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**@SCIENCE**

## **Annual Report**

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<b>Author(s)</b>	<i>C. Bernareggi</i>



***eContentplus***

This project is funded under the *eContentplus* programme<sup>1</sup>,  
a multiannual Community programme to make digital content in Europe more accessible, usable and exploitable.

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<sup>1</sup> OJ L 79, 24.3.2005, p. 1.

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## 2 Project Objectives

@Science addresses the aim of the eContentPlus programme by facilitating blind and visually impaired to access scientific digital resources and by promoting access to scientific culture at university. Accessibility of the digital contents to any citizen is a key point of the eContentPlus programme. @Science is aimed to "contribute to better conditions for accessing, using, reusing and exploiting digital material", and it contributes to "the creation of added-value products and services at European level". This will be achieved through the setup of a long term network aimed to facilitate the exchange of information (tools, techniques, methods, samples, etc.) about how to enable blind and visually impaired students to access scientific educational material. @Science network will have a cultural role, operating to spread best experiences and guidelines useful to any on line library or content provider willing to develop digital contents accessible by blind and visually impaired, but it will also be a daily tool for students, professors, tutors, researcher, disabled students support offices. In this way @Science contributes to "stimulate cultural and scientific/scholarly content enrichment". @Science will "carry out awareness activities addressing stakeholders in the area of cultural, scientific, scholarly content (producers, owners, users) on the benefits demonstrated by best practices on how to enrich digital content".

## 3 Consortium

The @Science Consortium is made up by six partners, from five different European Countries: Italy, Slovakia, Belgium, Austria, and France.

The partners are:

- Università degli Studi di Milano, Milan, Italy
- Comenius University, Faculty of Mathematics, Physics and Informatics, Bratislava, Slovakia
- Katholieke Universiteit, Leuven, Belgium
- Johannes Kepler University Linz, Institute Integriert Studieren, Linz, Austria
- Unione Italiana Ciechi, Verona, Italy
- Université Pierre et Marie Curie, Paris, France

The Università degli Studi di Milano, Italy, is the project co-ordinator. The library of computer science is the structure which will work in particular to the project activities. This university library has worked in the past jointly with the support service for students with disability and blind students in scientific courses to collect and adapt scientific resources (i.e. textbooks, papers, software tools, educational resources written by university professors etc.). The library has been working for long together with the departments of Computer Science, and Informatics and Communication in order to support didactics and research. In particular, Università degli Studi di Milano collaborated to the European LAMBDA (Linear Access to Mathematics for Braille Device and Audio-synthesis) project.

Comenius University in Bratislava is a public higher educational institution (HEI). It is the oldest and the largest university in the Slovak Republic. The Comenius University was the first one in the Slovak Republic to create a specialized supporting system for students with visual impairment. Support Centre for Visually Impaired Students (<http://cezap-www.fmph.uniba.sk>), that is located in Faculty of Mathematics, Physics and Informatics (<http://www.fmph.uniba.sk/>), offers its services for students with disabilities since 1993. It will bring to the project its own experience in:

- educational and training activities in the computer room
- transforming study texts into an suitable form (Braille, electronic- and/or audio-form, copying into large print)
- offering information and advice for applicants, students, teachers, parents, academic staff (learning support strategies information on specific conditions of the study in an integrated university environment, information on prerequisites and necessary skills and equipment to succeed in task fulfilling, etc.)

Its role in the project will focus on support service networking and the preparation of educational material (lessons and exercises).

Due to the combined effort and the extensive background knowledge of both K.U.Leuven groups, the "Research group on Document Architectures" and the "Working Group for Students with an Impairment", its contribution can consist of:

- state-of-the-art description of disabled student support services at universities and high schools, as seen on a European scale;
- thorough knowledge on electronic support library set-up for visually impaired students, especially taking into account the handling of copyright protected documents; standardisation of this type of documents;
- technology watch on XML and Daisy related technologies;
- WAI (Web Access Initiative) guidelines for accessible webpages;
- standardisation of new Design for All technologies;
- creation of knowledge bases on the availability of text books and research instruments;
- contribution to a knowledge base on past personal solutions and experiences in the field of guidance of visually impaired students.

Furthermore the group has a large experience in European project work and management (since 1991).

In Austria, one of the most important offers of assistance to disabled students is the support at institute level. This particular kind of support is offered by the Institute integriert studieren at Linz University in cooperation with the universities of Vienna, Graz, Innsbruck and the Vienna University of Technology. Institute integriert studieren at Linz University will bring to @Science network its wide experience in supporting disabled students in all phases of their participation to academic studies ranging from preparing services before and at the beginning of studies to study counselling independent from field and place of study; from information events to organization of International Computer Camps (ICC) for young blind and partially sighted students to train in handling the PC, to prepare them for university and to empower international and intercultural exchange; from support during the phase of entering university (e.g. support of enrolment) to computer equipment provision. Because of these specific experiences it will be mainly involved in visually impaired students' support, investigation on existing personal tools, and accessibility of educational material and text books.

