INTEGRATING STUDENTS WITH SPECIAL NEEDS INTO MAINSTREAM CLASSROOMS: THE ROLE OF ICT

SENnet PROJECT THEMATIC REPORT NO. 1

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ABSTRACT

Within the SENnet project, WP 2 has the task to deliver each year a Thematic Study presenting recent research and studies in the field of special education needs and ICT. In 2012 the theme is the integration of learners with special needs into mainstream schools. The study is divided into two parts: Part 1 focuses on European and national countries partners’ policies for the integration of SEN pupils in mainstream education through the use of ICT and Part 2 concentrates on case studies dealing with school integration or assessment of SEN pupils. In Part 2, recent European and national developments are described, including recent research activities and studies, policy trends for ICT and SEN pupils; recent legislative developments on this topic. These are followed by examples of interesting projects and research activities of SEN pupils inclusion with ICT at a national/local level on the following topics:

1) Assessment of SEN pupils with different disabilities at different school levels.

2) SEN pupils with different disabilities and the use of specific software and assistive technology.
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Within the SENnet project, Work Package 2 has the task to deliver each year a Thematic Study presenting recent research and studies in the field of special education needs and ICT. In 2012 the theme is the integration of learners with special needs into mainstream schools.

The study is divided into two parts: Part 1 focuses on European and national countries partners’ policies for the integration of SEN pupils in mainstream education through the use of ICT and Part 2 concentrates on case studies dealing with school integration or assessment of SEN pupils. In Part 2, recent European and national developments are described, including recent research activities and studies, policy trends for ICT and SEN pupils; recent legislative developments on this topic. These are followed by examples of interesting projects and research activities of inclusion with ICT at a national/local level on the following topics:

1) Assessment of SEN pupils with different disabilities at different school levels.

2) SEN pupils with different disabilities and the use of specific software and assistive technology.

Further information about SENnet can be found at http://sennet.eun.org.
PART 1: RECENT RESEARCH AND STUDIES

This section contains European and national reports from SENnet partners on research and development in the area of integration of learners with special needs in mainstream schools.

INTERNATIONAL

UNESCO ICT COMPETENCY FRAMEWORK FOR TEACHERS

One key lesson is to acknowledge the many facets that ICT in Education policies have to tackle such as teacher competencies, learning materials, ICT equipment, student and teacher motivation, as well as the linkages to other areas of national policy and socio-economic development. Adopting a cross-sectoral approach through an ICT in Education Master Plan can help countries to successfully address all relevant dimensions.

In this context, the ICT Competency Framework for Teachers is aimed at helping countries to develop comprehensive national teacher ICT competency policies and standards, and should be seen as an important component of an overall ICT in Education Master Plan. The current version of the ICT Competency Framework for Teachers is a 2011 update of the original version published in 2008, and is the result of the successful continued partnership between UNESCO and CISCO, INTEL, ISTE and Microsoft. In this version, the Framework has been enriched on the basis of feedback from subject matter experts and users worldwide, and enhanced with the inclusion of example syllabi and exam specifications for Technology Literacy and Knowledge Deepening.

Competency framework: http://iite.unesco.org/publications/3214694/

UNESCO REPORT ON ACCESSIBLE ICTS AND PERSONALIZED LEARNING FOR STUDENTS WITH DISABILITIES

Personalized learning requires attention to the unique needs of all students of all abilities, acknowledging that each have different learning styles including students with mild, moderate or severe disabilities. The use of technology in education plays a particularly vital role by enabling flexible curriculum development and assisting students with disabilities to participate as equals in the learning experience. It also helps to prepare them for life-long learning, recreation and work outside of school.

As the UN Convention on the Rights of Persons with Disabilities continues to be implemented globally, State Parties to the Convention continue efforts to realise the goal of Inclusive Education to ensure that students with disabilities have full access, on an equal basis with other students, to regular schools and teachings.

In total, an estimated 186 million children with disabilities worldwide have not completed their primary school education. Thus, children with disabilities make up the world’s largest and most disadvantaged minority in terms of education. Meanwhile, both governments and educational authorities face the challenge of meeting the Millennium Development Goals which have set a target of full enrolment and completion of primary school for all children by 2015.
The World Summit of the Information Society (WSIS) recommends that information and communication technologies (ICTs) be used in all stages of education, training and human resource development (Declaration of Principles: 30).

As education leaders implement reform and changes to meet this challenge, the use of accessible ICTs continues to emerge as a key component in enabling students to learn according their individual abilities and learning styles.

The recommendations contained in this report target teachers, policy makers and administrators. The main recommendations centre on a number of core themes that include:

- Maximising the use of the myriad of accessibility features in mainstream ICTs such as personal computers, tablet PCs, mobile phones etc. already in use in classrooms;
- Empowering students to “self-accommodate” and learn their own preferences and settings when using technology for learning;
- Removing attitudinal barriers to the use of technology for inclusive education, in particular those of teachers who may struggle with modern ICTs;
- Supporting teachers, students and their families in using technology for learning through developing local teams and networks of expertise in accessible ICTs;
- Developing national and regional policies and school-level ICTs plans that fully incorporate the use of accessible ICTs as a key tool in making inclusive educational reality;
- Developing and collating resources on the attitudes, skill and knowledge required by teachers to develop the competencies to be able to incorporate accessible ICTs to enable inclusive education in the classroom and wherever learning happens.

In November 2011, UNESCO in cooperation with Microsoft Corporation convened a consultative two-day meeting of 30 experts from more than 10 countries, including teachers working with children with learning difficulties and physical disabilities, school administrators, experts from the IT industry, representatives from non-governmental organisations and disabled persons organisations. The purpose of the meeting was to identify:

- Practical solutions and good practices on the use of accessible information and communication technology (ICT) to improve personalized learning for all student, including students with disabilities;
- Key competencies required by teachers to learn and use accessible ICTs to complement the UNESCO “ICT Competency Framework for Teachers”.

Other topics addressed by Experts at the meeting included both the potential of and challenges in implementing accessible ICTs in the classroom. Experts reported progress and many interesting and informative case studies from around the world.

The huge amount of information resources on accessible ICT that are in existence and available to teachers was also evident. Frustrations remain at the low levels of awareness and implementation of accessible ICTs for the purposes of including more students more effectively in mainstream classrooms. This is particularly poignant as most technologies in use in schools today have features that enable users to customise the look and feel of the interface to suit their individual accessibility requirements. Similarly, modern office
applications for creating documents and presentations now contain "accessibility checkers" that can potentially help teachers and others create accessible content for class.

These technology trends and advances notwithstanding, the support and training of teachers to learn and facilitate the use of these features as well as other forms of accessible and assistive technology (AT) in the classroom was deemed to be critical in realising the potential accessible ICTs have to assist in part with making inclusive education a reality.


ICTS IN EDUCATION FOR PEOPLE WITH DISABILITIES - REVIEW OF INNOVATIVE PRACTICE

In 2010, the UNESCO Institute for Information Technologies in Education (UNESCO IITE) and the European Agency for Development in Special Needs Education collaborated on a joint project to develop a Review of Innovative Practice – a report presenting concrete examples of practice of the use of Information and Communication Technology (ICT) with people with disabilities in different educational contexts and settings. In particular, the Review was targeted at considering examples of practice that can be considered to be 'innovative' within the specific educational setting and wider societal context they were situated within.

The aims of this Practice Review therefore are to use the collected examples in order to highlight a range of different purposes for using ICT in education for people with disabilities and identify key messages for policy and practice.

The examples of practice cover different parameters of ICT application:

• COUNTRIES AND GEOGRAPHICAL REGIONS in order to show that ICT can be applied effectively in very different economic and ICT infrastructure situations;

• TYPES OF ICT EQUIPMENT and their application in educational settings, from simple multimedia tools to the development of new research based software or applications.

The Practice Review presents a description of the work undertaken followed by a review of information on international policy for ICT and people with disabilities. Each one of the four thematic areas of the Practice Review is discussed in a separate chapter presenting three detailed Case Studies as well as various vignettes as further exemplars of key issues emerging within the thematic area.

• SUPPORTING PERSONAL ACCESS TO INFORMATION AND KNOWLEDGE - Case studies from Estonia, Finland and Grenada and vignettes from Belgium, Estonia, Germany, Spain, UK (England) and Uruguay.

• SUPPORTING LEARNING AND TEACHING SITUATIONS - Case studies from Belgium, Portugal and Syria and vignettes from Belarus, Belgium, Denmark, Estonia, Slovenia and Sweden.
SUPPORTING PERSONAL COMMUNICATION AND INTERACTION - Case studies from France, Ireland, UK (England) and vignettes from: Belarus, Belgium, Finland, Portugal and an international example.

SUPPORTING ACCESS TO EDUCATIONAL ADMINISTRATIVE PROCEDURES - Case studies from Belarus, Moldova and an International example, as well as vignettes from Austria, Belgium, Estonia and Ireland.

In addition to presenting a detailed series of key messages and recommendations, the Practice Review includes a Glossary of key terms and the full contact details of all the contributors of Case Study and Example Vignettes.


EUROPE

SPECIAL NEEDS EDUCATION – NESSE REPORT

Despite commitments by Member States to promote inclusive education, children with special educational needs and disabled adults are still getting a raw deal, according to a report published by the European Commission. Many are placed in segregated institutions and those in mainstream educational settings often receive inadequate support, it says. Special needs education, published by the Network of Experts on Social Aspects of Education and Training (NESET) calls on Member States to work harder to develop inclusive education systems and to remove the barriers faced by vulnerable groups when it comes to participation and success in education, training and employment.

“We have to strengthen our efforts to provide adequately financed inclusive education policies if we want to improve the lives of children with special educational needs and disabled adults. It is time to deliver on the commitments, which have been made. Inclusive education is not an optional extra; it is a basic necessity. We must put the most vulnerable at the heart of our actions to achieve a better life for all," said Androulla Vassiliou, European Commissioner for Education, Culture, Multilingualism and Youth.

Around 45 million EU citizens of working age have a disability and 15 million children have special educational needs. The report shows that in some cases, they are deprived of educational and employment opportunities altogether. Children with special educational needs frequently leave school with few or no qualifications, before moving into specialist training which can, in some cases, impair rather than increase their job prospects. People with disabilities or special educational needs are much more likely to be unemployed or economically inactive, and even those who are relatively successful in the job market often earn less than their non-disabled counterparts, the report states.

In all Member States, deprived children (especially boys) from Roma, ethnic minority and socio-economically disadvantaged backgrounds are overrepresented in special needs schools. The report questions whether special education systems increase the isolation of pupils who are already socially marginalised, reducing rather than enhancing their opportunities in life. Research suggests that such children could be enrolled in mainstream schools if there was more investment in the development of their language skills and more sensitivity to cultural differences.
The report also highlights a wide variation between Member States as to how children with special needs are identified, as well as whether they are placed in mainstream or special schools. For example, in Flanders (Belgium) 5.2% of pupils with special needs are in segregated special schools, while in Italy it is only 0.01%. The report suggests that more needs to be done to harmonise definitions and improve data gathering to enable countries to compare their approaches more effectively and learn from each other’s experience.

Other key findings from the report

- While learners with profound impairments may be difficult to include in mainstream learning environments or may be better served in separate settings, there is growing evidence that a very large number of learners with disabilities/special educational needs can be integrated into mainstream education and that quality inclusive education is good education for all learners;
- While it is of vital importance to move towards more inclusive education systems, teacher education and continuing professional development have not always been organised along inclusive lines;
- In addition to teachers, learning support teachers and classroom assistants play a vital role in making inclusion work well in practice;
- In some European countries curricula are standardised and inflexible, which makes the inclusion of disabled children difficult. Grade retention practices also undermine the principles of inclusion;
- Disabled people are less likely to progress into higher education than non-disabled people


EUROPEAN AGENCY FOR DEVELOPMENT IN SPECIAL NEEDS EDUCATION REPORTS

The European Agency for Development in Special Needs Education (the Agency) has published a number of studies arising from projects on inclusion and access.

KEY PRINCIPLES FOR PROMOTING QUALITY IN INCLUSIVE EDUCATION - RECOMMENDATIONS FOR PRACTICE

A review of Agency work was published in 2009 in the document Key Principles for Promoting Quality in Inclusive Education – Recommendations for Policy Makers. It provides a synthesis of main findings from Agency thematic work to support the development of policy for inclusive education.

A second report in the Key Principles series again draws on Agency thematic work but focuses upon Key Principles for Practice that support quality in inclusive education. It has been prepared by education policy makers and practitioners for policy makers and other professionals providing leadership in education. The aim of the document is to provide a summary of the main principles for practice that appear to be crucial in providing quality support to learners with diverse needs in mainstream settings.

It is hoped that these key principle recommendations will provide further support in the move towards more inclusive education systems across Europe.
All countries need to track the implementation of new educational policies and legislation. The justifications and pressures for mapping such developments are very clear at international, European and national levels. The pressures on policy makers to demonstrate how policies are leading towards greater educational inclusion result in the need for the systematic collection of qualitative and quantitative information that answers key questions and can be used longitudinally within countries to map national developments, as well as internationally across countries to compare relative developments. *Mapping the Implementation of Policy for Inclusive Education* presents the final results of the Mapping the Implementation of Policy for Inclusive Education (MIPIE) project. The project recommendations presented here provide a detailed agenda for the future short, mid- and long-term data collection required at national and European levels in relation to mapping the implementation of policy for inclusive education.

Experts completed a data collection table (based on the Agency project work *Participation in Inclusive Education – A Framework for Developing Indicators*) in relation to their national level work. Tables were completed by: Austria, Belgium (Flemish and French speaking communities), Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland and the United Kingdom (England, Scotland and Wales). This *Overview of Country Data Collection Work* presents the complete information submitted by countries, presented in country alphabetical order. The final section presents a short summary of replies, indicating if countries do or do not collect certain types of data only. The country information was used as a main information resource informing the final project recommendations.


### TEACHER EDUCATION FOR INCLUSION

Ensuring that all learners receive a quality education is central to general policy decisions - not the responsibility of a small number of specialists. The *Teacher Education for Inclusion* project makes recommendations presented in two parts. The first set of recommendations directly relate to teacher education and are, therefore, directed mainly towards professionals working in this area. A second set of recommendations is directed towards policy makers who will need to provide a coherent policy framework for managing the wider, systemic change necessary to impact on teacher education for inclusion.
The Teacher Education for Inclusion (TE4I) project has explored how all teachers are prepared via their initial education to be ‘inclusive’. The three year project set out to identify the essential skills, knowledge and understanding, attitudes and values needed by everyone entering the teaching profession, regardless of the subject, specialism or age range they will teach or the type of school they will work in.

The Profile of Inclusive Teachers has been developed as one of the main outputs of the Teacher Education for Inclusion (TE4I) project. It has been developed as a guide for the design and implementation of ITE programmes for all teachers. The intention is that the Profile should be considered as stimulus material for identifying relevant content, planning methods and specifying desired learning outcomes for ITE and not a script for ITE programme content. The Profile document draws upon various activities and discussions involving project experts and over 400 other stakeholders in education over a period of three years – policy makers and practitioners from a range of school and teacher education sectors; ITE and in-service student teachers; parents and families; and learners – who have collectively debated the competences that all teachers need to support their work in inclusive settings.

The objectives for the Profile are to:

- Identify a framework of core values and areas of competence that are applicable to any initial teacher education programme;
- Highlight the essential core values and areas of competence necessary for preparing all teachers to work in inclusive education considering all forms of diversity;
- Highlight key factors supporting the implementation of the proposed core values and areas of competence for inclusive education within all ITE programmes;
- Reinforce the argument made within the TE4I project that inclusive education is the responsibility of all teachers and that preparing all teachers for work in inclusive settings is the responsibility of all teacher educators working across ITE programmes.

Four core values relating to teaching and learning have been identified as the basis for the work of all teachers in inclusive education. These core values are associated with areas of teacher competence. The areas of competence are made up of three elements: attitudes, knowledge and skills. A certain ATTITUDE or belief demands certain KNOWLEDGE or level of understanding and then SKILLS in order to implement this knowledge in a practical situation. For each area of competence identified, the essential attitudes, knowledge and skills that underpin them are presented.

