INNOVATIVE APPROACHES TO INCLUSION

SPECIAL EDUCATIONAL NEEDS NETWORK ANNUAL REPORT ON INNOVATION NO. 3

NOVEMBER 2014

Lifelong Learning Programme

Project information		
Project acronym:		SENnet
Project title:		Special Education Needs Network
Project number:		518426-LLP-1-2011-1-BE-COMENIUS-CNW
Sub-programme or KA:		Comenius Multilateral Network
Project website:		http://sennet.eun.org/http://sennet.eun.org/
Date of preparation:		October 2014
Beneficiary organisation:		EUN Partnership AISBL (European Schoolnet)
Project coordinator:		Roger Blamire
Project coordinator organisation:		EUN Partnership AISBL (European Schoolnet)
Project coordinator email address:		roger.blamire@eun.orgmailto:roger.blamire@eun.org
Author of the report:		Silvia Panzavolta, s.panzavolta@indire.it (INDIRE) Patrizia Lotti, p.lotti@indire.it (INDIRE) Project partners

ABSTRACT

The Annual Report on innovation is an output of the Special Educational Needs network (SENnet). This 2014 report focuses on innovative approaches to inclusion that were discovered and investigated by the SENnet project partners since the previous year. The angles investigated varied from innovative teacher training measures in Austria, to experiments in SEN schools in Flanders, best practices in Italy, research activities and experimentations in Denmark, policy measures in Estonia, networked models of SEN education support in Portugal. In each country, things seem to move towards an inclusive model of school, where inclusion is ever more perceived as a vision of an interconnected school (with public services, with industry partners, with parents, with the local community, with the academic field etc.). The partners decided to showcase how this multi-dimensional "roadmap" to inclusion is pursued by providing different "slices" of the same cake.

Table of Contents

INTRODUCTION

The activities of the Special Educational Needs Network (SENnet) include the production of an Annual Report on innovation in the three focus areas of the network: the integration of learners with special needs into mainstream schools, learning environments and teacher professional development.

This third report comprises reports from SENnet partners giving perspectives (in some cases personal) on developments in their respective country, drawing on research and activities in 2014 and recent research reports.

In Austria the focus has been on teachers' professional development, and the report notes that provision regarding ICT and special needs varies considerably between institutions providing training. Online courses are appearing in this year, partly in response to a requirement that all SEN teachers are obliged to take part in in-service teacher training for 15 hours per school year. Interestingly, much in-service teacher training on ICT for SEN teachers and primary school teachers is similar, as the requirements are very often quite similar in both cases. A second development concerns two major sources for SEN resources and a new subject portal on Tablets and Mobiles was created in 2014. Also in 2014, a team of e-learning experts and practitioners created a collection of ideas and how-tos for the use of ICT in education.

In Belgium (Flanders) little innovation is reported in 2014, with funding cited as an obstacle, despite special funding by the Ministry of Education for tools that support pupils with severe handicaps who attend lessons in normal schools. The use of tablet computers is being explored in special education, for example a publisher started a testing phase for the digital versions of schoolbooks in a few schools and the sector of the visually impaired is actively looking for new solutions for the use of tablets and smartphones, but because of the lack of funding for tablets and smartphones they are dependent on the parents of the students to provide the equipment. More information is needed about the use of apps and integration in the classrooms.

The government and association of Danish municipalities have launched a major national initiative about digital Denmark, including educational resources and educational settings for SEN students. Five development projects with demonstration school experiments are under way, part of the commitment of national and local government to increase the use of IT in basic schools (primary and lower secondary).

In Estonia, children with special needs have the right to attend the school of their residence. In the period 2014-2020 European Structural Funds is financing the improvement of the learning environment of general education, including special needs schools. In 2014 the Concept of Organisation of Instruction for Pupils with SEN for years 2014-2020 came into force, stipulating that students shall be provided with the services of at least one support specialist. From September 2014 in counselling centres, support specialists are available for all schools. Teachers of SEN pupils have been interested in to find colleagues from other European countries to exchange the best pedagogical practice and carry out collaborative projects under eTwinning.

In Italy a major conference in November 2014 assessed the state-of-the-art in ICT and inclusion, sharing practices and planning future actions based on new opportunities for laboratory approach lessons, student participation and inclusion. Six examples of good practice are described, featuring for example inclusion and well-being, an annual Inclusivity Plan, organizational and facility-oriented ICT use, courses adapted to individual students' needs and preferences, including specific special educational needs, and a school as a Local Support Centre for SEN. In addition EdiTouch, a tablet to support the learning activities of students with special needs was developed in 2014.