Unione Italiana Ciechi (Verona division) has carried on several activities to support blind students for many years:

- specific education for teachers to support blind students in primary, secondary schools and at university;
- courses for young blind to learn assistive technologies and basic software packages;
- research activities as for assistive tools for blind and sight impaired. In particular it was partner in many European project such as PLAY2 project, TeDUB project, Visual Project and LAMBDA project;
- activities in transcription of textbooks and educational resources for the students in the school;

- participation in social activities concerning disability.

The participation to this project is one step forward to contribute in giving the blind students more opportunities in education and job careers. Moreover it can guarantee the dissemination of shared experiences all over Italy.

Heiress to the Faculty of Sciences in the Sorbonne, the first scientific and medical University of France is situated in the heart of Paris, cultural and intellectual capital. Near to the historical site of the Île Saint Louis, to the Notre Dame Cathedral and to the prestigious French National Library, the Jussieu campus enjoys a privileged geographical situation in the middle of the Latin Quarter, close by the Amphitheatre of Lutetia. The Pierre and Marie Curie University disposes of a remarkable potential for scientific training. With 34 000 students (11 000 medical students and 23 000 scientific students), the Pierre and Marie Curie University has an exceptional proportion of post-graduate students (10 000). The Pierre and Marie Curie Paris 6 University holds a very important place in the French scientific and medical research and this is obvious when looking at its number of staff: 3000 engineers, management staff, technicians; 2600 teachers cum researchers and 1300 researchers work in 260 research laboratories associated with the great Research organisations (CNRS: Centre National de la Recherche Scientifique, INSERM: Institut National de la Santé et de la Recherche Médicale).

The Team Inova (Interfaces NOn Visuelles et Accessibilité - Non Visual Interfaces and Accessibility) has a large experience in development of non visual interfaces and educational tools: Inova has worked on several projects dealing with Web Accessibility (WAI-DE – TIDE TELEMATICS DE4015, WAI-DA – IST 13470, WAI-TIES – IST-2001-38471), educational tools for blind and visually impaired pupils (TACTISON, VICKIE – IST-2001-32678), Computer Games for visually impaired children (TIM – IST-2000-25298), maths for the Blind (within MICOLE – IST-2003-511592 STP – and UMCL – Universal Maths Conversion Library).

UPMC will contribute to the @science network with its long term experience in mathematics accessibility.

## 4 Project Results/Achievements

The following activities are the main results achieved in the first year:

- set up of a website and a communication network about science accessibility for blind and visually impaired;
- investigation of the state-of-the-art about tools to facilitate access to university scientific courses (in particular for accessing mathematical content and technical drawings in alternative formats);
- investigation of the state-of-the-art about access opportunities to digital scientific resources;
- investigation of the state-of-the-art about how university services for persons with special needs support blind and visually impaired in scientific courses;
- investigation of the state-of-the-art about available courses about science accessibility for university staff (e.g. professors and tutors);
- preparation of papers, posters and reports about the main issues and emerging solutions in science accessibility. Papers, posters and reports were published either in well-known conferences or on the website;
- organization of an expert workshop with IGUMA (International Group on Universal Mathematics Accessibility) working group for February 2008;
- organization of a pre-conference workshop and a special thematic session on science accessibility at ICCHP 2008 conference.

## **5 Target Users & their Needs**

Blind and visually impaired students meet several difficulties to go through scientific studies because of low accessibility of scientific digital content and of scientific lessons. So the main target group is made up of blind and visually impaired secondary school or university students who go through scientific studies. Another target group is constituted of support services in universities which need techniques and methods to facilitate blind and visually impaired students to go through scientific studies. Furthermore, publishers, assistive technology producers and university libraries are involved because they directly affect the preparation and/or distribution of digital content or access tools to digital content. @Science will provide best practices and guidelines to prepare accessible scientific digital content and to facilitate visually impaired to go through university scientific studies.

## **6 Underlying Content**

Digital content involved concerns learning scientific resources. In particular: lecture notes, papers, scientific books, exercise books, etc. They are usually distributed as PostScript and PDF files. @Science aims to remark accessibility possibilities by making available source formats (such as LaTeX or XHTML+MathML files) or by focusing on highly structured digital files.

## **7 Summary of Activities**

Up to now the @Science network has completed the investigation of the state-of-the-art about science accessibility opportunities. Many contributions have been prepared and presented to conferences in order to widespread information about the main problems and some of the best existing solutions or emerging opportunities. All of the documents produced by the @science network or references to the published papers are available through the @science website. The available communication tools are involving students and interested people from many European countries. Thanks to the dissemination activities, collaborations have been undertaken with the IGUMA working group which involves participants from all over the world. Experimentation and evaluation of some tools are going on and the results will be available as reports on the website. So far two events have been organized and scheduled by the @science network: an expert workshop with the IGUMA group in Paris on February 27th 2008 and a pre-conference workshop as well as a special thematic session on science accessibility at ICCHP 2008 from July 7th to 11th 2008. In the end, preliminary activities to collect samples of accessible resources have been undertaken.

## **8 Impact & Sustainability**

@Science network aims to become a long term reference network for disability support offices and visually impaired students in all European universities. The network started with a kernel of five European countries, spread in quite different geographical areas, culturally implementing different approaches to disability in university studies.

The performed surveys have, however, already taken in account additional European countries to enhance European dimension of the network itself.

Meanwhile contacts are undergoing with new universities and institutions to enlarge the network dimension.