The Profile has been developed around this framework of core values and areas of competence:

- Valuing Learner Diversity - learner difference is considered as a resource and an asset to education. The areas of competence within this core value relate to:
  - Conceptions of inclusive education;
  - The teacher’s view of learner difference.
- Supporting All Learners - teachers have high expectations for all learners’ achievements. The areas of competence within this core value relate to:
  - Promoting the academic, practical, social and emotional learning of all learners;
  - Effective teaching approaches in heterogeneous classes.
• Working With Others - collaboration and teamwork are essential approaches for all teachers. The areas of competence within this core value relate to:
  o Working with parents and families;
  o Working with a range of other educational professionals.

• Personal Professional Development - teaching is a learning activity and teachers take responsibility for their lifelong learning. The areas of competence within this core value relate to:
  o Teachers as reflective practitioners;
  o Initial teacher education as a foundation for ongoing professional learning and development.

Final Profile: [http://www.european-agency.org/agency-projects/Teacher-Education-for-Inclusion/profile](http://www.european-agency.org/agency-projects/Teacher-Education-for-Inclusion/profile)

Recommendations: [http://www.european-agency.org/agency-projects/Teacher-Education-for-Inclusion/te4i-project-recommendations-linked-to-sources-of-evidence](http://www.european-agency.org/agency-projects/Teacher-Education-for-Inclusion/te4i-project-recommendations-linked-to-sources-of-evidence)

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I-ACCESS RECOMMENDATIONS

All organisations whose mission is to act as information providers in the field of Lifelong Learning have a duty to make their information accessible for everyone. The United Nations Convention on the Rights of Persons with Disabilities (2006) emphasises the:

• Obligation to ‘provide accessible information to persons with disabilities’ (Art.4);
• Need for ‘the design, development, production and distribution of accessible ICT’ (Art.9);
• Right to education ‘without discrimination and on the basis of equal opportunity’ for persons with disabilities (Art.24).

Key information providers within lifelong learning need clear guidance on translating policy and standards into practical tasks for implementation, making use of innovative ICT solutions in a sustainable way. It is argued by the Agency that a main barrier for providing accessible information is not the lack of flexible ICT solutions, but a lack of clarity on what policy relating to accessibility implies and the necessary ways forward to implementing accessibility standards effectively within organisational processes.

Accessible Information Provision for Lifelong Learning (i-access) is a one year project co-financed by a European Community Grant. The main aims of the project are to:

• Use existing European and international policy and standards for information accessibility as a basis for discussing the implications as well as the practical implementation of accessible information provision within Lifelong Learning
• Produce clear recommendations agreed at the European level by key stakeholders for Lifelong Learning and accessible ICT that can be used by information providers across Europe to support the provision of accessible information for Lifelong Learning for all learners who need it.

The project outcomes include:

• Recommendations: [http://www.european-agency.org/agency-projects/i-accessagreements](http://www.european-agency.org/agency-projects/i-accessagreements) (translated into all Agency languages).
• A collection of useful resources;
• A glossary of terms;
• A dissemination package including a collection of practical examples;
• National level dissemination examples.
In this section partners in SENnet report on research and policy developments in their national setting relating to integration of learners with special needs into mainstream schooling.

AUSTRIA

SPECIAL NEEDS POLICY

In Austria, families of children with special educational needs have the choice between sending them to a special school or to a mainstream school. The latter has been possible for about 20 years now. Since 1993, children with special educational needs have been allowed to attend mainstream primary schools; in 1996, the School Organisation Act was amended enabling them to also attend mainstream lower secondary schools. "The legal encompassment of the inclusion of children and adolescents with special educational needs (SEN) has modified [the] school system decisively. Mainstream schools have been obliged since then to take organisational and didactical measures to meet the special needs of these children at school." This means that most of the time the mainstream curricula are used for children with SEN in integrative settings. However, they can be amended according to the individual needs of the student or by using the curriculum of special schools or of another grade in all or in certain subjects.

The last year of compulsory schooling (ninth grade) is mainly dedicated to pre-vocational training. "The young people shall be prepared to meet the challenges of every day and working life by receiving in-depth general education as well as theoretical and practical education in order to develop their individual skills and cross competencies. Pre-vocational education is based on the student's individual preconditions and it aims at increasing his/her individual and professional abilities, developing his/her creativity and the ability for decision making, making use of his/her knowledge and skills and facilitating his/her participation in a lifelong learning process."

Currently, about 5% of the pupils in primary and lower secondary schools have special educational needs. This equals to a total of about 27,000 people. About half of them attend special schools. However, the actual percentage of children with special needs in mainstream education varies considerably between the Austrian provinces and lies between 30% and 80%.

Regardless of the fact that higher secondary schools foster young people’s communication and social skills considerably, there is no further education foreseen for students with special

1 http://www.cisonline.at/index.php?id=9&L=1
2 http://www.cisonline.at/index.php?id=81&L=1
needs after they have completed compulsory education. However, starting in the academic year of 2012/13, Austria’s first inclusive higher secondary school was introduced in an academic secondary school in Salzburg. At present, this is only a pilot project – however, there are plans to give a larger number of students with special needs the chance to attend higher secondary schools in the next few years and to even develop model regions in terms of inclusion to gain experience and to offer inclusive schooling in an even larger part of Austria in the future.

POLICY CONCERNING ICT IN SPECIAL NEEDS EDUCATION

The Federal Ministry of Education, Arts and Culture defined the “Unterrichtsprinzipien” (teaching principles) which have to be part of the curriculum in all levels of education, all school types and all subjects. They should run like a thread through the school system and should support teachers in their daily work. Media education is one of these teaching principles. The “GrundsatzerlassMedienerziehung” (policy decree on media education) forms the basis for its implementation in school:

“Media rule our private sphere as much as our working life. The technical facilities for multiplication, transfer and networking are gaining ever greater influence on the “natural” environment of pupils and students; they are part of their reality, their world. Education should accompany and encourage the children and adolescents in their relations to the world/reality. ...In view of the challenge posed by the electronic media, school needs even more to face up to the need to contribute to educating human beings who are able to communicate and to arrive at a judgment of their own, to enkindle creativity and pleasure in own creations, and – within the scope of the “media education” educational principle – to encourage individuals in finding their focus in society and a constructive-critical approach to experiences to which they are exposed.”

As a consequence of this educational principle, many initiatives have been set up by the Federal Ministry of Education, Arts and Culture. The most important one in this context is efit21. Its goals include using ICT in education to increase its quality and to give people the necessary competencies for their personal, professional and social success. Some projects under the framework of efit21 include eLSA and eLSA advanced, e-Learning-Cluster, eLearning at NMS, EPICT, Virtuelle PH, “Individualisierenmit E-Learning” or the approximately 40 subject portals which are managed by Education Group and hold a large number of educational resources for students and teachers. One of them is also dedicated to special needs education.
Generally, the curriculum of special schools mentions ICT as an important means to provide diversified and modern education. It's a major goal to teach students with special needs the appropriate, autonomous and responsible use of ICT. It's of great importance for them to know how to find, identify, evaluate and process information. Software and media suitable for their disability support their creativity, enable them to use computers for learning and to solve problems individually. Of course, the used technologies depend on the preconditions of the individual student involved.

Teaching students with special needs how to use ICT critically increases their chance to access information and knowledge autonomously thus making it easier for them to participate in society successfully and to be able to live an independent life.

As mentioned above, children with special educational needs attending mainstream schools are generally taught according to the curricula of these mainstream schools. Of course, ICT is also mentioned in these:

- The “AllgemeinesBildungsziel” (general educational objective) of primary schools defines teaching children an age-appropriate use of modern ICT as one of primary education’s major goals. \(^{10}\)
- In addition, (new) media and ICT are explicitly mentioned in some of the “AllgemeinedidaktischeGrundsätze für die Grundschule” (general didactical principles for primary education) which also form part of the curriculum of primary schools determining the most important characteristics of appropriate primary education. \(^{11}\) Basic educational principles such as “Activation and motivation” or “Individualisation, differentiation and encouragement” should be achieved more easily with the help of ICT.

Of course ICT also have to form a part of education in lower secondary schools: Teachers need to exploit their didactical potentials; students have to learn how to use it critically especially when it comes to doing research. \(^{12}\) Generally, the actual implementation of these “general educational objectives” depends on the type of school and if the school takes part in any of the numerous projects and initiatives set up by the Federal Ministry of Education, Arts and Culture.

\(^{10}\)http://www.bmukk.gv.at/medienpool/14043/lp_vs_erster_teil.pdf

\(^{11}\)http://bmukk.gv.at/medienpool/14044/vsipdritterteil3682005frhp.pdf

\(^{12}\)http://www.bmukk.gv.at/medienpool/11668/11668.pdf
ILL AND ISOLATED CHILDREN CONNECTED: A PROJECT CONCERNING ICT AND SEN

IICC\(^{13}\) (Ill and Isolated Children Connected), a project managed by Education Group on behalf of the Federal Ministry of Education, Arts and Culture, is an example of the use of ICT as a means of inclusion of SEN pupils.

In many cases, children undergoing lengthy hospital stays attend so-called hospital schools which are in constant contact with their home schools. ICT-assisted tuition can improve the efficiency and quality of lessons, particularly in this environment, with high individual support needs. In addition, it makes it possible for the pupils to stay in touch with their friends and classmates from home using video conferencing. They also have access to educational media and are sometimes even able to participate in classroom instruction.

The project started in 2004 and was enhanced continuously by adding e-learning or art as priorities. In the last few years, a strong focus has been put on the use of new technologies in project-related practice-oriented lessons. The children worked with digital photography and video (including image/video processing) or had the chance to gain experience in robotics. In the academic year of 2012/13, iPads and educational apps will also be used in the framework of this project.

BELGIUM

RECENT DEVELOPMENTS IN LEGISLATION

Ratification of the UN-agreement by the Flemish government

The UN-agreement of December 13\(^{th}\) 2006 regarding the rights of disabled people has been ratified by both Belgium and the regions and communities of Belgium and is in effect since July 2nd 2009. Disabled people have a right to inclusive education and a right to make use of reasonable adjustments. Among them are children with learning disabilities who experience obstructions in scholastic participation ('social threshold'). These pupils are entitled to government provisions to create equal opportunities and to counteract discrimination.

Flemish equal opportunities and equal treatment decree

The Flemish equal opportunities and equal treatment decree of July 10th 2008 also applies to education. It states that disabled people have a right to ask for reasonable adjustments, unless these measures form a disproportionate burden for those who have to take these measures. If a disabled person experiences negative consequences caused by a maladjusted environment, it can be compensated by reasonable adjustments. Refusal of reasonable adjustments for disabled people (e.g. not granting ICT aids for dyslectic pupils) will consequently, by the interpretation of the decree, be considered as 'discrimination'. In other words, schools are obliged to install adjustments for disabled people within reasonable limits.

\(^{13}\text{http://iicc.schule.at}\)
A protocol supporting dyslectic pupils’ use of software was signed in 2008 by the minister of education and welfare. The ministry of education, responsible for assigning dyslexia software, set up a new project in collaboration with Samenwerkingsverband van Netgebonden Pedagogische Begeleidingsdiensten (SNPB vzw): Distribution of free dyslexia-software to mainstream and special education in primary and secondary schools. Schools can apply by submitting a request with their motivation on how they will implement dyslexia-software in their SEN policy. The immediate response of many schools after the first call, indicated a large demand and readiness.

The impressive response, increased by the number of other schools that have purchased dyslexia software through other projects or by their own resources, has raised the need for information on the practical use of dyslexia-software. As a consequence, an initiative has been taken to set up a working group and to continue doing research.

The purpose of this working group is to develop a school-, teacher- and parent-friendly communication method about this theme. This includes: het Samenwerkingsverband van Netgebonden Pedagogische Begeleidingsdiensten vzw, Die-’lekt-kus vzw, Gelijke Kansen in Vlaanderen, the inspection on education and the Flemish ministry of education. As a result of this working group a brochure was created: ‘Dyslexia-software! What now? Source of inspiration for the implementation of ICT-aids within the framework of the school’s SEN policy’ (2011). This brochure has a wide range target group, from parents and teachers to school boards and their organizations. Apart from the dissemination of the broad vision on policy and implementation of ICT-aids, this brochure also includes tangible tools about how ICT-aids can be actively integrated in the short term.

Within the framework of an awareness campaign, a brochure ICT without limitations, was distributed in Flemish schools of mainstream and special education in September 2009. The guide with specific tips highlights different possibilities regarding ICT for pupils with specific educational needs. In this way the Flemish government hopes to support the integration of the new ICT development objectives.

Foundation and evolution of Eureka ADIBib

ADIBib, a digital library of textbooks, originated from a need which was not fulfilled: the availability of necessary tools for compensating ICT-use with pupils who have serious limitations in written communication. In 2008 the library started a pilot project with 250 users. In this stage it was specifically aimed at dyslectic pupils. Throughout the following years ADIBib, subsidized by the ministry of education, reached its final form. The project broadened not only its target group to pupils with dyspraxia, GON-pupils, and pupils in special education but also included all primary and secondary education. Till recently
ADIbooks were specially adapted for (paying) text-to-speech software. Since September 2010 ADIbooks are software independent. They can now be used on every (free) software that can read adapted PDF's. We note a new trend that viewing impaired pupils are also making the transfer from Word files to PDFs.

Research into the effects of the project 'free dyslexia software' (cf. part 1)

This study was conducted by het Samenwerkingsverband van Netgebonden Pedagogische Begeleidingsdiensten vzw (2012). The implementation of dyslexia-software on school level and individual class level were studied. Training needs and the willingness to exchange expertise were mapped out. This resulted in useful recommendations on class, school and policy level and identified the need for further research.

Survey on the use of laptops in schools

To date more than 400 parents of children with learning disabilities have responded to the questionnaire (2012, Die-'s-Lekti-kus vzw). This survey was organised within the framework of "sticordi" implementation in schools. StiCoRDi stands for measures to stimulate - compensate - remediate and differentiate/dispensate. The survey distinguishes between various criteria like grade level, type of learning disability, therapy (current and past). The results provide an interesting insight into reasons and factors that play a part in deciding to allow laptops in the classroom or not. The feedback is valuable, especially regarding the effect of laptop use on students' motivation to study, on the level of self-reliance and the impact on school results. Now we have a better understanding of the motivation of the decision-makers in the schools regarding this matter which will help us in the future. We will be able to target their concerns effectively.

Bednet

Bednet is a virtual school environment on the internet. This application helps long term and chronically ill children as well as adolescents to stay in touch with their class remotely. It's a closed environment which is accessible via broadband internet 7/7. By using webcams a child can see his teacher and classmates in a virtual classroom. Specially designed hardware allows the child to view everything that happens in the classroom. The child is able to communicate with everyone and ask questions. The system is also able to work with class material, tasks and tests, messages and audiovisual material. The Flemish government, ministry of education, provides personnel and resources for the roll out. The first projects were launched in 2007. By 2008 already 25 children were attending virtual classrooms.

WAI-NOT

WAI-NOT vzw (founded in 2001) actively works on social and digital inclusion, especially for people with a mental disability. An important emphasis is put on safe internet accessibility, specifically for the target group. This should work in both ways: by creating an environment adapted to the target group, but also by creating awareness about making existing content on the internet accessible for this target group.

Klascentment

Klascentment is the Flemish educational portal site, which stimulates the exchange of class materials and the collaboration between all people involved in education. Klascentment already
started different innovative projects concerning ICT. A part of the website, called 'leerzorg' is especially for teachers who work with pupils with special needs. Since 2002 the website receives financial support from the ministry of education.

ESTONIA

POLICY TRENDS

According to the Educational Act, children with special needs have the right to attend the school of their residence. In a state or municipal school shall be established the following classes, if necessary:

- Classes for children with physical and sensory disabilities, speech impairments, sensory disabilities and mental disorders;
- Opportunity classes for teaching children with learning difficulties;
- Supplementary learning classes for teaching children with slight learning disabilities;
- Coping classes for teaching children with moderate learning disabilities;
- Nursing classes for teaching children with severe and profound learning disabilities.