The Portuguese CRTIC regional support centres assessed 1,436 students for assistive/inclusive technologies for learning needs. The majority of pupils assessed belong to primary school level. MagicKey, a solution developed by a Portuguese researcher has been subsidized by Portugal Telecom. The TeleAula conferencing system was deployed in the Lisbon area and enables hospitalised children to maintain contact with their colleagues and school tasks.

Turkey has embarked on FATIH, an ambitious ICT programme for all students which aims to make ICTs one of the fundamental tools used in the education process, and ensure their active use by all. The target group is being extended to disabled students starting with blind students. EBA is the portal for FATIH with 12 modules serving Turkey's 700,000 teachers, 17 million students as well as parents and adult students. Innovative work is underway to develop audio books and e-distance education for blind students. Foreign language texts (French, English, German and Arabic) were localized and recorded by native speakers for informal and disabled education.

A European innovation of note in 2014 is the ICT4IAL project which aims to develop a set of guidelines for access to information for all and apply them in three contexts: schools (via European Schoolnet), universities (via the International Association of Universities) and the European Agency for Special Needs and Inclusive Education.

All three annual reports can be downloaded from the SENnet website, where further information can be found: http://sennet.eun.org.

TEACHER TRAINING

INITIAL TEACHER EDUCATION

Initial teacher training for SEN teachers is conducted at university colleges of teacher education. The curricula of the degree programmes are developed by the Studienkommission (Study Committee) of the respective teacher training programmes.

The strategies and the role of digital media in the university colleges for teacher education are very different. "[T]he relevant ministries … and regional educational agencies … do not demand the implementation of a mandatory certificate or compulsory courses on ICT use in teaching.[1]"

However, "[t]he importance of ICT and e-learning is officially acknowledged by most Austrian teacher training institutions. However, there are no established country-wide standards of what is regarded as ICT or media. ... There is also a perceived lack of consistency in institutional policies and leadership regarding ICT use in teaching and, hence, some divergence between discourse and actual practice. Responsibilities for media education, e-learning, and technical and didactical support for ICT use in teacher training are organised very heterogeneously, which seems unfavourable if the goal is to achieve a consolidation of the training and related service offers.[2]"

For example, the two teacher training colleges in Upper Austria both offer compulsory modules on the use of ICT in SEN settings. Examples are students learn how to combine "old" and "new" media and to support the SEN children in using media responsibly[3] and there are lectures on the pedagogically sound use of ICT and multimedia or on how to work with ICT in specific subjects such as social studies[4]. In addition, students are required to work with ICT and media on a regular basis throughout their studies and when collecting practical experience at schools.

CONTINUING PROFESSIONAL DEVELOPMENT

---

[1] Hornung-Prähauser, V., Geser, G. (2010). I*CT in Initial Teacher Training. Austria Country Report. Use of Information and Communication Technology in Initial Teacher Training.* p. 49, from http://www.oecd.org/edu/ceri/45935675.pdf

[2] Hornung-Prähauser, V., Geser, G. (2010). I*CT in Initial Teacher Training. Austria Country Report. Use of Information and Communication Technology in Initial Teacher Training.* p. 48, from http://www.oecd.org/edu/ceri/45935675.pdf

[3] http://www.phdl.at/fileadmin/Dateiupload/Redakteure/institut-ab/Curricula_SL/gueltig_ab_2010/25_Medium-Message.pdf

[4] http://www.ph-ooe.at/fileadmin/Daten_PHOOE/Ausbildung_APS/20091117_Modulbeschreibungen_SL_ab_1_10_2009.pdf

In-service teacher training is mainly offered by the university colleges of teacher education and includes both online as well as on site courses or seminars. All SEN teachers "have been obliged to take part in in-service teacher training for 15 hours per school year.[5]" Many of the in-service teacher trainings on ICT that are offered are intended both for SEN teachers and primary school teachers as the requirements are very often quite similar[6]. Seminars include topics such as basic robotics, touch typing for kids but also general information on how to use the Internet with young children or students with SEN.

In Upper Austria, two institutions offer training on the use of ICT for SEN teachers on a regular basis.

This fall semester, *Education Group* offers a seminar on the use of literacy software. It covers software for diagnosis, the preparation of individualised materials for the children and many practical exercises using programs such as Buchstaben-Blitz, Grundkurs Lesetechnik, Wortfilter oder Wörter-Blitz[7].

LIFEtool offers many seminars on AAC, the use of tablets (mainly iPads), apps and computers in SEN settings. They are very popular - most of the workshops are fully booked very early[8].

RESOURCES FOR TEACHERS

Below, two major sources for SEN resources are described in some detail – on the one hand, Education Group is offering many resources and other services which are relevant for all teachers and some which are specifically intended for SEN teachers. On the other hand, a 250-page publication called "E-Learning 1x1" was created by experts and practitioners earlier in 2014 – it also includes some content which is very relevant for SEN teachers, especially for teachers of blind pupils. It was decided to just list those two as they have been updated very recently respectively are updated continuously and also take into account very recent trends such as the use of tablets and mobile devices.

