.g. by teachers, by tutors, by online content providers, etc.) and articles about how visually impaired students can access science (e.g. about how to use a particular software in an educational setting). The former subsection addresses four categories of topics: miscellaneous topics, how to access mathematics, graphics and programming. The number of categories might increase according to the kind of contributions to this section.

2.3.6 Tools

This section aims to create a repository of useful tools in science learning. The tools can be open source programs developed by projects, consortia or working groups, simple routines developed by individuals to address one specific problem or demo releases of commercial programs which are made available by the manufacturer.



2.3.7 Contact us

This section provides the e-mail reference of the @Science network contact person.

3 ACCESSIBILITY POLICY

The @Science web portal was developed in conformance with the Web Content Accessibility Guidelines 1.0 [1]. XHTML 1.0 markup language [2] is used to structure the web pages. CSS 2.0 [3] is used to give a layout. The pages of the website are validated as XHTML Transitional Level 2 and CSS Level 3 through the W3C validation services. Further accessibility features were designed and implemented. More than one stylesheet is available. That allows to choose the best one according to specific needs (e.g. a CSS with a different set of colors which have higher contrast). Two buttons are available on each web page: one button allows to magnify the text written on the page and the other button allows to reduce the text size. The text size is saved for the following accesses through a cookie thus relieving the user from setting the right text size each time the web portal is accessed. A description of each section is provided once it is accessed so that the user is guided when browsing. The depth of the navigation tree is not high (up to 3 levels). That facilitates exploration. In the end, new accessibility features will be added by monitoring the users' activities on the website and by asking the users for feedback.

4 MONITORING STATISTICS

In order to get information about the behaviour of the users browsing the website and collect statistics useful to monitor the performance of the @Science thematic network, the PHP-STATS module was integrated with the web pages. The statistics collected will be used in the analysis of the key performance indicators (@Science Description of Work, Table 3.2). The statistics package is able to monitor: accesses from search engines, number of accesses to each page, identification of the country through IP to country routines, operating system and browser, time spent browsing specific sections of the website, number of downloads and number of authenticated or anonymous users.

5 IMPLEMENTATION

5.1 Introduction

The @Science web portal was developed basing on the Drupal content management system [4] (see <http://www.drupal.org>). The use of a CMS will facilitate the management of multilingual content and the extension of the structure in the future. The structure, the theme for the layout and the dedicated accessibility features were designed from scratch. Instead, specific Drupal modules were employed and if necessary extended. The main Drupal modules used to develop some functionalities of the website are: I18N and Event.

5.2 Drupal

Drupal is a free software package that allows an individual or a community of users to easily publish, manage and organize a wide variety of content on a website. Tens of thousands of people and organizations have used Drupal to power scores of different web sites, including: community web portals, discussion sites, corporate web sites, E-commerce applications, and so on.

The built-in functionality, combined with dozens of freely available add-on modules, will enable features such as: Content Management Systems, blogs, collaborative authoring environments, forums, newsletters, file uploads and downloads, and much more. Drupal is open source software licensed under the GPL, and is maintained and developed by a community of thousands of users and developers. Drupal is free to download and use. By building on relevant standards and open source technologies, Drupal supports the creation of web portals and the distribution of digital content. With a central interest in and focus on communities and collaboration, Drupal's flexibility allows the collaborative production of online information. Drupal focuses on the following principles:

- Modular and extensible. Drupal aims to provide a slim, powerful core that can be readily extended through custom modules.
 - Quality coding. High quality, elegant, documented code is a priority over roughed-in functionality.
 - Standards-based. Drupal supports established and emerging standards. Specific target standards include XHTML and CSS.
 - Low resource demands. To ensure excellent performance, Drupal focuses on low-profile coding (for example, minimizing database queries). Drupal should also have minimal, widely-available server-side software requirements. Specifically, Drupal should be fully operational on a server with Apache web server, PHP, and either MySQL or Postgresql.
 - Open source. Drupal is based on the open source philosophy of collaborative free software development and is licensed under the GPL. Drupal is itself open source and builds on and supports other open source projects. Specifically, Drupal is coded in the open source
-

scripting language PHP and supports as primary data sources the open source database formats MySQL and Postgresql.

Drupal is Section 508 and WCAG Priority 1, 2, 3 compliant.

Strict coding standards have been used to keep Drupal's data, logic and presentation separate from each other. This means that the mark-up of all of Drupal's output is completely controlled by the application's presentation layer, known as the 'theme'.

The accessibility compliance of a Drupal powered site depends on which theme is being used. In order to obtain high accessibility, the theme for the @Science web portal was totally designed from scratch.

5.3 i18n module

The internationalization package is a collection of modules that adds, besides the basic interface translation provided by the locale module, several features that allow for the creation of comprehensive multilingual sites with content and categories in multiple languages. This module provides support for multilingual content in Drupal sites:

- Translation of the user interface for anonymous users;
 - Multi-language for content. Adds a language field for nodes and taxonomy vocabularies and terms;
 - Basic translation management
 - Browser language detection
 - Keeps the language setting across consecutive requests using URL rewriting
 - Provides a block for language selection. In the @Science portal the block was customized in order to facilitate visually impaired to reach easily the right language name to be selected;
 - Support for long locale names.
 - Only content in the selected language is displayed for each page view.
 - Translations can be defined between nodes, which allows for linking a node to translations in different languages.
 - Several selection modes are available for content, meaning you can have node lists for only the current language, for current and default languages, all languages, etc.
 - Basic work flow management for translations.
 - Language can be set up for vocabularies or terms
 - Both multilingual vocabularies with terms in multiple languages and single language vocabularies can be created
 - Translations can be defined between terms in different languages
-

5.4 Event module

The event module allows for any type of content to be event enabled, meaning content can have a start and end time, and appear in calendars. The ability to event enable any content type combined with the ability to create new types of content make it possible to create unlimited types of calendars. The ability to broadly event enable content will allow for creative applications combining information and real world events.

The administrator can decide which content types should be events for their site. In content type configuration, administrators can select the calendar view options: never, all views, or only views for this type. For example, this makes it possible to have a general calendar which shows all meetings and conferences in the same calendar, and have a separate calendar for exhibitions. Calendars can be customized to view a specific content type or a category of content, using taxonomies.



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