The aim of support systems is personal development of a student, considering his or her individual peculiarities in organizing schooling and education. The following support systems are available in schools:

- Individual curriculum;
- Remedial groups for providing learning support for students with learning difficulties;
- Speech therapy;
- Long day groups;
- Studying at home (with possibility to attend lessons of music, arts, handicraft and physical education);
- Classes for students who have behavioural problems;
- Boarding school facilities for children who have social problems.
- Depending on the need of students to receive special education, special support, special treatment a student may study at school for students with special needs (Ministry of Education and Research, 2012). The ministry does not have comprehensive data of how SEN-pupils are included with ICT.

RECENT DEVELOPMENTS AND FUTURE

The number of special schools has decreased during last years but not enough. Ministry of Education and Research has launched a reformation of special schools’ network and developing a strategic plan of study organization of SEN students. The main aim of this is moving towards more inclusive system of education.

Some directions of the conception for years 2013 – 2020:

1. Reducing the number of special schools;
2. Renewing financing model for assurance inclusive arrangement of schooling of SEN students;

3. Developing competence and capacities of counselling service centres.

4. Supervising and assessing achievements of SEN students;

5. Working out learning materials for SEN students and manuals for teachers and support specialists (Information from the Ministry of Education and Research).

There is also a direction to increase the importance of information and communication technology in the study process of children with special educational needs, using the means of information and communications technology in teaching, learning, communicating, therapy and diagnostics more than earlier; and to develop a national subsidy system of study materials and technical aids for children with special educational needs. (Ministry of Education and Research, 2012).

According to the recent developments there is lack of financial support including SEN pupil. There is no extra money for teaching SEN students in ordinary school, except mental disorders. Students with learning difficulties have the right to attend remedial groups for providing learning support. But there is no higher extra money for these students anymore (Üldhariduserahastamismudel).

Children with disabilities who require technical aids are compensated by the state for 50-90% of the cost of a technical aid. The provision of other social welfare services to people with disabilities is primarily the responsibility of local governments (personal assistants, invatransport, in terms of both providing services on the basis of assessed need and paying benefits (Ministry of Social Affairs, 2012).

**SEN PUPILS’ INCLUSION WITH ICT: DIFFERENT PROGRAMMES AND PROJECTS**

Tiger Leap Foundation offers schools a variety of possibilities that combine ICT equipment, teacher training, web-based learning materials, competitions for teachers and pupils. Right now Tiger Leap Foundation runs one teacher training program "Special needs and ICT" whose goal is to introduce different educational needs, preparation of teaching materials for SEN students and opportunities how to use ICT to support teaching for children with SEN. (Hariduslikeerivajadustegaõpilasteõpeja IKT, 2012).

**LEARNING ENVIRONMENTS AND STUDY MATERIALS**

Tiger Leap Foundation’s education portal www.koolielu.ee contains files or links of thousands of study materials (also materials for SEN students), structured on the basis of the national curriculum. There are also web-based courses in Koolielu and in the beginning of 2013 there will be a web-based course on ICT and SEN pupils in mainstream schools.
The objective of the program was to improve the quality of the educational counselling system and create academic advice centers on the county level to prevent students from dropping out of school, and to increase coping strategies and competitiveness for young people in their everyday life and in the labor market.

The program’s target group comprises students with special educational needs, the children’s parents, providers of counseling service, teachers and specialists at educational institutions, and local government officials responsible for the educational sphere.

Currently, the shortage of support specialists (special education teachers, speech therapists, psychologists, social workers) in schools and kindergartens is a serious problem. The most frequent concerns that parents and teachers bring to counseling center specialists are related to children's learning problems, behavioral problems, finding a suitable study program, learning opportunities for children with special needs both in school and after leaving school, emotional etc. (Eksamikeskus, 2009).

References


The National Examinations and Qualifications Centre. Hariduslikeerivajadustegaõpilasteõppevaraarendaminewww.hev.edu.ee (27.09.2012)


ITALY

SEN LEGISLATION

The Constitution decrees the universal right to education; Article 34 establishes that school is open to everybody and Article 3 says that all citizens are equal in human dignity and that the Republic should remove any obstacle to equality. Until the mid-70ies, disabled pupils studied in special schools. Article 28 of law 118/71 established that compulsory education was delivered for all children in mainstream schools, but did not abolish special schools, leaving the family free to decide what school their children should attend. Law 517/77 rules requirements and conditions for inclusive education, in particular the presence of SEN teachers and of PEI. The Constitutional Court with judgement 215/87 declared the unconditional right of every SEN student, with any disability, to attend the schools of any level. This judgement was incorporated into Ministerial Circular 262/88, which is the basis of all current legislation.

Since 1977, legislative measures have been absorbed by Law 104/1992 "Outline law for the assistance, social integration and rights of persons with disabilities". According to this law, the right to education of SEN pupils is implemented through the creation of the functional and dynamic profile and the PEI, which must be agreed upon by the pupil’s school, health companies and local authorities. The decree of February 24, 1994 “Policy and coordination tasks of health care companies concerning SEN” details what professionals should work with SEN pupils and how the PEI should be prepared.

With Law 3/2009, Italy ratified the ONU Convention on the Rights of Persons with Disabilities. This document abandoned the approach based on the “deficit model” and adopted a social model of disability. Article 32 declares the right to education without discrimination and fosters equal opportunities for all, ensuring an inclusive system at all education levels and as to lifelong learning. In 2001 the OMS has approved the ICF, which has been adopted by medical centers. The functional diagnosis is drafted on the basis of ICF and schools are called to act on the basis of those principles. A running project of the Ministry of Education is selecting and disseminating the school best practices concerning the use of ICF.

Finally, Law 170/2010 "New rules on specific learning disorders at school" illustrates procedures for diagnosis, training programs for teachers and educational measures for those students suffering from learning disabilities (dyslexia, dyscalculia, dysgraphia).

THE ITALIAN SYSTEM AT A GLANCE

In Italy, SEN pupils are taught in mainstream schools and since the 1970s special schools have been abolished. SEN pupils are scaffolded by SEN teachers who are present for some hours of the school time. SEN pupils are supported by different professionals and the dedicated team has in charge their individualised educational plan (called PEI - Piano Educativo Individualizzato). Head teachers can also contract educators, associations and psychologists in order to provides difficult SEN cases the best support.
Over the last decade, in Italy there has been an administrative decentralization process and Regional School Offices have taken a major role in the planning, programming and management of school resources and actions. The Italian Parliament is progressively implementing changes to the 5th Title of the Constitution, giving more autonomy to local authorities (Regions, Provinces, Municipalities). Law 59/1997 gave schools functional autonomy and headmasters can offer different curricula according to their territory and stakeholders. For the implementation of activities related to school integration, the head teacher may entrust a teacher in order to:

- promote training activities for school staff dealing with SEN pupils;
- manage projects aimed at strengthening school inclusion processes;
- lead and coordinate initiatives and activities related to innovation due by law;
- manage the activities related to the individualized plan for SEN pupils (PEI);
- actively involve families;
- keep relations with the local educational agencies (local authorities, associations, social and health services, other schools, etc.);
- organize guidance activities to ensure educational continuity among different school levels;
- identify and remove architectural and sensory barriers.

The head teacher is responsible for the teaching program to a certain extent. If for some SEN pupils school attendance is compromised for all or part of the time, the head teacher must ensure an educational plan that respects the specific needs of his/her students and enhance learning in an alternative way.

An integral part of the PEI is the section called “Life plan”, dealing with personal and social opportunities to develop personality and promote life quality, including self-esteem increase and community life competences.

The SEN teacher is not the only responsible for inclusive education, because there is a shared responsibility among all teachers. The Class Council coordinates teaching activities and create materials for a complete participation of SEN pupils. In particular, they work for:

- a non-discriminatory class atmosphere allowing the creation of positive socio-affective relationships;
- the adoption of inclusion strategies and methodologies (i.e. cooperative learning) and the preparation of homework documents and material accessible in electronic format or through assistive technology;
- strengthening the active construction of knowledge.

PEI encompasses SEN pupils evaluation as well, which is based both on the assessment of the performance itself and on the pupil learning process and commitment. During exams, SEN pupils can use those technologies that help them to have the same opportunities that the other pupils (i.e. blind people should get braille exam texts etc.).

SEN teachers are specialized educators with a degree in science education or pedagogy and specialization courses on disabilities. According to Law 297/94, the SEN teacher should work in cooperation with subject teachers, so that when he/she is not there, SEN pupils can continue their learning activities without difficulties.

Non-teaching staff is also involved in the integration process since they should provide a basic assistance to SEN pupils, varying from technical issues to mobility ones.
According to Law 104/92 (article 12), the family is entitled to participate in the setting up of the PEI and to the control of its implementation. For this reason, SEN pupils documentation must be available for the family and for the pupils themselves who are to decide on their school career.

Since the 90s teaching experiments with assistive technologies have been carried out by schools or single teachers; some associations or consortia have been established with the precise aim of promoting assistive technologies in teaching (i.e. the Ausilioteca of Bologna, ASPHI). In the same years, health care companies have set up centers for assistive technology. These centers have then networked at a national level, then converging into the GLIC, a national working group on SEN education and assistive technology. Since 2005, the project “New technologies and disability” sponsored by the Ministry of Education, has worked to spread the knowledge and use of technology for inclusive education among teachers. Thanks to this project, Local Support Centers (CTS) were created, where experts suggest technology solutions, software and assistive products according to the disability of the pupil.

As a general trend, Italian policy promotes the use of ICT in the three domains mentioned in Eurydice publication, “Key Data on Education in Europe 2012”: disabled pupils, socially disadvantaged pupils and pupils with learning disabilities.

CURRENT PROJECTS

T-islessia (2005-2006)

This is a research and experimental project on the use of a new medium, the digital terrestrial TV, for the treatment of dyslexia and the improvement of reading and writing competences in children of the first classes of primary school. The project Consortium was composed by INDIRE, Fondazione FUB, University of Florence – Lab of Communication Strategy, CINECA, CReSM, University of Urbino.

I-care (2007-2009)

I-care is an experimental project on integration policy in mainstream schools, mainly through the ICT use. The operative actions of the project, addressed to all schools of any level of education, are on four axes: class, school, family and community. In particular, within the class activities, evaluation of SEN pupils through the use of ICT is investigated.

Website: http://archivio.pubblica.istruzione.it/dgstudente/icare/presentazione.shtml

Nuove tecnologie e disabilità (Handitecno)

The project Nuove Tecnologie e Disabilità ran from 2005 to 2008 and was sponsored by the Ministry of Education and based on the previous work of the Handitecno portal, a site managed by INDIRE and aimed at promoting the use of ICT for inclusion. The project consisted of seven measures:

1) Research on available technologies and on school experiences,
2) Creation of a knowledge sharing system
3) Accessibility of educational software
4) Creation of a Local Support Centres (CTS) network
5) Local teacher training
6) Research projects for innovation
7) Intervention plans for students with dyslexia.

Progetto Niki

Niki has been obliged to live on a boat since he was very little because of a rare and severe form of asthma. Since he could not attend the school, his parents equipped their boat with a “touch panel” monitor, connected via satellite to his class where he could be virtually present during lessons. In this way, he could finish the compulsory school and can now attend the higher school.


WISE project

Wiring Individualized Special Education (2010-2012), http://www.wisefirb.it/, is a project financed by the Ministry of education, aimed at supporting those SEN pupils that for a disability are obliged to stay at home (also identified as “homebound”). The project covers the following areas: mainstream education, university and the labour market, with experiences of distance working.

Progesis

This project, http://progesis.itd.cnr.it/, aims at guarantee safety and accessibility at schools, especially to disabled students. The project methodology is based on action research with a limited number of schools but has a great potential for spreading the project results to the whole school system.

Motil

_Mobile Technologies in Lifelong Learning: best practices_ (2009-2010) http://www.motill.eu/ is based on two key concepts: lifelong learning and mobile technologies. MOTILL explores how implementation of these technologies can help to disseminate a new model of society in which education and knowledge are increasingly available to all, without social, economic or cultural discrimination.

L4ALL project

This project (http://www.learningforall.it/) has 5 research tracks: 1) Educational paradigms and pedagogical approaches, 2) Formats for learning experiences supported by new technologies, 3) Testing of educational experiences supported by new technologies, 4) Monitoring of teaching experiences supported by new technologies, 5) Dissemination of results.

DIGITAL RESOURCES ON THE WEB

SD2, http://sd2.itd.cnr.it/BSDIndex.php#, service of the Institute of Educational Technology (ITD) of Genoa, providing access to 2 database, one on software for SEN teaching and learning and one on digital material. The software database can be searched by curriculum subjects, methodology, topic, language, operative system, disability classification, school level and licence type.
SIVA portal, [http://www.eastin.eu/it-IT/searches/products/isoSearch](http://www.eastin.eu/it-IT/searches/products/isoSearch), managed by the Don Gnocchi Foundation, allows users to search assistive products for SEN people according to ISO classification codes and on manufacturer's name. The portal is multilingual.

Handitecno, [http://handitecno.indire.it/](http://handitecno.indire.it/), is the national portal on disability and inclusion. The site provides access to many interesting sections such as: database on SEN school practices; guided teaching examples; assistive technology; Centres for SEN counseling; legislation; bibliography and sitography; news. Information is organized according to disability type.

School in hospital, [http://pso.istruzione.it/](http://pso.istruzione.it/), is the Ministry portal on initiative of teaching to hospitalized pupils. The site provides examples of practices, a legislation section, materials, a blog and a forum for community communication and other useful pieces of information for teachers and headteachers dealing with SEN pupils in hospital.

Other interesting resources made by teachers are available and very popular among schools. GLIC portal, [http://www.centriausili.it](http://www.centriausili.it), is the portal of the centers for assistive technology that are banded into the national network to provide mutual knowledge and develop instruments and proposals for the effective development of the entire field of assistive computer and electronic. Foundation ASPHI, [http://www.asphi.it](http://www.asphi.it), is a non-profit social organization that takes care of computing and disability, with the aim of promoting the participation of people with disabilities in all areas of life, through the use of ICT.

Handylex, [http://www.handylex.org/](http://www.handylex.org/), is a website dealing with the rights of disabled persons and provides laws and regulations fostering integration and inclusion.

**PORTUGAL**

**NATIONAL STRATEGY FOR DISABILITY**

National plans and strategies to include people with disabilities are relatively recent in Portugal and were conceived in the framework of the Convention on the Rights of Persons with Disabilities as well as on the European Strategy for Disability (2010-20). The first National Action Plan for the Integration of People with Disabilities was launched in 2006. At present, the National Strategy for Disability in force, defines the following measures in the education sector ([http://dre.pt/pdf1sdip/2010/12/24000/0566605677.pdf](http://dre.pt/pdf1sdip/2010/12/24000/0566605677.pdf)):

- To implement the Early Childhood Intervention system;
- To carry on the inclusion of children with disabilities in mainstream schools, moving out of special needs institutions;
- To reinforce and make the necessary adjustments regarding specialized units and reference schools to support children with multiple disabilities, autism spectrum disorders, blind and deaf children;
- To provide every SEN pupil with the adequate instructional accommodations or modifications to achieve the educational objectives defined in the respective Individual Educational Plan (IEP);
- To reinforce teachers’ training regarding special needs;
- To reinforce school assistants’ training regarding special needs;
- To create virtual communities of SEN teachers;
- To promote the transition of SEN pupils from school to active life.
Most of these measures have already been implemented, needing further development and reinforcement. Other education and training measures included in the National Strategy are the responsibility of other Ministries.

**SEN Provision for Schools**

A law was passed in January 2008 ([link](http://dre.pt/pdf1sdip/2008/01/00400/0015400164.pdf)) which governs special needs provisions in schools. The measures referred in the National Strategy have been addressed in this law and several publications with curricular guidelines were produced by the Ministry of Education to help schools and teachers to integrate SEN pupils. The target public to benefit from these measures and respective support are pupils with severe needs.