RESOURCES PROVIDED BY EDUCATION GROUP

Education Group maintains the biggest educational server in the German speaking world. Besides offering a **subject portal** with a large number of resources for SEN teachers[9], there is also a dedicated section on **media in special needs education**[10].

[5] Eurydice (2013). *In-Service and Continuing Training of Teachers.* from https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Austria:Continuing_Professional_Development_for_Teachers_Working_in_Early_Childhood_and_School_Education#In-Service_and_Continuing_Training_of_Teachers

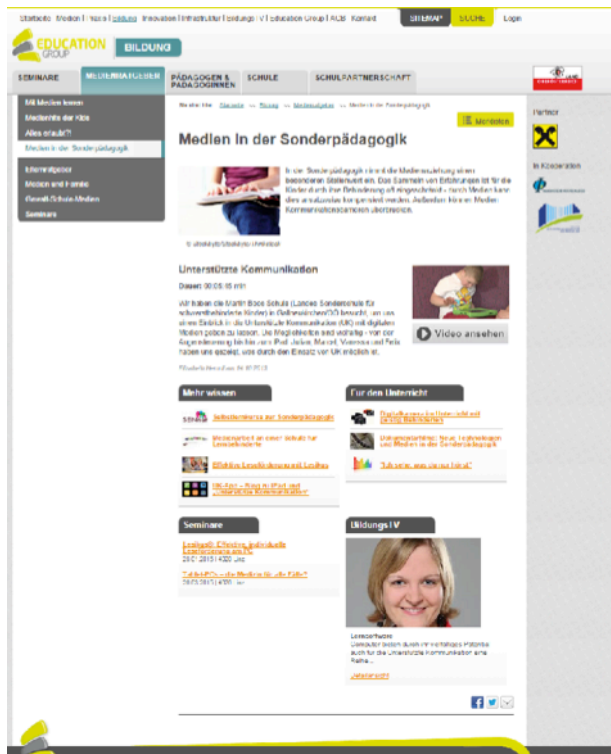[6] http://www.phdl.at/institute/e_learning_medienpaed_ikt/fortbildungsangebot_1415/volks_sonderschule/

[7] http://www.edugroup.at/bildung/seminare/lehrerinnen/detail/lesikusR-effektive-individuelle-lesefoerderung-am-pc.html

[8] http://www.lifetool.at/aktuelles/workshops.html

[9] http://www.edugroup.at/praxis/portale/sonderpaedagogik/

[10] http://www.edugroup.at/bildung/medienratgeber/medien-in-der-sonderpaedagogik.html

It offers many resources, relevant videos produced by BildungsTV (for example on the use of tablets in a special school), links (for example to the SENNET courses, blogs, experiences of schools,…) and a list of relevant seminars.

As tablets are very useful in SEN settings, SEN teachers were also specifically asked for input when setting up the subject portal on "Tablets & Mobiles"[11] in 2014:

---

[11] http://www.edugroup.at/innovation/tablets-mobiles.html

Screenshot of http:youtube.be/BQHrx0_HNeg

On the one hand, some of them participated in a series of **device tests**[12]. They shared their experiences when using a tablet in their daily work, the advantages and disadvantages, the apps they were using as well as some experiences they have made.

Generally, tablets were used very often for open learning – children were really happy when they had the chance to use the tablet after finishing a task. However, teachers had to plan very well and sometimes even timers were used to make sure every child had the chance to work with the tablet.

Working with a tablet was pretty easy for the children as it was more or less self-explaining – the only things some of them had problems with was switching the device on or unlocking the screen. Nevertheless, teachers found it crucial to be there to assist their pupils, to answer their questions and to support them in gaining important life skills as tablets proved to be a great way for the children to gain some experience using new media.

The devices were also used very often to work with media in education – for example, teachers used it to show relevant pictures or videos or children had to do research on the Internet, took pictures themselves or even created ebooks with pictures, sound and text. Tablets were also very useful for training the children's concentration, attention or dexterity and they were also an important means of communication! It was very motivating for them to work with the tablet to check their learning success and to present what they managed to achieve to their peers.

12 For example: http://www.edugroup.at/innovation/tablets-mobiles/devices/ios/detail/apple-ipad-4-mai-2014.html

Some teachers mentioned that it was hard for them to find apps they could use. Because of that, a separate category covering **apps for SEN** was introduced in August which can be found on http://www.edugroup.at/innovation/tablets-mobiles/apps/sonderpaedagogik.html.