To concentrate resources to support SEN pupils, reference schools for blind/low vision and deaf pupils were selected and provided with specialized human resources. Whenever possible families are advised to make the enrollment in these schools. As the number of pupils with multiple disabilities and autism spectrum disorders is bigger, special units were opened in many schools to support the inclusion of these children. Special needs institutions that used to take care of many of the children with severe special needs - at present included in mainstream schools - established agreements and negotiations with the Ministry of Education to provide technical/therapeutic support to the children. This staff usually provides services in schools, according to what the special needs teachers (school) and technical/therapeutic staff of the institutions consider required for the child.

**ICT Resources Centres for Special Needs**

A network of 25 ICT Resources Centres for Special Needs was created to provide evaluation services to pupils/students with disabilities and to recommend assistive technology (AT), granting them digital accessibility.

These Centres are located in schools, and they evaluate pupils/students with disabilities regarding their needs for ICT and assistive technology and covering schools from a neighbouring district area. The Centres have recommended assistive technology to pupils which the Ministry of Education has financed in the last four years. ICT Resources Centres for Special Needs play other complementary roles, namely:

(i) Training teachers in the use of ICT and assistive technology

(ii) Raising awareness for the benefits of these media among parents and school staff;

(iii) Looking for partnerships with Higher Education Units (devoted to assistive technology and Special Needs...
research), with Special Needs private associations, with health services, with companies specialized in assistive technology.

Guidelines for the activity of the Centres were defined at central level, which determine that they have to present an Annual Activity Plan as well as an Annual Report. Every year, the reports are analysed and a global report of the network’s activity is made available to all.

ICT Resources Centres have an important role in the dissemination of ICT and AT. They organize public sessions, in collaboration with companies that trade assistive technology, addressed to teachers, technical staff and parents. They also organize online teachers’ training on specific software. Peer training, either on an individual or small group basis, is also carried out by the ICT Resources Centres for Special Needs. Formal teacher training in the field of Special Needs and assistive technology is also provided by the Teacher Training Centres, which is certified for career development.

ICT and assistive technology can make a whole difference for the autonomy of people with disabilities. If the adequate devices are made available people can act independently. To help pupils/students to become autonomous learners and to witness such an accomplishment can be rewarding for any educator. The expertise of the educator can be obtained by training, experience and help from other experts. Partnership with entities with expertise in the different fields of disability is highly important.

**VIRTUAL COMMUNITIES IN MOODLE**

A virtual community, in the Moodle platform of the central department (DGE), gathers the teams working in the 25 Centres and the respective school directors. Through the virtual platform frequent messages and resources are exchanged, as well as some disciplines/lines of work, namely:

(i) Repository of special needs resources
(ii) Case studies
(iii) Videocasts
(iv) Online training course on augmentative communication.

Other virtual communities were organized to gather SEN teachers working in reference schools for blind and deaf pupils and SEN teachers working in special units for multiple disabilities and autism spectrum disorders.

**VIDEOCONFERENCE FOR CHRONIC ILLNESS CASES**

An agreement between the Ministry of Education and Portugal Telecom (PT) is maintained to provide a (limited) number of videoconference systems to pupils/students absent from school for chronic illness reasons. Most of the cases relate to cancer.

Pupils/students have periods of hospital treatment and recovery at home that leads to absence and videoconference allows them to keep in touch with
teachers, schoolfellows and learning activities.
The technological solution provided by PT includes common functionalities, such as chat, file sharing, applications sharing, and an extra functionality of remote control of the camera (position and zoom) installed in the classroom, by the pupils/student at home. Other free videoconferencing tools have been recommended by the ICT Resources Centres to overcome needs of other pupils/students.

REPOSITORY OF SPECIAL NEEDS FREeware

A website was created gathering many free applications for accessibilities and other assistive aids. It is a repository that collects freeware for different purposes, including:

- AAC (symbol communication),
- Screenreaders,
- Magnifiers,
- Speech synthetizers,
- Voice recognition,
- Virtual keyboards.

Other free learning resources are included as well as a blog with videos regarding inclusion and special needs http://freewarenee.weebly.com/

SHORT AND LONG-TERM DEVELOPMENTS

Short and long-term developments would be desirable regarding inclusion and ICT/AT. In the short term:

- reinforcement of ICT Resources Centres for Special Needs, providing them with better conditions and more resources;
- guarantee of an adequate annual budget for ICT and assistive technology for pupils/students with disabilities;
- reinforcement of technical/therapeutic assistance to the pupils;
- reinforcement of teacher training on the use of ICT/AT;
- localization of open source/freeware for special needs and promotion of its use

In the long term:

- strong commitment from policy makers towards inclusion, investing in adequate resources;
- society’s change of attitude towards people with disabilities;
- school culture of inclusion;
- close institutional cooperation among the Ministries of Education, Health and Labour/Social Security in the field of Early Childhood Intervention;
- collaboration with Higher Education research in the field of disability and rehabilitation.

TURKEY
Special education services in Turkey is provided through schools (public and private) and educational institutions. All of these organizations report to the Ministry of National Education and operate within the mission and principles of the Turkish National Education. Under these terms, they serve individuals with disabilities who have the legislative right to receive free and appropriate general and/or vocational education. Student with special needs within the scope of education is defined as “individual displaying special personal and developmental delays/characteristics that require additional support and/or accommodation in contrast to their typically developing peers”.

Special education is an inseparable part of the general education system. All children, regardless of their disability can benefit from special education. It is a fundamental aspect of equal opportunity to continue general and/or vocational education, and rehabilitation services without interruption. All educational services (pre-school, kindergarten, elementary, middle, high schools, vocational education and non-formal education) are developed/planned by the Ministry of National Education and implemented by authorized organizations (Special Education Services Regulation, 2005: Article 6).

The early legislation on special education is the Public Law 573 – ‘Special Education Legislation, that was enacted in 1997 (Official Gazette No. 23011 June 6, 1997). This law accepts inclusive education as the basis of special education. ‘Regulations for Special Education Services’ was put into force (Official Gazette No. 26184 May 31, 2006) that expressed the planning and implementation of special education services. A more recent legislation is the Public Law 5378: Legislation on Disability. Amendments on former laws and decree laws was adopted on the 1st of July 2005 by PL-5378. It is referred by many authorities, NGO’s and academicians as a very important step/support for making the necessary arrangements to allow full integration of people with disabilities within the society. Although legislations provided above provided legal foundation for mainstreaming/inclusive education, some resistance is reported. Negative attitude from parents, teachers and administrators is the challenge for the implementation of well-structured legal foundation.

Inclusive education in its broadest explanation means an arrangement where children with special needs receive educational services together with their typically developing peers in the same classroom/learning environment. After identification and IEP, inclusion targets integration and the offering of educational opportunities for reaching the most appropriate/highest degree of academic, social and personal development. One of the aims of inclusive education (also called mainstreaming in some texts) is developing positive behaviors towards disability and individuals with disabilities. Standard curriculum is followed by all but students with special needs receive support services. Sometimes, adaptations are also made to the teaching activities. Specialized/adapted equipments are used where available and support rooms offer facilitation for an appropriate physical and psycho-social learning environment.

In the Turkish schools and institutions, the maximum number of students to be served in a single classroom is two. This limitation is presented to ensure equal distribution. There are additional regulations on the placement of students with special needs: In a class size of 10
in pre-school and kindergarten, 2 children with disabilities can be served. If the class size in pre-school and kindergarten reaches 20, there can be only be 1 student with a disability. For all other educational levels, class size may not exceed 25 if there are 2 students with disabilities. If there is only 1 student in class, maximum number of students to be hosted in a classroom is 35. All levels of intellectual disability, multiple disabilities, attention deficit hyperactivity disorder, speech and language impairments, emotional and behavioral disorders, visual impairment and blindness, hearing impairment and deafness, physical disabilities, autism spectrum disorder and gifted students all fall within this scope.

Various schools and institutions provide special education for individuals with special educational needs in Turkey. These can be listed as follows (The Ministry of National Education, 2006: 9;article 39 8-9; Regulations for Turkish Special Education Services):

- Primary and Secondary Schools for Individuals with Visual Impairment
- Primary and Secondary Schools for Individuals with Hearing Impairment,
- Special Education Vocational High School for Individuals with Hearing Impairment,
- Primary and Secondary Schools for Individuals with Physical Disabilities,
- Special Education Vocational High School for Individuals with Physical Disabilities,
- Hospital Classes (in the Primary and Secondary Education Level),
- Special Education Applied/Practical Center (for individuals with mild to moderate intellectual disabilities. These students can learn academic and daily living skills),
- Special Education Applied/Practical Work Education Centre,
- Special Education Applied/Practical Vocational Center (for individuals with severe intellectual disabilities. These students can learn daily living skills),
- Science and Arts Centre (gifted education),
- Special Education Pre-Schoolsand Kindergarten (3-6 years old)and
- Special Education Classrooms

The special education programs implemented in these schools are provided hands on experiences (practice) to ensure that all students may acquire vocational skills. In an attempt to strengthen vocational programs in special education and applied/practical experiences, private entities in special education are granted permission to provide special education services. Following the IEP, those who are recommended inclusive education are integrated to the mainstream education. IEP’s are revised every year.

In the 2011-2012 academic year, approximately 171,000 students received inclusive education in schools. The number of individuals who attended special education schools was about 43,000. About 9600 teachers served in the 1166 special education schools, institutions and centers.

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**CENTRES FOR SPECIAL NEEDS**

A crucial part of the educational identification is the The Guidance and Research Centers. The acronym RAM is used for these centers; capital for RehberlikAraştırmaMerkezleri. RAM’s are responsible for the assessment, identification of students with special needs. Moreover, they provide guidance and training programs on the psychological counseling services. Most appropriate learning environment is also determined by the IEP team at these centers. As of September 2012, there are 218 RAM’s in the 81 provinces.
In Turkey, there are more than 55 foundations, more than 11 confederations and 284 associations that serve people with disabilities. These non-governmental organizations (NGO) carry out projects and services, works related to parents’ and teachers’ education, awareness activities, social and cultural events. Among these, several even provide educational materials to be used in classes.

**SHORT AND LONG-TERM DEVELOPMENTS**

Interactive whiteboards and wired Internet connection with multi-functioned printer and documented camera under the component of classrooms’ equipment and software will be provided to all of our schools, tablets will be provided for our every teacher.

In addition, tablet computers will be provided to every student in the second phase of the project. Individuals with the needs of special education related to communication technologies will be met in a relevant method.

For the individuals with the needs of special education; course supporting computer based contents enriched with multi-environmental components such as audio-visual and animation relevant to the curriculum which can be used online or offline will be prepared.

Training will be provided for school headmasters, educational managers and education inspectors to gain information and skills providing active usage of communicative technologies equipment and educational contents related to the individuals with the needs of special education.
PART 2: CASE STUDIES ON THE USE OF SPECIFIC SOFTWARE AND ASSISTIVE TECHNOLOGY

The following case studies follow a similar format and show how young people with a range of disabilities are participating in school activities using various devices and tools. Each study provides information under the following headings:

- Summary
- Title
- Authors: profile of those who conducted the case study
- Institution: where the practice was conducted
- Date: Beginning and end of the practice
- Period of observation: Time to gather material for the case study
- Age of the student/s
- Context: Brief summary of school, social-geographic characterization, dimension, no. pupils, school level(s)
- Objectives: General and specific
- Theoretical background: References and in-service teacher training if any
- Methodology: How the material was gathered, e.g. documentation analysis, observation, discussion, interviews with teachers/headteacher/parents/pupils
- External collaboration (if any)
- Student characteristics: ICF (International Classification of Functionality) - condition of functionality and participation, IEP (individual educational programme), curricula adaptations, assessment adaptations
- Assessment (in some cases): pupil ICF referral - eligibility for SEN support / assistive technology needs assessment / formative-summative assessment / exams (adaptations)
- Pedagogocial situation: description of tools and resources used in specific pedagogical activities by SEN pupils, observation of teacher/pupil use, purposes, achievement, schoolfellows support/interaction
- More about the case study: Website, videos, slideshare, materials, etc.
MAX – LONGITUDINAL STUDY OF A CHILD WITH TETRAPARESIS

SUMMARY
In 1999, the Austrian organisation LIFEtool conducted the first counseling interview of Max, a child with tetraparesis who was then 4 years old. In the beginning the general objective was to prepare him for his school career. Later, a focus was put on the use of computers as working equipment. This study describes the work of LIFEtool in Max’s case, the counseling they did and the training they offered. In addition, some information about important hardware and software Max has been using since his early childhood and about his professional training and career is provided.

Case studies on the use of specific software and assistive technology
Theme: «School practices on the use of digital tools and resources by/with SEN pupils and teachers»

TITLE OF THE PRACTICE
Longitudinal study of a child with tetraparesis

WHO CONDUCTED THE CASE STUDY?

- Parents
- LIFEtool employees/consultants
- Teachers working at the school in St. Isidor and at the SPZ (SonderpädagogischesZentrumfürkörperbehinderte Kinder/special education center for disabled children)
- Care workers at the Virtual Office training center
- Care workers at the EDV Werkgruppe (computing working group)

INSTITUTION WHERE THE PRACTICE WAS CONDUCTED
LIFEtool gemeinnützige GmbH - Beratungsstelle
Linz Hafenstraße 47-51, 4020 Linz
Tel. +43 732 99 70 56
www.lifetool.at

DATE (BEGINNING AND END OF THE PRACTICE)

- January 1999
- Consultation appointments from 2000-2012

PERIOD OF OBSERVATION (BEGINNING AND END)
As the study was conducted longitudinally, the period of observation extended from January 1999 to July 2012.

At the beginning of the training, Max was 4 years and 6 months old; now he is 19 years old.

Regarding school attendance of children with a physical impairment, a “SonderpädagogischerFörderbedarf” (Special educational need) has to be determined. This is done by a medical expert opinion stating that the motor development of the child lags behind considerably. Other relevant criteria include the need of support by another person in everyday life and partly also the use of assistive technology. Schools provide individual support plans for these children.

In Austria, children with physical impairments (or rather their parents) are free to choose between attending special schools (which are exclusively attended by children with physical impairments) or integration classes where children with SEN are taught together with non-disabled students. Changing schools is possible at any time – parents of children with SEN are supported in this decision by the regional and cross-regional SPZs (SonderpädagogischeZentrenfürkörperbehinderte Kinder/special education centers for disabled children).

Employees of these SPZs contact the parents of disabled children well before their school enrolment (which is no earlier than at the age of 6) to provide support in the transition from kindergarten/home to school. A particular focus is put on the best possible preparation for the choice of schools.

In many cases, choosing between special schools and schools with integration classes is very difficult for parents. The decision is usually influenced by practical considerations (e.g. school proximity) as well as by personal attitudes and fears (stigmatization).

In Austria there are about 3,200 primary schools; 321 of them are (also) special schools (Cf. data by Statistik Austria; 2010/11). At the moment, there are about 81,000 first graders. There is no explicit data regarding the number of children with SEN. However, in the literature it is stated that about 0.5% of all children have any kind of physical impairments. This equals to about 400 children who start school.

For children attending special schools, eight years of education are compulsory (9 years if the polytechnic year is considered too) – this is usually between the ages of 6 and 15. Children in special schools can also work with school integration assistants. However, they are not legally entitled to this.

Transport to and from school lies in the responsibility of the school providers.
In the beginning, the general objective was to support Max in improving his personal requirements for school attendance. Later, another focus was put on the use of computers as working equipment. In particular this included:

- Controlling a computer by keyboard and mouse
- Communication by the use of computers
- Playing on a computer
- Studying and learning cultural skills such as written language, arithmetic,...
- Doing homework, exams, tests,...
- E-mailing and using the Internet
- Later: Working with the computer, particularly using MS Office applications

LIFEtool employees trained Max's parents and teachers alike and introduced them to the relevant tools. For Max himself, the training and introduction was rather easy as the chosen tools were not very complex and could be used by Max without any problems and most of the time without any maintenance needs.

In general, frequent changes of the responsible care worker have proven to be a big problem – especially when it comes to people using complex speech processors. LIFEtool does offer trainings frequently but unfortunately a lot of knowledge gets lost when changing staff. However, this was not the case for Max.

This case study is a longitudinal study. It considers the experiences of the first consultation appointments and a lot of feedback from parents, teachers, trainers and care workers from the last 15 years.

**THEORETICAL REFERENCES AND IN-SERVICE TEACHER TRAINING**

The SPZ supported the school preparation of Max.

**METHODOLOGY**

**EXTERNAL COLLABORATIONS (WHEN THEY EXIST)**

- SPZ Sonderpädagogisches Zentrum für körperbehinderte Kinder  
  J. G. Herder- Landesschule  
  St. Isidor 17  
  4060 Leonding  
  http://schulen.eduhi.at/herderschule/spz-neu/startseite.html
  # The SPZ supported the school preparation of Max.

- Landessonderschule Leonding III und Polytechnische Schule  
  Johann G. Herder - Landesschule für bewegungsbeeinträchtigte und körperbehinderte Kinder  
  SKZ: 410053  
  Sankt Isidor 17, 4060 Leonding  
  Telefon: 0732 / 67 42 96 - 74 66
When Max was born, he was diagnosed with cerebral tetraparesis. This meant that he could neither use his legs nor his arms purposefully. Grabbing, walking and many other motor skills were impossible for him to learn.

Another problem was Max’s almost entire lack of speaking skills. The words he tried to form could practically not be understood by anyone with the exception of his parents.

In general, it was very hard to estimate Max’s cognitive skills. As he was not able to express himself motorly or linguistically, making a diagnosis or prognosis was virtually impossible.

However, in everyday life it became more and more obvious that Max understood a lot of the things happening in his surroundings. For example, his parents recounted that Max laughed at the right points of a conversation – for instance when someone made a funny remark.

In general, Max was (and is) a very cheerful person, a trait that has helped him a lot throughout his life.

Max went to kindergarten and attended speech therapy to foster his delayed verbal communication. However, his parents did not expect any considerable improvement in terms of his motor skills due to the opinions and statements of medical experts. His uncontrolled movements were partly reduced by strapping him into an adaptive stroller. Soon a cure was out of the question. Max will be (electric) wheelchair-bound for all his life.
At that time, Max’s father went on a business trip to the USA. There he found out about ways of using computers to assist disabled children. After his return to Austria, Max’s family mentioned this to the employees of the SPZ in Linz. At the same time, LIFEtool opened their first advice centre in Linz.

In 1999, LIFEtool conducted the first counseling interview of Max, his parents and the responsible care worker of the SPZ. Max’s anamnesis, the goals and little by little also the possibilities offered by computers at that time were discussed.

The professions of Max’s parents proved to be very favourable in this context. Max’s mother is a primary school teacher, his father is a constructing engineer. In addition, his family has built a strong network with families of other disabled children and they are very well-integrated in the social life of their home town. Thus, they were able to support their son very well and to do more for him than what was common practice at that time concerning children with severe disabilities.

Many counseling interviews dealt with finding ways to help Max to work with a computer despite his impairments. A conventional mouse and keyboard could not be used in his case – this was found out without a doubt both at home and in the counseling interviews. Because of that, alternative input devices which were available at that time were tried and tested out. Even though Max could not read yet at that time, it became clear very soon that big keyboards were not suitable for him. The large number of keys proved to cause too many errors.

Because of that, the search for an extra big mouse emulation started. There were several alternatives available. By trial and error, the decision was made in favour of an extra big key mouse – each of the four direction keys has a width of more than 10 cm! The mouse was hand-made by a Bavarian producer. It weighs several kilos and is designed to endure rough movements because of its very robust type of construction.

Training started at home. At the beginning, the training units were not longer than 10 minutes. After that, Max was physically so exhausted he was not able to concentrate on the screen anymore. In this context, an easy software called “CatchMe” (cf. annex) proved to be very useful. “CatchMe” is an easy software which shows successes even in the case of small correct movements and made it easier for Max and his parents to overcome this first, extremely effortful phase.

In addition to Max’s “small” improvements in terms of him being able to navigate to requested goals faster and faster, one thing became very evident: Max was able to understand the software’s assignments thus making it clear to everyone he had the cognitive abilities to do so easily. In fact, the assignments he had to fulfill (navigate to set goals with the computer mouse) were boring for him because they were too easy. Nevertheless, this phase lasted several months.

Because of Max’s successful work with the key mouse and the training software, operating a computer with a mouse – a mouse replacement device – was possible. Max was able to work with any “normal” software as long as there were no keyboard inputs necessary.

Max practiced using a computer intensively until he started school at the Landessonderschule Leonding III. His computer and his key mouse were a means of being
independent and of being able to express himself. For his parents and his teacher this was a proof of Max’s extreme mental capability despite his major physical impairments.

In the first grade, a focus was put on learning letters and numbers. An on-screen keyboard was (and still is) very helpful in this context. The key mouse is used to navigate to and click on the requested letter or number on the on-screen keyboard. Of course it was very helpful that Max was able to operate the computer with a computer mouse very well already.

Thus Max was able to learn and to practisewritten language and elementary arithmetic. In that context, software with built-in on-screen keyboards was used as it does not cover parts of the screen like conventional on-screen keyboards usually do.

For example, the following programs were helpful for Max:

- To learn how to read and to write: Hanna & Co Plus (Cf. annex)
- To learn arithmetic: Archimedes (Cf. annex)

While Max was at school, the software Multitext (cf. annex) was used as an on-screen keyboard. It also offered writing assistance and functionalities supporting arithmetic operations. For example, it made it possible to write calculations underneath the other or to enter text from right to left when adding up figures. The teachers working in Max’s school were trained for the use of this comprehensive software by LIFEtool employees.

In addition to the tools used at school, it was very important Max also was able to do homework – just like any child. He did that with a notebook computer. As the key mouse he used is rather difficult to transport, it was purchased twice – for use at school and at home.

In addition to the leaning software he used, Max was especially interested in using the Internet and in e-mailing. As he was able to express himself by using his computer keyboard (the software Multitext allows text-to-speech output), he was able to communicate with other people even if they were located far away.

Even though this was Max’s actual objective of using computers, he started loving them in general and spent most of the day in front of them. Thus, his knowledge of computers grew and soon he was far ahead of his classmates (and some of his teachers).

This was very important for his self-confidence. Even though he was inferior to other children in many things, he was ahead of them in this – very important – context.

Max was able to leave school after he completed compulsory education. As he spent a lot of time with computers and had a lot of computer knowledge, further training in that field was predetermined.

After the end of his formal education, Max participated in “Virtual Office”, a qualification measure founded by the province of Upper Austria. The goals of the three-year-long training included (translation of the leaflet of this institution, cf. annex):

Emphases of the training in Virtual Office:

- Word processing, presentations, spreadsheets
Max completed the training without problems, he was able to deepen and consolidate many of the skills he had already acquired beforehand. In addition, he gained a lot of confidence in dealing with people in a new working environment.

Max kept on working with his key mouse not only throughout his time at school but also during his training at Virtual Office. While he was at school, other tools (computer mice, keyboards,…) were tried without more success. The person responsible for tools in the training center tried to find alternatives too but she did not succeed either. Even though Max learned to use his computer mouse much more effectively— he used less strength and was able to work with it more precisely— no other tool proved to be more suitable for his needs as he kept suffering from a strong spasticity. However, the fact that his key mouse did not have to be repaired yet shows the quality of this device.

The only thing which worried Max and his family was the insecurity concerning Max’s future after this temporary initiative.

Unfortunately it was not possible to find a job for Max on the regular labour market. Shortly after Max completed his time at Virtual Office, he was offered a job in a computing working group of the Diakoniewerk. Max has been working there for about a year together with about 12 fellow employees with mostly physical impairments.

The work of these employees includes (translation of the leaflet of the working group, cf. annex):

- Office and paperwork
- Assisted communication: Creation of symbol boards
- Design of invitations, business cards,…
- Internet research, e.g. price comparisons
- Scanning services (slides, negatives, photos)
- Video to DVD transfer
- Computer services: repairs, configuration of laptops and computers, software installation
Max is a very popular employee because he is very friendly, cheerful and helpful. His disability affects his whole life. He still needs his wheelchair and a lot of help in his daily life. His impairments in terms of speech communication affect how he deals with strangers. However, Max can be understood well if people take enough time.

Whenever Max is working on his computer, operating software with his key mouse or writing e-mails, everyone appreciates his work. In principle, he has the chance to keep on working in his job for a long time.

Description of the key mouse e.g. http://shop.platus.at/elefant5

CatchMe: http://www.lifetoolsolutions.at/DE/?cwsstructure=10043&page=shopArtikelDet&artkey=10825&preiskey=291*
and http://www.mayer-johnson.com/catchme-2-0


Das Tor des Archimedes: http://www.lifetoolsolutions.at/DE/?cwsstructure=10043&page=shopArtikelDet&artkey=10572&preiskey=38*
and http://www.mayer-johnson.com/archimedes

Multitext: http://www.hindelang-software.de/

LOUIS – COMPUTER USE, COMPENSATING AND ASSISTIVE SOFTWARE IN SECONDARY SCHOOL FOR PUPILS WITH SEVERE DYSLEXIC PROBLEMS.

SUMMARY
In this case study we researched the use of the computer, compensating and supporting software for a gifted child with severe dyslexia in the secondary education (first degree). Eureka Leuven carried out the analysis observation in association with the school. Methodology concerns a documentation analysis, vast observation of the student and interview with the teachers and parents. The targets for the student were:

- The use of the computer with orthography control and text-to-speech software in the class
- The use of digital learning books
- Integrating assisting software while studying.

With these appliances the student can work independently in secondary education without adaptations in the curriculum. In the case study we discuss a number of resistors concerning the use of the computer and how they were handled. Thanks to the use of the computer the boy can follow a study of his interest and at his level of intellectual capacities. Class TV, an initiative of the Flemish government, made an educational reportage where the boy, the teacher and the mother tell about the use of the computer in the class.
Theme: «School practices on the use of digital tools and resources by/with SEN pupils and teachers»

LOCATION

Belgium, Leuven (3000)

RESEARCH TITLE

Computer usage, compensating and assistive software in secondary school for pupils with severe dyslexic problems.

TEAM PROFILE

Eureka Leuven, Diestsesteenweg 722, 3010 Kessel-lo (Leuven)

Profile Eureka school: innovative knowledge and expertise centre. Unique in Flanders and Europe, specializes in approach to and prevention of learning disabilities.

- Intensive daytime education for normally gifted pupils with severe learning disabilities;
- Accredited, non-subsidized;
- Powerful education, stimulates entrepreneurial spirit;
- Holiday courses;
- Diagnostic services and advice;
- Seminars.

INSTANCE(S) WHERE IT WAS PUT INTO PRACTICE

Eureka Leuven, Diestsesteenweg 722, 3010 Kessel-lo (Leuven)

Heilige-Drievuldigheidscollege, Oude Markt 28, 3000 Leuven (Algemeen Secundair Onderwijs)

DATE (START AND END OF OBSERVATION PERIOD):

Start observation period: September 2005
End observation period: June 2012

PERIOD (START AND END)

Because of severe learning disabilities Louis Verlé (°02/09/1998) attended his second (2005-2006) and third (2006-2007) year of primary school at the Eureka School. Louis learnt to compensate his learning disability by using a laptop, spell checker and text-to-speech software during classes. After 2 years he transferred back into the mainstream school system. He went to individual therapy sessions (1h/week) at the Eureka School.

Louis attended the first 2 years of secondary school (school year 2010-2011 and 2011-2012) at the Heilige-Drievuldigheidscollege in Leuven. He continued with the remedial therapy sessions at the Eureka School (1h/week) and the parents regularly consulted with the teachers and SENCO.
This case study is primarily aimed at laptop usage in secondary schools. We observed Louis for a total period of 7 years starting from September 2005 till June 2012.

**AGE OF THE PUPIL(S)**

At this moment Louis is 14 years old. We have been following him since the age of 7.

**CONTEXT**

*Family background and early developments of the pupil.*

Louis is the eldest child in a core family of three children. He has a younger sister and brother. Learning disabilities run in the family. Both parents are highly educated. His father is a general practitioner (medical science degree) and his mother is deputy director the Flemish community government (biological sciences degree).

Louis was born via emergency C-section. He had a shortage of oxygen and was followed for a year by a neurologist. Louis was a late speaker and people had a hard time understanding him at the beginning of nursery school. Most of the time he made himself understandable by use of non-verbal language. On the other hand Louis' motor skills developed faster than average (e.g. sitting, walking, ...)

*Scholastic evolution and context*

In *nursery school* Louis had difficulties with remembering colours, children's names, rhymes and verses. In his third year of nursery school he was considered an energetic and nervous little boy who needed to be challenged constantly. Louis could be very emotional and became very easily upset.

During his first year in *elementary school* the SENCO noticed that some underlying learning processes were insufficiently developed. These findings, in addition to the noticeable severe automation problems in reading and writing, led to the decision of taking Louis to a speech therapist in January 2005. Extra intelligence tests were carried out by the VCLB of Leuven (WISC-III: VIQ = 111, PIQ = 137, TIQ = 126).

Louis received a considerable amount of extra support at home and in school. Due to the seriousness of his learning disabilities he was advised to either repeat his first year in elementary school or to transfer to the Eureka School. At home Louis displayed serious behavioural and social-emotional problems (e.g. unmanageable behaviour, low self-esteem, distress, ...), mostly caused by frustration.

Louis attended his second and third year of elementary school at the Eureka School where additional tests showed he had dyslexia/dysorthography. Thanks to modified and compensating techniques and skills Louis was able to catch up. Louis used a laptop and text-to-speech software (Sprint). He became very proficient in the use of the software and he was extremely motivated. Louis also received optometric therapy (due to under convergence) and a medical treatment with Rilatine to keep his attention focussed. His eagerness to learn and his self-esteem returned and he successfully re-integrated into the fourth year of a mainstream elementary school with a head start.

Louis attended secondary school at the Heilige-Drievuldigheidscollege in Leuven. This school only offers general education and is known for its high standards. Most classes comprise
between 20 and 25 pupils. Louis ended his first year with an A-grade. In his second year he
switched out of Latin into Modern sciences where he also obtained an A-grade.

GOALS regarding pupils with severe dyslexia in secondary school:
- computer usage with spell checker and text-to-speech software (Sprint) during class,
tests and finals;
- Usage of digital versions of textbooks via ADIBib;
- Enabling supporting software when studying (e.g. digital dictionary, Overhoor,..)

REFERENCES
In 2007 Eureka Die-'s-Lekti-kus developed the folder, 'The computer, my surfboard while
studying'. This folder stimulates teachers and tutors to support children with a learning
disability by using ICT ' to bridge the gap between disability and ability. The folder comprises
many useful tips and step-by-step guides. All Flemish schools and educational organisations
received a free copy.


Eureka ADIBib was the sequel to this folder (2008). Eureka ADIBib makes text- and
workbooks digitally accessible to pupils with an impairment in written communication:
www.adibib.be. Eureka ADIBib is subsidized by the ministry of education. ADIBooks are only
available for children with one of the following certificates: GON, special education (type 1, 3,
4, 6 or 7) Dyslexia or Dyscalculia. Children and adults with reading disabilities have access
to audio books through the Flemish public library www.luisterpuntbibliotheek.be.

In collaboration with the Flemish department of education, Gelijke kansen in Vlaanderen and
Eureka Die-'s-Lekti-Kus a brochure was created: 'Dyslexia-software! What now? Source of
inspiration in the implementation of ICT-aids within the framework of the school's SEN policy'

Its main goal is to disseminate the broad vision on policy and implementation of ICT-aids
within a school's SEN framework. It also includes tangible tools about how ICT-aids can be
actively integrated in the short term.
http://www.ond.vlaanderen.be/leerzorg/nieuw/dyslexiesoftware.htm

METHODOLOGY
This case study is based on the analysis of various documents: evaluation reports (e.g.
speech therapy, optometry, test and observational data of Eureka School), school-related
documents (scores, tests ...) and correspondence between parents and school. In addition
we were able to extensively observe our pupil (in school, during individual therapy sessions)
and had discussions with his teachers and parents on a regular basis.