The first set of apps which can be found on the portal include the ones mentioned in Edugroup's 2014 case study. They are all described in detail including the characteristics such as the file size, the languages or the price, give an overview about the features of the app and – most importantly – also include examples for the use in educational settings. To allow easy access, the information about the apps also includes QR codes which lead the users directly to the App Store, Google Play or the Windows Store.

In addition to the apps specifically intended for special schools, there is also a list of apps for primary schools – most of them can also used in SEN-settings very well.

E-LEARNING 1X1

In 2014, a team of e-learning experts and practitioners created the so-called "E-Learning 1x1[13]", a collection of ideas and how-tos for the use of ICT in education. The goal of this publication was to show that everyone, even people who have hardly any experience with computers, can use ICT with their pupils easily.
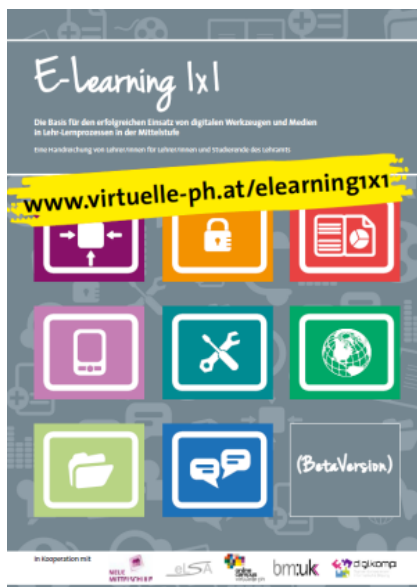
In total, the publication consists of 100 examples which cover the following topic areas:

- Working with learning management systems
- Safer Internet use, data protection and data management
- Creative and easy use of standard applications
- Using mobile phones, tablets, whiteboards and cloud services
- WorldWideWeb: Researching, communicating, publishing
- Online programs and authoring tools
- ePortfolios and assessment in learning management systems
- Collaboration

---

[13] http://www.virtuelle-ph.at/mod/resource/view.php?id=49361

The publication includes some ideas which are specifically dedicated to the use of ICT in SEN-settings:

- **"Tasten und Tasten"**

This contribution is about working with the computer only using the keyboard. Firstly, it describes how to open a program using only the keyboard by using either the Windows Search or by looking for the shortcut on the desktop. It also includes some information about important key combinations as well as about braille embossers and software which can be used to learn how to touchtype.

- **"Schauen und Sehen"**

On the one hand, this example gives an overview about important prerequisites that have to be fulfilled to enable visually impaired pupils to work with a computer. For example, a desk and chair which can be adjusted in height, adequate lightning or a good screen (with adequate contrast) are crucial.

On the other hand, it describes how to train the pupils' looking skills. For example, they could be asked concrete questions such as "Where is the login button?", "Where is the mouse?" or "Which tab is currently active?". They might also have to switch between the standard and the enlarged view in case they are using enlargement software.

Finally, this contribution also explains how special software can be used to support pupils with different kinds of visual impairment. Possibilities include the use of false-colour, adapting the contrast or mouse track trails or enlargement software that follows the focus. Of course, combinations with speech output software are used frequently as well.

- **"Wer fürchtet sich vorm blinden Huhn?"**

This example describes the online collaboration of a school for blind and visually impaired pupils and a mainstream school – led by their music and crafts teachers, 6th graders of both schools were creating an art project together.

Moodle was used very frequently to organise the project as it works quite well with screen-readers: First, all the pupils involved had to introduce themselves in the forum, then they had to form groups (also using the appropriate Moodle functionality). The learning management system was also used very often for discussions and feedback.

First, the pupils attended a music museum together and had to fulfil some tasks there. For example, one of them had to do some conducting, another one had to play piano for

everyone in the cafeteria. The blind/visually-impaired pupils did recordings there, edited them and shared them online with their peers.

Then they started to work creatively: Covering topics such as "City life", "Station" or "Nature", some pupils made pictures using materials such as sand, cloth or even lightbulbs; others prepared sound recordings on the same topics and edited them using Audacity. The mainstream school was responsible for the creation of pictures whereas the blind/visually impaired pupils showed the others how to edit the sound files they created. The schools exchanged their pictures and audio files and using Moodle, the pupils guessed the topics their peers were working on and discussed what they liked or disliked about the work of the others.

The project was very helpful in terms of reducing prejudices and fears – for example the children attending mainstream school had the chance to see how their peers learn and work and after a while, they all started to use Moodle to not only talk about the project but also about personal things!

Finally, the two schools created a 3-week exhibition together: All the pictures and all the audio files the children created were given numbers – the audio files were saved onto MP3 players and were provided to the people attending the exhibition. Thus, they could really enjoy a multimedia experience…

- **„Audiobearbeitung für blinde Schülerinnen und Schüler"**

This contribution describes in detail how blind pupils can use the software Audacity to create an MP3 file using only their keyboard and screenreader software. It explains how to make recordings, how to work with audio tracks (moving, positioning, deleting,…), how to import audio files and finally how to save the final MP3 file. The example also explains how students can add their own hot-keys and gives an overview about the most popular pre-defined ones.

- **"Internetrecherche für blinde Schüler/innen"**

Finally, this example supports blind pupils in doing online research on a given topic. Using a screenreader, they can use simple key combinations to search on Google, to browse the results and to finally open a page. In addition this contribution includes a short overview about accessibility and the WAI guidelines.

Sehbehinderte Menschen nutzen spezielle Hilfsmittel und Strategien, um über Vergrößerung von Bildschirminhalten Grafiken zu betrachten, Texte zu schreiben und Kommandos abzusetzen. Die großen Unterschiede zum „Normalbetrieb": Der Überblick ist eingeschränkt und die Maus wird nicht nur zum Klicken, sondern auch zum Verschieben des vergrößerten Bildschirmausschnittes verwendet. Clevere Konzepte von Vergrößerungssoftware ermöglichen die Nutzung vieler digitaler Ressourcen.

Mag. Erich Schmid
Bundes-Blindenerziehungsinstitut
Wien, Lehrer für IT
erich.schmid@bbi.at

Software und Hardware

Sehbehinderte Schüler/innen können viele der am Markt befindlichen digitalen Geräte nutzen. Dies wird in den meisten Fällen durch Spezialsoftware (Vergrößerungsprogramme) ermöglicht. Für alle gängigen Betriebssysteme gibt es solche Software: kostenlos für Linux, Mac und die Betriebssysteme der Smartphones und Tablets, ebenfalls Freeware oder kommerziell mit hoher Nutzer/innenfreundlichkeit für Windows.

Die Schüler/innen lernen

- eine unbekannte Webseite zu erforschen – hier ist zu bedenken, dass der Inhalt des gesamten Bildschirmes „mit einem Blick" erfasst werden kann.

Hinweise für den Einsatz

Das Beherrschen des Zehn-Finger-Tastaturschreibens ist für sehbehinderte Menschen ein Schlüssel zu schnellem Arbeiten. Auch die Beherrschung vieler Tastenkombinationen, welche das Betriebssystem zur Verfügung stellt, ist wichtig. Somit kann rasch zwischen Maus- und Tastaturbedienung gewechselt werden.

1. Sehen

Zunächst müssen die Möglichkeiten zum „Sehen" für die sehbehinderte Person vorhanden sein: Im Idealfall sind das ein höhenverstellbarer Sessel und Tisch, ein Bildschirm mit Schwenkarm, ausreichende Beleuchtung (indirekt – von oben), die Verwendung einer geeigneten Schriftgröße (Bordmittel von Windows oder Vergrößerungssoftware), ausreichender Kontrast sowie eine blendfreie Arbeitsumgebung.

2. Schauen

Strategien des Schauens müssen erarbeitet und eingeübt werden. Meist sind solche Strategien auch für sehende Menschen nützlich und bekämpfen die Oberflächlichkeit

des Hinschauens. Eine systematische Art des Schauens ist von links nach rechts, von oben nach unten. Ein anderes System besteht darin, den Inhalt einer Spalte von oben nach unten zu erfassen.
Wird mit einer vergrößerten Darstellung gearbeitet, so muss je nach Bedarf zwischen Vergrößerung und Normalansicht gewechselt werden.

3. Gezielte Aufgaben

Durch gezielte Aufgaben lässt sich das Schauen schulen. Beispiele hierfür wären etwa:
Welches Programm wird im aktiven Fenster ausgeführt?
Welcher Tab auf der Internetseite ist aktiv?
Wo ist der Login-Button? (Er lässt sich auch durch die Bildschirmsuchfunktion über Tastatureingabe finden!)
Wo befindet sich der Textcursor?
Wo befindet sich die Maus?

Bundes-Blindenerziehungsinstitut
Bildquelle: Michael Schilling

! Hinweis:
Die Lernplattform Moodle bietet für Administrator/innen die Möglichkeit, das Erscheinungsbild von Webseiten stark zu verändern. So kann beispielsweise die Spaltenanzahl der Startseite von drei auf zwei reduziert werden, siehe www3.edumoodle.at/bbi_wien.

! Hinweis zu Software und Hardware:
Nicht immer reichen die mit den Betriebssystemen ausgelieferten „Bordmittel" aus, um den Bedürfnissen der vielen unterschiedlichen Arten von Sehbehinderung gerecht zu werden.