SEN-PUPIL PROFILING
Louis is a gifted boy with severe learning disabilities: dyslexia and attention disorders. We
notice a significant discrepancy between his strong performance skills (highly-gifted) and his
average verbal skills. Louis requires medication, Rilatine, to keep his attention focussed. His
learning disabilities mainly impact his participation in the scholastic environment. There are no noticeable effects socially or during his free time. Louis also is in perfect health.

We consider Louis to be an inquisitive, self-assured boy with a large amount of practical insight and self-reliance. His eagerness is partly dependent on his close environment' understanding of the situation (teachers). He has the necessary verbal skills to ask for help if needed. Louis is being raised in a highly-educated, communicative family that provides sufficient opportunities on a pedagogical, social-emotional and material level. Louis is not the only child with learning disabilities in this family. He is not treated differently or “special” because of his condition.

The curriculum of the school does little about differentiation. Apart from Louis' problems with languages (cf. pedagogical situation) he gets good to very good grades. In spite of his dyslexia, Louis is very interested in literature. He uses audio books.

Thanks to the computer usage in class with spell checker and text-to-speech software Louis is able to work fairly independently. Louis uses ADIBooks. At first some teachers at his secondary school (e.g. his French teacher) had their doubts about Louis' capacities and his computer usage. Therefore meetings with his parents and Eureka were necessary. As teachers got a better sense of Louis' skills, Louis became more motivated (with positive effects on his grades).

In the beginning Louis' parents and Eureka intended to let him use a laptop during each class. However the school decided his laptop could only be used in language courses. Louis didn't really experience substantive problems in other courses plus spelling errors wouldn't be accounted for. At home Louis practices vocabulary of foreign languages with Overhoo, a free computer software program. He did require help from teachers/parents to download/insert the glossary. Every year there were several 'specific measures' meetings. Each test or exam had to include the specific compensating measure that applied (at the request of the school management). (cf. pedagogical situation.)

Implementing STICORDI-measures in classrooms is still partly dependable on the goodwill of the different teachers in secondary school. During deliberation all teachers have a vote. The advice of the school management is not binding.

Eureka regularly reminds the schools of the provisions for children with LDs in existing legislation (ICT final terms, UN-treaty regarding rights of disabled people, Flemish equal opportunities policy). The usage of a computer as a compensating aid in the classroom for pupils with learning disabilities is considered a right.

Agreements regarding computer usage in secondary school were made in the following pedagogical situations:
In class and during courses:

- Louis uses a laptop during Dutch and French courses. With spell checker and text-to-speech software he is able to increase his pace;
- Louis completes small tests and mid-term exams on a computer as much as possible for French, Dutch and Latin. A teacher brings along a memory stick with a digital version of the test. Then Louis completes it by using spell checker and text-to-speech software. In the end the teacher prints out his test;
- Teachers must be aware that long and unfamiliar words can be very difficult for Louis. This is also true for long texts.

During finals:

- Louis completes all finals in a specially arranged classroom. Management makes sure he is placed near an electrical outlet to plug in his computer. Tutors understood the apparent advantages (e.g. quieter) but still lacked basic knowledge about dyslexia-software;
- Louis can complete his finals Dutch and French on his laptop. He is allowed to use spell checker and text-to-speech software (using headphones);
- His English finals are split up in an oral and written exam. His teacher experimented with grading but still followed some strict rules (e.g. -0,5 per spelling error instead of -1 for his classmates). At the end of the year Louis was allowed to complete the written exam on his computer;
- Teachers bring along both a memory stick with a digital version and a paper version of the exam (in case of a technical or electrical breakdown). When Louis has completed the exam, teachers print it out and correct it on paper;
- When Louis is allowed to use a laptop, he is expected to arrive ten minutes early, so his laptop can be installed. Ideally he should remove all Dutch and French courses from his computer. If this is impossible due to practical reasons, they count on his honesty. He is not allowed to open other documents (this can be monitored by the supervisor). At frequent intervals, and certainly when his exam is completed, Louis has to save the document on a teacher’s memory stick (not on his laptop). At the end the memory stick is handed over to the supervisor.

These extra measures were the only ones given to Louis. He did not take part in the buddy system while in secondary school. Louis was always well integrated in his class socially. Because of his laptop usage Louis’ learning disabilities were instantly ‘visible’ for his fellow pupils. Klasse TV, an initiative of the Flemish ministry of education, made a documentary ‘This is what I have: Dyslexia’ wherein Louis tells his story. It received a lot of positive reactions.

Although Louis is hindered by severe learning disabilities, he was able to successfully complete the first 2 years of secondary school thanks to the use of a laptop, spell checker and text-to-speech software. Louis has now moved to a school where he is finally able to follow courses that fit his intellectual capabilities and keep him motivated.

**LINKS REGARDING THIS CASE STUDY**

Reportage TV Klasse ‘This is what I have: Dyslexia' [http://www.klasse.be/tvklasse/19212-Dyslexie](http://www.klasse.be/tvklasse/19212-Dyslexie)
17-year old Jakob Rosin has been visually impaired since birth. He has studied in the same school – Tallinn’s Old Town Educational Collegium since 1st grade and always according to the mainstream program. The school appreciates differences and specialness; there are studying pupils with very different special needs. There are 4 visually impaired pupils studying in Tallinn's Old Town Educational Collegium and they all have teacher assistants. Jakob needs assistance mainly in mathematics, chemistry and physics, in half of the subjects he can manage on his own. After going to the classes with Jakob and conducting an interview with him it can be said that he’s an ordinary teenager living an ordinary school life except that he needs some support and assistive technology to acquire all the knowledge.

In the classes Jakob uses

- Laptop with earphone: it’s one of the most important assistive tools for Jakob. In the laptop he summarizes the teacher’s lecture and uses digital study materials. From the earphone Jakob gets feedback to the text that he has typed in.
- Braille display and screen reader: with screen reader Jakob gets to know what is on the screen. It enables to use Internet, communicate with friends, and create documents etc.
- Portable scanner camera: the scanner program Open Book Pluss is especially adapted for the visually impaired. It makes an image of the page and starts reading it aloud.
- Talking calculator which fulfills all the mathematical functions.
- Braille machine: Jakob uses it in mathematics lesson because in Estonia there doesn’t exist digital Braille version to all the mathematical symbols.
- Digital voice recorder: it’s a good tool if Jakob does not have the chance to use computer. It’s good to use it for digital recordings as well to listening to music. Jakob uses the voice recorder for his hobby as well – he records sounds and creates radio dramas.

Case studies on the use of specific software and assistive technology
Theme: «School practices on the use of digital tools and resources by/with SEN pupils and teachers»

TITLE OF THE PRACTICE:

Ordinary teenager living an ordinary schoollife?

ENTITY/TEAM/PERSON(S) WHO CONDUCTED THE ANALYSIS-OBSERVATION/PROFILE

Merje Pors, Tiigrihüppe Sihtasutus, Koolielu portal editor.
Pille Tina-Kuusik, Harjumaa Õppenõustamiskeskuse speech therapist, SEN teacher and digital content author.

INSTITUTION WHERE THE PRACTICE WAS CONDUCTED

Vanalinna Hariduskolleegium, Tallinn, Eesti

DATE (BEGINNING AND END OF THE PRACTICE)

18.05.2012-24.08.2012

PERIOD OF OBSERVATION (BEGINNING AND END)

Interview on 18th May 2012 with student Jakob Rosin and his assistant teacher Merike Kaljujärv.

Interview on 24th August 2012 with the school principal Kersti Nigesen.

AGE OF THE PUPIL:

Jakob Rosin, 17
Born on 10th February 1995

CONTEXT

Old Town Educational College (Vanalinna Hariduskolleegium) is a municipal educational institution. Its main aim is to integrate culture, education anda modern world view with deepened sense of history; to combine general education with specialization in music and art as well as education in national culture with advanced foreign language studies. It is based on the traditional Christian value system.

Number of students: altogether there are 923 students, 817 of them attend regular classes, 58 attend classes for pupils with emotional and behavioural disorders, 27 attend small classes, 13 attend catch-up classes and 8 pupils study on an individual basis (data as of 26 September 2011, source: Tallinn Education Department).

The Old Town Educational College values being different and extraordinary by accepting pupils who would otherwise attend special schools (most of them study at Saint Miikael School, which is a subordinate unit of the Old Town Educational College). The spectrum of special needs is very wide – there are pupils who can’t study with others in the same building and an unusual solution has been found for them – for example, they get to study in the principal’s office.
In the Old Town Educational College it is considered important to monitor the pupils' development regularly. Twice a year the teachers give the pupils expert evaluations on their academic ability, motivation for studying the subject and their attitude towards fellow students. Every three years the dynamics of abilities and personality is examined. For pupils belonging to the crisis group a health board including the school board members, a psychologist, headteachers and managers of the extra-curricular unit has been formed. “With this kind of conditions having been developed, there is no problem to include these children in regular classes,” says the school principal Kersti Nigesen.

Including pupils with special needs in regular classes requires systematic observation – no important change must be missed. At the moment there are 3.5 positions for psychologists and a 0.5 position for a social worker. There are four blind pupils studying at the Old Town Educational College and they all attend regular classes. They also have assistant teachers. Jakob doesn’t need an assistant teacher in all the classes anymore and therefore his assistant teacher’s work covers 0.5 position.

**THEORETICAL REFERENCES AND IN-SERVICE TEACHER TRAINING (IF RELEVANT)**

**Preparation of teachers**

In co-operation with the Tallinn Helen School (where children with hearing, seeing and combined disabilities study), training for teachers and assistant teachers teaching pupils with seeing disabilities has taken place, but unfortunately not all the teachers have attended the training courses. A psychologist has also prepared the students – for example, regular class students have been given exercises to try to perceive the life of a person with seeing disability.

Jakob’s assistant teacher Merike Kaljujärv says that teachers need to be retrained from time to time. "It is like giving first aid – after passing the course you feel like you know everything. Some time passes and the knowledge start to fade. So you have to retake the course and you will remember everything again," says Kaljujärv. An assistant teacher has drawn up a two-page memorandum for pupils and teachers, where the main points to be considered when working with a blind child are summarised. For example, you are reminded that you have to talk while writing on the blackboard. It also has to be remembered that a regular textbook that has been transformed into Braille consists of up to 12 volumes (depending on the subject) so it is important to let the blind pupil know early which chapter is going to be discussed in the next class.

**METHODOLOGY**

Interviews with the student, assistant teacher and school principal; class observation.

Articles, web pages:

- Homepage of the Eyesight Devices Centre called Silmalaegas: [http://silmalaegas.laegas.ee/](http://silmalaegas.laegas.ee/) (09/06/2012)
• Tallinn Education Department’s statistics concerning the number of pupils in schools: http://www.tallinn.ee/est/haridus/Koolide-statistika (09/06/2012)
• Homepage of the Old Town Educational College, http://www.vhk.ee/tutvustus/ (09/06/2012)

Photos: Pille Tina-Kuusik

**PUPIL(S) CHARACTERISTICS**

17-year old Jakob Rosin, a 10th grade pupil studying at the Old Town Educational College (during the interview and observation Jakob was still in 10th grade) has a congenital seeing disability. He has attended regular classes at the Old Town Educational College from the 1st grade (before school he attended a special class for children with seeing disabilities in kindergarten where he learnt Braille) and has been studying with the regular curriculum. A white stick in one hand and a Braille machine suitcase in another, a laptop bag on the shoulder and often holding some textbooks – this is how Jakob looks like when moving around in school. He used to wear 7-8 kilograms of studying material on his shoulders so that the school bag zippers couldn’t even be closed anymore – for different subjects many volumes of Braille textbooks had to be taken to school. Now for several subjects electronic material has also been developed and that makes Jakob’s life somewhat easier.

Jakob needed an assistant teacher mostly in maths and science where one often has to work with different figures and diagrams that the teacher draws on the blackboard. The teacher has to observe that, when needed, he/she has to explain things to Jakob instead of his assistant teacher, and that the expressions he/she uses would also be comprehensible for a blind pupil (for example, it is not enough to say “now from this row I’m taking this and putting it in that row”, “the vector points this way”, etc.).

Having attended classes with Jakob, it has to be said that one of the most important characteristics an assistant teacher needs to have is creativity. In physics class the teacher started talking about a pendulum and the assistant teacher reacted right away by taking a pen and imitating the moving of a pendulum from right to left. In math class, to give an overview of vectors, the assistant teacher used sandwich sticks. Jakob, on the other hand, has to be good at multitasking in addition to being creative. In classes he listens to the teacher with one ear, in the other ear he has an earphone where every now and then he has to listen to know how much he has managed to write in his summary. “And meanwhile you also have to be on Facebook and MSN,” adds Jakob. “It is phenomenal how all these activities meet in the brain,” says the assistant teacher, Merike Kaljujärv.

For Jakob it is important to study in a regular class – this gives him a chance to communicate with regular young people his own age and do something with them also out of classroom. “I feel it integrates me with society – I get to communicate with regular people who you will have to get into contact with anyway. If you attend a special school, you see that the people there are still a bit different, they also have different needs. If you have attended a special school and are suddenly forced to live in a society where you have to survive by counting on yourself only, then it is inevitably a very big change.”

Integration with the so-called regular youngsters depends a lot on the classmates but obviously also on Jakob himself. “In the morning after taking my clothes to the cloakroom I
head for the classroom. In front of the class I think to myself whether there is someone there or not. One of the biggest problems seems to be that you have to count on others to come and speak to you. Either people are talking within a group and I feel I don’t want to break in on them, or they are silent and then ‘they don’t exist,’” is how describes Jakob his school day in a newsletter for blind people. Luckily Jakob has an open nature and, as the assistant teacher says, he is also a pathfinder for other blind pupils studying in younger classes of the same school.

Jakob is a boy with many interests and has more hobbies than many so-called regular youngsters. For example, he takes his voice recorder with him to different events and records everything the same way others take pictures. His hobbies are swimming and creating radio dramas and he is also taking piano lessons and performing on the piano. Jakob has many plans for the future that tend to change over time. Right now he is toying with the idea of studying journalism after secondary school.

ASSESSMENT

By using ICT tools Jakob is studying according to the regular curriculum. Technical tools needed for studying have been provided by his family.

To study in school Jakob is using the tools listed below:
- laptop with earphone
- Braille display
- portable scanner camera
- talking calculator
- Braille machine
- digital voice recorder

**Laptop with earphone**

In most school classes, the most important devices helping Jakob are a laptop with earphones and a Braille display. Jakob uses the laptop to type the teacher’s words and fill in the exercise book; he also uses the French e-textbook and exercise book. In secondary school, electronic study material has been ordered also in other subjects. This enables the pupils with seeing disabilities to find the needed material quickly. Through earphones Jakob gets feedback on the text he has typed, but it doesn’t give information about mistakes in the text (punctuation marks, capital letters, indentation).

**Braille display and display reader**

The Braille display enables smooth movement within Windows as well as the Mac operating system. The fact
that there are no spaces between Braille character cells makes it easier to read Braille. The Braille rows become useful when Jakob needs to read the text character by character.

The display reader JAWS uses a voice synthesizer to announce what is on the screen, allowing a completely blind person to work on the computer. With the help of JAWS, a person with seeing disability is able to surf the Internet, send e-mails, communicate with their friends in virtual social environments, draw up documents, use spreadsheets etc. With JAWS comes a multilingual voice synthesizer that also works with the Estonian voice synthesizer “Kalev”.

**Portable scanner camera with text identification system OpenBook Pluss**

A Portable scanner camera with text identification system OpenBook Pluss is a wonderful system for identifying texts and reading with a synth voice. To scan the texts, one must place the printed text under the scanner. After pressing the space button the program starts to identify the text silently and quickly. After that, the text will be read aloud, and the reading pace can be regulated. Open Book enables the text in the computer to be saved as a text document, a sound file or a picture. Open Book is a self-speaking program that also has a Braille function.