Große Bildschirme beispielsweise sind dann nicht das Mittel der Wahl, wenn das Sehfeld stark auf den zentralen Bereich eingeschränkt ist. Vergrößerungssoftware erlaubt es etwa „Falschfarben" einzustellen, den Kontrast zu ändern, die Mausspur deutlicher zu machen, zwischen Bildschirmausschnitt und Vollbild zu wechseln usw. Häufig ist die Kombination mit Sprachausgabe anzutreffen. Vergrößerungsprogramme verfolgen den Fokus: Muss beispielsweise ein Dateiname eingegeben werden, springt die Anzeige zum Editierfeld für den Dateinamen.

Tipps:
Tastenkombinationen für Windows und Office:
www.werner-krausse.de

Even though the examples specifically intended for SEN pupils mainly cover the needs of blind pupils, there are many others which are very useful in SEN settings, for example those tackling creativity or using many kinds of media (video, sound, pictures,…). Feedback sent to some of the contributors showed that the publication is very inspiring to teachers and shows them that they all can use ICT to motivate their pupils very successfully.

BELGIUM (FLANDERS)

INTRODUCTION

We don't see much innovation in special education. One of the causes is the lack of funding for ICT.

In Flanders, there is special funding by the Ministry of Education for tools that support pupils with severe handicaps who attend lessons in normal schools (thus not in special schools). For the visually impaired students, tools range from small low vision aids to high-tech tools. For example: from a telescopic binocular to a video magnifier with a camera pointed to a blackboard which is connected to a pc with magnification or speech software. The tools these students use at home are funded by another service called VAPH (Flemish agency for persons with a handicap). As a result, mobile devices are not funded by the Ministry of Education.

Another thing we've noticed is that the use of tablets is not widespread in Flemish schools. There are some schools who are starting to use tablets in the classroom but in almost every case the schools are still in a testing phase rather than having the use of tablets fully implemented. In one case, a publisher started a testing phase for the digital versions of schoolbooks in a few schools.

SEN PUPILS IN NORMAL SCHOOLS

The sector of the visually impaired is actively looking for new solutions for the use of tablets and smartphones. The Ganspoel-center started experimenting with tablets for pupils with visual problems two years ago.

Because of the lack of funding for tablets and smartphones, they are dependent on the parents of the students to provide the material.

During the past year, the center tried out these experiments:

- Filming with a smartphone during a trip to bring images closer so that the visually impaired student can follow along (camera zooming with spread and pinch gestures)
- Discovering and trying out different apps and settings on the iPad (zoom, voice, invert, ...)
- Integration of e-books on tablets (zoom, speech, write capabilities)
- Braille display linked with Bluetooth to an iPad so that the classroom teacher can read what the student notes
- Capabilities of the iPad compared to video magnifier and blackboard camera opportunities

After experimenting all of the above, the added value of a tablet was clearly there, but in practice tablet usage is not yet fully integrated. A big difference was noticed between primary and secondary education regarding the willingness to experiment. This is partly due to the complexity that you only have one teacher in primary education and 10 different teachers in secondary education.

Problems encountered

- Large differences between the operating systems (iOS, Android, Windows).

- The possibilities offered by a mobile system to one pupil cannot be generalized.
- Wi-Fi is often needed to use apps but not always easily available at school.
- Sometimes the system is just an addition to an existing tool.
- It can be a transitional phase to a technologically expensive tool.
- There is no refund when testing.
- The administration that is responsible for refunds, cannot follow the technological developments. As a result, tablets and smartphones as a tool are not (yet) acknowledged.
- The rapid evolution within apps and settings makes it hard to follow up on.

Possibilities and changes experienced

- Integration of the pupil in the group goes smoothly as tablets are known more and more by teachers and fellow students.
- Students can sit at different places in the classroom.
- Easy to carry to other places.
- No power sockets needed (if the battery is well-charged).
- For some pupils tablets with e-books and workbooks can replace expensive conversions.
- There's a considerable price difference compared to the technological systems that visually impaired students traditionally use.
  e.g. iPad with accessories and purchased apps = 1000 euro
  technological system = +-6000 euro
- There's a social-emotional advantage for the students because tablets are held in a higher regard by their peers in comparison to large technological tools.

SPECIAL SCHOOLS

There are SEN schools starting to experiment with tablets in their classrooms but there is little known about the use of the apps and the integration in the classrooms.

EDUBit started a research about the use of tablets in SEN-schools in 2013. They targeted 20 teachers and 120 SEN-pupils.

The questions were:

- Which apps can you use?
- How do you integrate them in your classroom?
- Is there an overview of the possibilities of apps?
- Do we replace computers by tablets?
- Insurance?
- How can the teacher see what a pupil does on his tablet?

The results of this study are due for publication in 2015.

INTEGRATION OF TABLETS IN NORMAL SCHOOLS

It is interesting to know how normal schools are integrating tablets in the school.

In 2012-2013 there was a research in 16 schools that used tablets[14]. In this research they looked at the operating systems used and the experiences with the mobile devices in the classroom. There also was a random test about the educational apps for the Dutch market.

Some interesting results:

- iPads were the most used tablets. This choice was mainly determined by usability.
- If Android was chosen as the operating system, it was mainly because of the difference in price.
- There were more educational apps available for iOS than for Android.

Klascement has a website for apps[15] and there is one referral to apps for SEN-pupils[16]. Even this one is in English.

Other interesting articles about the usage of ICT in education:

http://www.ond.vlaanderen.be/nieuws/2013/doc/11-29-Klasse-ICT.PDF

http://www.klasse.be/leraren/29381/tablets-op-school-de-beste-app-is-de-leraar

CONCLUSION

We notice a rather slow movement towards the use of tablets for SEN pupils. One of the reasons is the lack of funding for these devices. Another problem is that there aren't a lot of Dutch apps available for SEN-pupils. Most of the apps are in English.

There is still a long way to go.

---

[14] http://www.stefvangorp.be/pages/Tablets%20in%20het%20onderwijs.pdf?ml=1
[15] http://www.klascement.be/apps
[16] http://a4cwsn.com/recent-videos/apps/apps-a-z

DENMARK

INNOVATIVE INCLUSION WITH IT IN A DANISH CONTEXT

In order to successfully introduce innovative practices you need pilots for demonstration and eventual scaling, and you need leadership of the processes. The Government and association of Danish municipalities have launched a major national initiative about a digital Denmark, also when it comes to education, educational resources, including educational settings for SEN student.

The five Demonstration schools comprise one strand of the national initiative, and the results of the project is published on the national learning and knowledge portal www.emu.dk, together with other modules, which guide leadership.

FIVE DEMONSTRATION SCHOOL PROJECTS ON IT-BASED LEARNING

The Demonstration School projects aim to create new and practical knowledge of how IT can support student learning and free up time for more teaching and learning.

In 2013 - 2104 five development projects with demonstration school experiments were initiated as part of the commitment of the Government and Local Governments Denmark (KL – the association of Danish municipalities) to increase the use of IT in basic schools (primary and lower secondary).

The Demonstration School experiments are carried out by research institutions and university colleges in cooperation with selected demonstration schools. Together they are testing IT-based learning processes and subsequently evaluating and disseminating results.

The trials result in actual teaching and learning activities and guidance, which can subsequently be used by all schools. Experience from projects is also passed to current and future student teachers through close cooperation with the university colleges.

30 schools across the country have been selected as demonstration schools for the development projects. In cooperation with researchers and university colleges, schools have piloted IT-based lessons and their experience is to be spread to the rest of the country's schools.

Autumn of 2015 all five demonstration school experiments terminate:

● Digital supported learning[17]

● Pupils' own production and student involvement[18]

---

[17] Pdf document in Danish
http://www.uvm.dk/~/media/UVM/Filer/Udd/Folke/PDF14/Maj/140519%20Projektbeskrivelse%20demonstrationsskoleforsoeg%20om%20digitalt%20understoettede%20l%c3%a6ringsmaal.pdf

[18] Pdf document in Danish
http://www.uvm.dk/~/media/UVM/Filer/Udd/Folke/PDF13/Maj/130527%20Elevernes%20egenproduktion%20og%20elevinddragelse.pdf

- Inclusion and differentiated teaching in digital environments[19]

- IT in the innovative school[20]

- IT didactics and teaching competences in an organizational perspective[21]

All projects must obviously demonstrate, test, evaluate and disseminate innovative ways of teaching, and two of them have an inclusion angle:

- Inclusion and differentiated teaching in digital environments.

- IT in the innovative *school*

1 : INCLUSION AND DIFFERENTIATED TEACHING IN DIGITAL LEARNING ENVIRONMENTS

The project aims to develop and test a generally transferable design of digital learning environments that have a proven effect in terms of increased inclusion and differentiated teaching.

The project develops and tests learning scenarios that support inclusion, cooperation and individual self-regulation and release time for the teacher to teach and support students with special educational needs.

The project implements a multifaceted intervention program (technology, didactics and organization) that utilizes the potential of digital learning environments to make differentiation of teaching and learning the guiding principle in education.

The demonstration project is being implemented in a number of basic schools in collaboration with staff from municipalities, universities and university colleges. This project is led by Project Manager Stefan Graf, University College Lillebælt (stgr@ucl.dk). Among the participating schools are Hoerby-Dybvd School and Christianfeld School.