**Braille machine**

Jakob uses the Braille machine in the maths class since, in Estonia, an electronic version of Braille has not been developed for all mathematical symbols yet.

**A speaking calculator**

A calculator with a speaking function can perform all basic mathematical functions. In addition, the calculator has a memory (this means that numbers can be recorded and played back). It also has a clock, date and alarm and it converts currency, length, temperature and cubage data.

**Olympus Digital voice recorder-MP3 player**

A voice recorder comes in handy when it is not possible to use the computer. It is suitable for creating stereo recordings as well as listening to music. A voice recorder can play files in different formats and therefore it is suitable for writing notes and listening to music.
Jakob uses it for his hobbies – for recording sounds and creating radio dramas.

**Grading and exams**

The teachers don’t differentiate between Jakob and his fellow students. Special conditions have to be applied when taking the exams – for some of the exams an electronic version is requested for Jakob and in the case of math exams, a version in Braille.

**LINKS**


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**ITALY**

**PAOLO – CONNECT TO REDI**

**SUMMARY**

The case study deals with the story of Paulo, a 18-year old student suffering from a severe leukemia that obliges him to stay at home or in hospital for the most part of the school time. However, his school attendance is guarantee thanks to the joint efforts of the school personnel, the local authorities and associations. An Interactive White Board is installed in Paolo’s classroom and a dedicated broadband is assured between the class and Paolo’s house so that Paolo can be always connected with teachers and classmates thorough a Skype connection. Paolo succeeds in the final exams and can also participate in the school trip with his classmates, who have supported him with homework and notes.

**Video with English subtitles:**

[http://www.universalsubtitles.org/it/videos/ZpH8u76wdRNX/info/connect-to-redi/](http://www.universalsubtitles.org/it/videos/ZpH8u76wdRNX/info/connect-to-redi/)

**Case studies on the use of specific software and assistive technology**

Theme: «School practices on the use of digital tools and resources by/with SEN pupils and teachers»

**TITLE OF THE PRACTICE**

“Connect to Redi”

**ENTITY/TEAM/PERSON(S) WHO CONDUCTED THE ANALYSIS-ObservATION/PROFILE**

**INDIRE**

Patrizia Lotti, degree in semiotic and communication, is a researcher at Indire since 2002. Her research themes are accessibility and web usability, inclusive education and ICT issues.
Silvia Panzavolta, psychologist, is a researcher at INDIRE since 1998. Her research themes are educational documentation, information architecture, multimedia and crossmedia, social networking and shared knowledge construction in schools.

Antonella Turchi, degree in Political Sciences, is a researcher at INDIRE since 1991. From 2005, she has been responsible for the Documentation Section of the organization and co-ordinator of the Italian Eurydice Unit.

Liceo Scientifico “Francesco Redi”, via Leone Leoni 38 Arezzo (Italy) - ARPS02000Q@istruzione.it

Project leader: Prof.ssa M. A. Falco; staff meeting coordinator: Prof. A. Valastro.

All the teaching body took part in the project.

Liceo IT technicians (contact person: Mr. C. Esposito) provided advice and prompt assistance in the event of breakdown in communication.

Continuous support from School Director Prof. A. Grotti, expert in network communications.

School year 2011-2012
PERIOD OF OBSERVATION (BEGINNING AND END):
2012

Paolo, 18 years old.

The experience was carried out in the upper secondary school “Liceo F. Redi” in Arezzo. The state-run school which focuses on the teaching of scientific subjects and foreign languages is attended by 1,200-1,300 students. The school is actively committed to projects encouraging students to study science at university level.

In the summer before his final school year, Paolo was diagnosed with a serious illness and was forced to stay away from school for a long period (hospitalisation, home treatment, convalescence). However, the boy immediately expressed his wish to keep up with school activities, if possible with the same rhythm and at the same time as his schoolmates, so as to take and pass the State Exam at the end of his course of studies. Combining the virtual environment with the physical environment of the classroom made it possible to respect Paolo’s rights to health and education as well as his wish to keep working with his class.
Besides, Paolo's schoolmates had an opportunity to participate in an emotionally and culturally enriching experience.

The main objectives of the project aimed at ensuring that:

- Paolo took part in the learning activities
- he could share the same timetable as his schoolmates
- he could feel he was part of the class
- he could take tests at home, at the same time as his schoolmates, unless his health condition impeded this
- he could achieve the curriculum objectives.

**THEORETICAL REFERENCES AND IN-SERVICE TEACHER TRAINING (IF RELEVANT)**

**Teachers' training**

The school was already familiar with using ICT to support a student who, due to a particular type of allergy, had been obliged to stay away from school for long periods. Therefore it had experience in dealing with both the technological and pedagogical aspects, including assessment of the performance of a student with special needs. Besides, in the previous school year, several teachers of the class involved had taken part in “Towards school 2.0”, a training course organised by the school itself, focusing on theoretical topics (teaching in the age of the infosphere; collecting information to produce; producing to provide information) and practical topics (using Moodle, sharing documents, bookmarks, images, books; creating quizzes with Hot Potatoes).

**Theoretical references**

According to the analysis of recent experiences, the amazing development in e-learning technologies has enabled the transition from the study and use of its tools to the creation of environments. Now technologies are integrated into the learning environment, making it richer and more rewarding. This semantic and operational transition has made it possible to overcome the difference between physical and virtual environments and to develop a balanced approach between distance communication technologies and face-to-face communication. Reality itself is blended, being the physical and the virtual inherently intertwined. As a result, the use of network technologies in home education makes it possible to meet the constitutional right to education and can trigger reflection in the debate on school 2.0.

This particular experience has enlarged the physical space of the classroom by adopting and integrating network technologies for a precise and “humane” reason, thus overcoming the weakness of other innovative activities which do not involve the user emotionally.

References:

- Silvia Gherardi (ed.), *Apprendimento tecnologico e tecnologie di apprendimento* (Technological learning and learning technologies), Il Mulino 2008
• Anselmo Grotti, *Comunicare. Prendersi cura della comunicazione nel tempo della rivoluzione digitale* (Communicating. Taking care of communication in the age the time of the digital revolution), Ave 2011

**METHODOLOGY**

The case study carried out by Silvia Panzavolta and Patrizia Lotti was based on:

- analysis of textual and audiovisual documentation of the case;
- interview with the school director;
- analysis of the documentation available online.

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**EXTERNAL COLLABORATIONS (WHEN THEY EXIST)**

- The Italian Association against Leukaemia (Associazione Italiana Leucemie) and the Autonomous Committee for Action against Cancer (Comitato Autonomo Lotta Contro i Tumori) donated the IWB;
- a local entrepreneur donated three satellite dishes;
- Telesandomenico, a local television station, helped with video documentation;
- a psychologist who works with the school on a weekly basis provided advice to the teachers involved in the experience.

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**PUPIL(S) CHARACTERIZATION.**

The student regularly had been attending school till the fourth year of his course with good results and had never required any support or assistance for reasons related to illness or impairment.

In summer 2011 he was diagnosed with acute leukaemia. In August he started the first cycle of chemotherapy and he underwent treatment in hospital and at home. The disease and its treatment led to serious debilitation and potential isolation through being far from his friends and acquaintances. All this could have prevented Paolo from attending his last year at school and the number of foreseen absences meant failing the school year. However, he immediately expressed his wish to keep up with the school activities of his class and to share the same time and rhythm as his schoolmates. Therefore the curriculum objectives were not adapted, but it was decided to widen the concept of school “attendance”.

When the project of school integration through virtual connection was approved at the beginning of the school year, 100 hours were allocated for homeschooling to be divided according to real needs. Remedial lessons regarding topics of the school curriculum were to be given with just the presence of the teacher of the relevant subject, while two teachers had to be present if oral or written tests were to be done at home. According to the teachers, the majority of the 100 hours should be spent on Maths, Physics, Earth Sciences, Chemistry and Astronomy, although it was possible to include other subjects. Other 260 hours were planned to prepare digital and multimedia material for use with the IWB in class and handouts and mind maps for Paolo’s personal study.
Besides, Paolo's teachers undertook to send him the handouts, the lesson plans and the IWB material in digital format, when necessary. All recorded learning material was at Paolo's disposal daily and it was useful also both to his schoolmates and to the whole school. In order to foster peer education, Paolo's schoolmates were invited to take notes and revise learning material and share it with the whole class, including him.

**ASSESSMENT**

The whole class 5° R, in which Paolo was enrolled, was invited by the school director to take part in the planning and implementation of the project for school integration through virtual connection, which was devised to grant Paolo the right/duty to education according to current regulations. The rules set by the teaching staff at the beginning of the school year were:

- Skype connection through the IWB will start at 8:10, i.e. at the beginning of the first class; the student will autonomously decide when to connect and when to disconnect;
- the connection will be active till the end of the lessons according to the timetable of the 5° R class;
- from the beginning of the connection the student is considered to be present and will be invited by the teachers to interact with the lessons;
- both the teachers and the schoolmates can also stay connected in the afternoon and in after-school time to elaborate on the content of the various subjects (or just to chat);
- the teachers of class 5° R have expressed their willingness to give remedial lessons at the student's home (at times agreed upon with the family) and to carry out oral and written tests at home;
- the teachers undertake to prepare and send, if necessary, handouts and learning material in digital format; such material is at the disposal of the student, who attends the classes remotely, but it is also useful for his schoolmates and the whole school (it could be put on the school website);
- oral and written tests can be done both by video conference and at home;
- in the case of written tests done by videoconference, the teachers will send the student the file with the test and the student will send back the file or a fax (if the test is to be done on paper) with the accomplished task;
- the time for oral tests will be previously agreed on with the student and enough time will be planned for oral tests by videoconference also to overcome possible technical problems.

The project was constantly monitored to assess the necessity of home schooling according to the student's health condition and his response to treatment. Actually, Paolo attended classes with the help of the IWB and Skype as much as possible, but when that was not possible, lessons were recorded on a portable hard disk and the student received them from his teachers or schoolmates. Oral and written tests were mainly done by videoconference. In the middle of the school year the teachers planned remedial lessons at home to revise more complex parts of the curriculum of scientific subjects and also some oral tests.
To allow Paolo to take part in the school trip, the teachers and the students brought forward the date from April to January and changed its destination from a European capital to nearby Pisa. The time for the trip was chosen because it coincided with the pause in therapy cycles and the destination because it was very close to the hospital where Paolo was being treated. The student and his doctors decided whether he should take part in the trip for the whole planned week or just for a few days and whether he should use the same coach as his schoolmates or reach Pisa by his own means.

The teachers were favourably impressed by the students’ decision not to visit a European capital, the traditional destination for final year students, and to choose a destination which could suit the needs of a schoolmate in a dramatic moment of his life. The students had an opportunity to understand how the principles of the Constitution can be applied and that even a single school can overcome the obstacles limiting the right to education of a student in need through the use of the new technologies.

At the end of the school year Paolo was able to take the State Exam in the same session as his schoolmates and passed it with the final mark of 88/100, which according to his teachers is consistent with his five-year school performance. Besides in September 2012 Paolo took and passed the entrance test to the Faculty of Medicine, University of Florence, as he himself wished to.

As regards technology, the following devices/software were used:

- in the classroom:
  - IWB (Interactive White Board), a device connected to a computer and a projector which offers the possibility to write exercises and notes to be sent immediately to the connected student; it also makes it possible to save any kind of notes and to send the file for later reading;
  - a computer on the teacher’s desk and a laptop for the schoolmates and for lab activities;
  - Skype wireless connection;
  - webcam with microphones and speakers;
  - lapel microphone for the teacher;
  - e-mail and different programs to send handouts, abstracts and all necessary learning material

- to the student’s home:
  - laptop;
  - webcam and microphone;
  - fax;
  - Skype connection
  - e-mail.

The picture shows the technology used and the setting of the classroom and of the student’s home.
• a video produced by a local television station: http://youtu.be/Yvz-KDHAFu8
• a video produced by Rai: http://youtu.be/2EzGgLutcX0
• articles:
  o http://www.dialoghi.net/index.php/2012/05/la-storia-di-paolo/

PORTUGAL

ASSISTIVE TECHNOLOGY BY A STUDENT WITH LOW VISION AT SCHOOL AND HOME

SUMMARY

The case study was developed in the framework of SENNET Project, by the ICT Resources Centre for Special Needs of Mirandela (Northeast of Portugal), in the first semester of 2012.

The purpose of the study was to examine the use of assistive technology by a student with low vision in the context of the school (11th grade) and at home, and how these media help to overcome daily obstacles allowing to develop skills, motivation and pleasure for learning.
Statements of the different actors in the teaching and learning process of the student were gathered, namely, director of school, teachers, psychologist and mother. A video and presentation were produced to complement the case study.

**Video with English subtitles:** [http://youtu.be/BcArDLZq3e8](http://youtu.be/BcArDLZq3e8)

**Case studies on the use of specific software and assistive technology**

Theme: «School practices on the use of digital tools and resources by/with SEN pupils and teachers»

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**INTRODUCTORY NOTE**

The Case Study presented here falls within the scope of the SENnet European Project and was carried out at Mirandela Secondary School, Portugal.

It aims to examine the use of Assistive Technologies by a visually impaired student in the various contexts of her daily life, these being used as a means to mitigate her difficulties and to foster the development of skills, motivation and pleasure in learning.

The functional profile of the student and her interests, needs and expectations are analysed and a short characterisation is also given of the physical and geographical space in which the student is integrated.

The whole evaluation process regarding assistive technologies is described by the authors of the present study, considering its features, application, selection and use of technology by the student in different environments.

The opportunity is also given to view several testimonial statements on the work carried out with this particular student, which implies the daily involvement of all those participating in her education process, so as to promote her inclusion, autonomy and social insertion.

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**ENTITY/TEAM THAT CARRIES OUT THE STUDY**

The geographical area of the Centro de Recursos TIC para a Educação Especial de Mirandela – CRTIC Mirandela\(^\text{14}\) is part of the Trás-os-Montes and Alto Douro Province, one of the Portuguese regions that have been successful in preserving the survival of cultural traditions that bear a distinctive mark of the Portuguese identity.

As well as vineyards, outstanding cultural wealth and breathtaking landscapes, this region is also home to a vastly diverse and rich gastronomy. Mention should also be made of the upper Douro wine region, which is included in UNESCO’s World Heritage sites list and where Port wine, considered to be one of the best wines in the world, has been produced for some 250 years.

Agriculture, livestock farming and traditional commerce are the basic activities carried out by the population in CRTIC Mirandela area.

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\(^{14}\) Mirandela ICT Resources Centre for Special Education – CRTIC Mirandela
CRTIC Mirandela's head office is located at the Agrupamento de Escolas Luciano Cordeiro (Luciano Cordeiro Cluster of Schools) in Mirandela, in the District of Bragança. It is a pleasant place, with good geographical location and access, adequate lighting and heating, and suitable office furniture. Open to the entire education community of its vast area of influence, one of its aims is to provide an adequate and customized answer to the specific needs of its target population, through the use of its resources, both human and material. The target population of CRTIC includes all students in its area of influence with "significant limitations in terms of activity and participation in one or several areas of life, as a result of both functional and permanent structural changes, resulting in continuous difficulties in the fields of communication, learning, mobility, autonomy, interpersonal relations and social participation," from early intervention to secondary school students. It also includes the members of their families, as well as the whole education community which interacts with these students, comprising teachers at several education levels and special education teachers, other technicians and operational assistants.

The team that is responsible for the study comprises the two teachers working at CRTIC Mirandela: Luísa Maria de Almeida Correia Pinto Prata, specialised in Severe Motor Disorders, with 27 years of work experience in the field of special needs education and Maria Irene Machado Miranda, specialised in Mental and Motor Disorders, who has likewise been working in the field of special needs education for the past 25 years.

In the 2008/9 school year, both teachers were involved in the creation, implementation and dissemination of CRTIC Mirandela, where they both still work. Within the range of social abilities and skills held by these teachers, both their ability to adapt and organise and their team spirit should be pointed out, these having been developed throughout the course of their long and varied professional experience. Further to that, their communication skills, benefiting from the experience acquired through participating in and organising events such as exhibitions, meetings, workshops, seminars and lectures, should also be highlighted. As far as technical abilities are concerned, mention should be made of designing, manipulating and adapting Assistive Technologies at CRTIC Mirandela, with a view to their use for the assessment of Special Education Needs (SEN) Students, in different contexts.

School where the study was carried out: Escola Secundária/3 de Mirandela.

Start and end dates of the study: From 5 March to 20 June, 2012

Observation period: From 2 May to 8 June, 2012.

Student's age: Ana is 17 years old.
Escola Secundária com 3º ciclo do Ensino Básico de Mirandela\(^ {15}\) (ESM) is located in the city of Mirandela, which is part of a region that is traditionally known as Terra Quente Transmontana.

The municipality of Mirandela comprises a 659 km\(^2\) area, with 23,580 inhabitants, the decrease in the number of inhabitants in all age levels being evident, with the exception of the “over 65" age group, which recorded an increase of 5.4% in the last census.

Mirandela spreads over a depression at an altitude of 250m that is longitudinally crossed over by the Tua river, and acts as the main regional connection hub with the other urban centres of the region.

Escola Secundária/3 of Mirandela serves the whole municipality and is implanted in premises that were completed in 1978. It works on a two-period regime – one day period plus one evening period – over the five working days of the week.

The teaching staff of this school comprises 141 teachers, mainly female, with ages over 40 and with more than 20 years dedication to school service. The non-teaching staff comprises 42 members in several occupational categories.

The total number of students is 1,110, of which 540 are 3\(^{rd}\) cycle and 532 are secondary students. There are courses of Education and Training, Scientific-Humanistic courses and vocational courses. In the evening period there is also an adult education and training course, with secondary level certification.

The education level of approximately 60% of the students' parents is basic education, while the remaining parents are professionals with intermediate or superior education levels.

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**GENERAL OBJECTIVE**

To evaluate the impact of Assistive Technologies (AT) usage in the daily life of a visually impaired student.

Specific objectives:

- To observe the student's interaction with AT;
- To evaluate the usage of AT within the teaching/learning process;
- To assess its applicability to different contexts.

Theoretical References used


\(^ {15}\)Secondary and 3\(^{rd}\) cycle Basic Education School of Mirandela

LADEIRA, Fernanda e QUEIRÓS, Serafim, *Compreender a BaixaVisão*, 2002, Coleção Apoios Educativos, Ministério da Educação


Decree-law n. 3/2008, of January 7

International Classification of Functioning, Disability and Health – ICF


http://www.esec-passos-manuel.rcts.pt/crv/baixa.htm

http://comunicacaoaooa.wordpress.com/baixa-visao-e-cegueira/

http://moodle.dgidc.min-edu.pt/


http://workspace.eun.org/web/sennet/home

**METHODOLOGY**

- Case study
- Document analysis
- Observations
- Image recording
- Meetings
- Interviews with: Special Education Teachers; Class Tutor; School Management; Mother; Psychologist; Class colleague; Student.

**EXTERNAL COLLABORATOR**

Sandra Cristina Bento Gomes – a psychologist who accompanies the student through weekly sessions of individual assistance within the scope of the acceptance of difference and school and social inclusion.
Ana Sofia attends the 11th grade of the Scientific-Humanistic Course of Languages and Humanities at Escola Secundária/3 of Mirandela. She is a loving, polite girl who is also very interested in her school activities.

According to the clinical data in the student’s file, she exhibits problems at the sight functions level (b210) namely "atrophy of the optic nerve and retina depigmentation", that impair her participation in school activities and also impact on her daily activities.

She has manifest difficulties in both reading and writing (d166, d170 e d325). Her handwriting is very irregular and difficult to understand (d345), and often overlapping. In the light of this she needs more time and personal guidance for the execution of written tasks.

When she moves she exhibits manifest difficulties in walking on different surfaces (d4502) and in walking around obstacles (d4503).

Ana Sofia’s family has full knowledge of her abilities, and is willing to cooperate with the school. The family is thus a facilitating factor, with positive attitudes that bear on Ana Sofia’s behaviour and participation (e310+, e410+). Acquaintances, peers, colleagues and friends (e320+, e325+, e425+) maintain a good relationship with Ana, supporting her and inspiring trust.

Note should also be taken of people in positions of authority (330+, e340+) such as those members of the school community whose actions aim at making the student feel comfortable at school, so as to promote her inclusion and her learning success.

Products and Technology for education (e130+) work as facilitators for the promotion of Ana’s success, self-esteem and school and social inclusion.

Taking into account the functioning profile of this young girl, the following education measures were set up, in accordance with Decree-Law n. 3/2008, of 7 January.

Article 17 – Personalised pedagogic support

(i) Reinforcement of strategies to be developed with the student, within her group/class, in terms of the organization of space and activities:

- Using the same classroom for all subjects (with the exception of Physical Education);
- Making the classroom space organization dependent on installing the student as close as possible to the blackboard;
- Adapted desk usage, so as to prevent incorrect posture;
- Using the whiteboard in the classroom;

(iii) Anticipating and strengthening the learning of contents taught within the group/class:

- Delivering study units, summaries, worksheets and other documents in digital audio format;
- Using Assistive Technologies (Software, Magnifier, etc.) in the teaching/learning process;
• Pedagogic differentiation within the classroom.

(iv) Strengthening and developing the skills of a specific programme to be developed by the special education teacher, in close consultation with the family.

• A programme promoting the ability to use Assistive Technologies, so as to foster their daily usage and application in different contexts.

Article 20 – Adaptations in the evaluation process

• Modifying the test type:

Creating digital evaluation tools and installing these on the student’s PC.

Evaluation tools:
• Oral participation, worksheets, summative tests, formative sheets, group work and other evaluation tools specific to the different subjects.

Evaluation conditions:
• Promotion of oral evaluation moments;
• Usage of the “Compact +” magnifier;
• Usage of the adapted desk;
• Usage of a white light lamp;
• Usage of the “ZoomText” software to access the evaluation tools supplied in digital format;
• Extension of the test duration, tests and exams of up to 30 minutes, with the possibility of these being done in a separate room.

Article 22–Support Technologies in the field of Sight

Usage in different contexts of her daily life of the following Assistive Technologies
• Compact + Magnifier;
• ZoomText Software;
• White light desk lamp;
• Whiteboard;
• Adapted desk.

PEDAGOGIC SITUATION

Ana Sofia was brought to the attention of CRTIC Mirandela for evaluation in terms of Assistive Technologies in February 2, 2009, in order to adapt both equipment and software to facilitate her learning, and allow her a more effective performance. Her identification by the school followed on the difficulties that all those intervening in the education process felt in their daily interaction with the student. The consternation of the teachers was evident in the adaptations they made to strategies and activities, to ensure the transmission of the curricular contents, as well as in the lack of feedback from Ana on their acquisition.

The teachers at CRTIC Mirandela allowed all the teachers teaching Ana access to documents on facilitating strategies for visually impaired students, as well as information on the specific problems affecting the student.
The evaluation sessions initiated on 10 February, 2009, were based on information gathered on site and also on document analysis carried out with all those involved.

The earlier prepared Programme for the Evaluation of students at CRTIC Mirandela, explaining all the phases and human and material resources (Annex 1), as well as the individual planning of the evaluation/re-evaluation sessions of the student (Annex 2) were used for the basic guidance of this process.

Given the gathered data and the available Technologies, the equipment and software were put to use while at the same time the reactions of the student were observed.

The selection of the technologies was carried out taking into account the impact they had on the student's life, their ease of use, their applicability to different contexts and the expectations of both the student and her mother.

The technologies selected were the following:

- “ZoomText” Software, which allows full customization of the desktop, according to the user’s characteristics. It also allows full access to all programs installed on the computer as well as Internet-based information;

- White light desk lamp for controlling light intensity; - “Compact + Magnifier”: portable with a large field of view and magnification (10x) and a TFT screen of 10 cm.

Through DGIDC (MoE), the teachers at CRTIC Mirandela initiated the acquisition of these technologies. When they received the Assistive Technologies, they organized training and information workshops for all the education community on their usage and functioning.

They also participated in the reformulation of the Individual Education Programme (IEP) as regards articles 20 – Adaptations to the Evaluation Process and 22 – Assistive Technologies– jointly with all those intervening in Ana’s education process. This type of close monitoring has been constant ever since the young woman was brought to the attention of CRTIC Mirandela.

The difficulties that were initially felt in terms of the use of the Assistive Technologies and technical assistance, both by the student and the education actors involved, should also be noted here. These were overcome by the awareness of their importance for the student’s usage of her residual vision and the promotion of her autonomy. At the same time, a better visual efficiency in her daily life and in carrying out the tasks she needed to accomplish was also noted.

The physical and ergonomic adaptation of the education environment was not forgotten by any of the intervening actors, and mention should be made of the receptivity, collaboration and commitment of the school management, teachers, family, peers and operational assistants.

The motivation, adaptation and commitment exhibited by Ana and by the school community during the last two years allow us to conclude that the use of AT is essential to her daily life, promoting her educational and social success, fostering her residual sight abilities, promoting her self-esteem and improving her intellectual effectiveness.
**COLLABORATORS**

- **Student** - Ana Sofia Pires Gonçalves
- **Mother** - Ana Paula Aguiar Pires
- **School Management of Escola Secundária /3 de Mirandela** - Maria Eduarda F. Neiva Rosa
- **Tutor for Class F, 11th grade** - Maria José Esteves de Oliveira
- **Special education Teacher** - Ana Paula Carvalho Resende
- **Classroom colleague** - Maria João Felizardo Gonçalves

**LINKS**

3:50 minute video with testimonies from the student and her colleague:

- [https://www.dropbox.com/s/xq0dcch7a628mgok/Estudo%20de%20Caso%20Portugal.wmv](https://www.dropbox.com/s/xq0dcch7a628mgok/Estudo%20de%20Caso%20Portugal.wmv)
- [http://www.youtube.com/watch?v=BcArDLZg3e8&feature=share&list=UUdzjhBJSgsJvrC79z7MTjw](http://www.youtube.com/watch?v=BcArDLZg3e8&feature=share&list=UUdzjhBJSgsJvrC79z7MTjw) (subtitles in PT and EN)

10 PowerPoint slides with a brief presentation of the case study, including photographs related to it:

- [https://www.dropbox.com/s/7pravudyedvgv1t/PPT%20Estudo%20de%20caso%20Portugal-Projeto%20SENnet.pptx](https://www.dropbox.com/s/7pravudyedvgv1t/PPT%20Estudo%20de%20caso%20Portugal-Projeto%20SENnet.pptx) (PT)

**TURKEY**

**CHILDREN WITH AUTISM AND ICT USAGE**

**SUMMARY IN ENGLISH**

Okan Pekdemir is a pupil who has been diagnosed as autistic and he has been attending a special course in the frame of mainstreaming education. Nihat Bayramoğlu is a pupil in the 4th grade of primary school and there are two special needs educator in his school. The population of the classroom is 4 pupils. Okan has been using iPad for the activities in the course and after the course according to the individualized educational program prepared related to the school’s general curriculum at his peers’ school.

**TITLE OF THE PRACTICE:**

Children with autism and ICT usage

**TOPIC:**

School applications on ICT usage for the individuals who need special education needs
PERIOD OF OBSERVATION (BEGINNING AND END)

September 10-11, 2012 Interview with educator Berat ÇELİK

NAME OF THE PUPIL

Okan

AGE OF THE PUPIL

11 years’ old

Birth Date : 23.11.2000

CONTEXT

Education has started in this school in 2006. There are 17 classrooms, 2 management rooms, a conference room, one teachers’ room and an officer room at school. There are 2 managers, 27 teachers, 1 officer and 3 cleaning staff at school. There is also a Special Needs Classroom (Autistic) at school which has 442 pupils.

The teachers appointed in special needs classroom give education in the frame of individualized training program. The pupils can take education with their peers in pre-determined courses.

METHODOLOGY

An interview has been made with school teacher and headmaster.

PUPIL(S) CHARACTERIZATION.

Ozan Pakdemir, who has been diagnosed as autistic when he was 2.5 years old, has been continuing his education in the third grade with his 3 autistic school friends. Every student has an iPad and laptop in the classroom. The teachers plan activities relevant to individualized training program. As they take enjoyable and attentive feedback with the usage of ICT, they realize these activities in a volunteered way. Supportive equipment in Okan’s classroom make Maths, Turkish, Social Sciences courses easier for him. These equipments also enable different activities easier in Arts and Music courses.
Primary school teacher Berat Çelik mentioned that if pupils are guided well, they could easily make activities on computer and complete these activities on iPad usage. Also he mentioned that the pupils could complete all the activities easily by having joy and easily.

Also the teacher told that the pupil used limited words and knew reading, made developing activities related to writing on iPad; on the other hand he mentioned that iPad has been used as an important tool for the development of communication skills.

However, the teacher mentioned that he has taught and explained applications related to the supportive equipment, in addition to that he showed these applications in the houses of the patients. The students can repeat activities he has learnt at school also at home.

The assistive technology how Ozan will use has been determined, monitored and evaluated by his own teacher.

Ozan uses iPad to gain communication skills that will make social life easier and also in the activities in the frame of the courses.

Evaluation and exams

Ozan, taking training program into account which his peers take, has been evaluated according to the aims in the content of individualized training program. Activities taking place in iPad can also be used in the evaluation.

LINKS

Video: http://vimeo.com/51016779

UNITED KINGDOM

1. SAM

This case study shows how an LEA infrastructure has developed to enable Sam, and other pupils, to have their needs met in mainstream schools throughout their education. The 'teams' who participate in planning and supporting Sam’s inclusion and the inclusion of other pupils across the LEA; Sam’s support and the issue of dependency / independence / inclusion. The management of Sam’s transition from Primary to Secondary School and from Secondary School to Sixth Form College; Sam’s wider inclusion into the community, including his work experience; The effect of Sam’s presence on the behaviour of other pupils & his tutor’s statement; and Sam’s individual timetable & personal statement. Sam has ‘pioneered’ the way as his primary and secondary schools had not worked with pupils with
needs like these before.


### 2. AROOB

Following a stroke, Aroob has significant word finding difficulties which mean that she frequently cannot think of the right word she needs at the right time. This short film shows Aroob in her mainstream school using a specialised communication app on an I Pod Touch to search through visually to find the right word. This can then be spoken by the I Pod or Aroob can often say the word when she sees the symbol. Aroob and her peers think having the I Pod is very cool and this has been a great boost to her self-esteem and confidence. Aroob’s mum, Speech and Language Therapist, LA ICT Consultant, learning support worker and peers all feature within the film to demonstrate and explain the impact that the use of this mainstream technology has had on Aroob’s life.


### 3. PATRICK

This short film shows Patrick using his alternative keyboard and mouse to access the same educational computer programmes as his peers. However, this isn't Patrick’s main motivation... he can now manage his own fantasy football team independently to beat his brothers and Dad! Thinking in the longer term, Patrick will need access to the computer to complete his school work as independently as possible. Patrick’s learning support worker, his parents, brothers and best friend all show how his new computer skills enable Patrick to work and play more independently.


### 4. NATHAN

**BETT Awards 2009 (SEN Solutions)**

Although focusing on a product this video outlines the impact that technology can have and also how it along with good practice has result in effective inclusion.

Video: [http://www.youtube.com/watch?v=czZbcDp8yuA](http://www.youtube.com/watch?v=czZbcDp8yuA)

### 5. PEARL HYDE SCHOOL

A video case study of a primary school in Coventry, West Midlands, showing parental engagement using technology to support parents/families of children with special educational needs

Video: [http://www.youtube.com/watch?v=3OmVhF_mmbs&feature=relmfu](http://www.youtube.com/watch?v=3OmVhF_mmbs&feature=relmfu)

The full set of videos on this theme of using technology to engage parents of children with special educational needs can be accessed at:

[http://www.lgfl.net/services/london-mle/becta-resources/Pages/use-of-learning-platform.aspx](http://www.lgfl.net/services/london-mle/becta-resources/Pages/use-of-learning-platform.aspx)