2 : INCLUSION THROUGH IT AND READ-WRITE TECHNOLOGY AT HOEJBY SCHOOL

By reading tutor Iben Haahr Brink and deputy manager Nicholas Schnurre, Hoejby School, Odense

At Hoejby School we have a vision of including all students with the greatest possible dignity from the challenges each may experience.

We try targeted to support students throughout their schooling the best possible way, to learn independently, including being able to be active in learning situations by themselves - this we do from thinking about student mastery in the work zone of proximal development.

In practice, we use IT as follows:

Progression context

---

[19] Pdf document in Danish
http://www.uvm.dk/~/media/UVM/Filer/Udd/Folke/PDF13/Maj/130527%20Inklusion%20og%20undervisningsdifferentiering%20i%20digitale%20miljoeer.pdf

[20] Pdf document in Danish
http://www.uvm.dk/~/media/UVM/Filer/Udd/Folke/PDF13/Maj/130527%20It%20i%20den%20innovative%20skole.pdf

[21] Pdf document in Danish http://www.uvm.dk/~/media/UVM/Filer/Udd/Folke/PDF13/Maj/130527%20IT_fagdidaktik.pdf

We vision the process from 0 to 9th grade as a development from "modeled apprenticeship" to "Purpose conditional independent use of IT tools". This means that in primary school we instruct and demonstrate few relevant tools that support learning objectives; tools that students use as they slowly gain mastery in the application. Along the way, the tools are replaced so that students continually use the programs that best support learning matching their age and their tasks. For upper grade (7 – 9th grades) students our goal is that students very independently select and use applications / tools, which in each learning situation is the most meaningful and profitable.

Early grades (1 – 3rd)

The classes are taught using Read-write technologies (primarily AppWriter)

- as a supporting tool for writing processes
- in reading texts that are above the student's independent reading skills

We use e.g. the application "Write to read" so students can work with children's writing, supported by photographs and voice recordings - here we assume that the students like to write.

We use the camera as part of the oral and interpretive work.

We use tools such as "Explain everything" to let students demonstrate their learning processes.

Mid grades (4 – 6th)

The classes are continuingly trained in the use of Read-write technologies

- focusing on reading aloud what is written - as proof support
- focusing on foreign languages - both reading aloud and writing support

We work with a broader selection of writing tools, so the student can select what is relevant from their purpose of writing

E.g. using "MindMeister"

- as a tool tobrainstorming
- taking notes while reading
- outlining texts

Word processing (primarily Google docs)

Presentation Tools - including iMovie

We work with digital text book systems – e.g. Meebook, Showbie and Google to practise routines of retrieving and using materials provided by the teacher, and sharing student works among both teachers and pupils

We work with CAS tools in mathematics (e.g. Geogebra) to move focus from being primarily process oriented to a greater extent to be on understanding.

We work with blogs as a way to document students' work both in text, image and sound - at the same time we also want to train students to reflect on their own performance and learning strategies.

Upper grades (7 – 9th)

We are expanding work from the mid grades to broadening the selection of programs, and to have greater depth in the reflection.

It's important to us to support each child at a maximum. We do not necessarily evaluate the effort from the possible diagnosis the child may have. We are more concerned with examining how we can best motivate each child to participate and be active in learning situations.

If students find it difficult to write they need support to independently succeed with it. It is not important whether dyslexia, concentration or motor skills are behind the difficulty. The important thing is that the student gets the opportunity to experience mastery and thereby retain the joy of learning. Over time, the child then matures to meet the difficulty - and very often overcomes it.

It is important for us that these students are supported in regular contact with a resource person who can help them to retain the use of support tools.

We want to teach dyslexic children to be able to work - not, as has often been seen over the years, to teach them to wait for help from others in order to succeed.

We want to teach students who find it hard to write, to take alternative routes - speak to e.g. "Dragon Dictation" and thereby write with her mouth as they experience mastery and thereby being motivated to write also in the traditional way.

We want to teach the modest pupils to come forward, by allowing them to use the camera as a controlled intermediate station.

We want the students to experience their successes through continuous documentation that both we and their parents can follow.

We want the students to obtain the ability to make targeted choices of programs and tools that best support their individual as well as their shared learning.

In short, we want that all students be included on their own terms with maximum learning and maximum dignity.

3 : CHRISTIANSFELD SCHOOL[22] - DIFFERENTIATION WITH SCREENCAST

Christiansfeld school has been working with 4th graders on solving problems with writing and reading using write-read technology in both English, Danish, Math and History. For a time, the challenge to students was that they had to express themselves through sound and

---

[22]

http://www.christiansfeldskole.kolding.dk/Infoweb/Designskabelon8/Rammeside.asp?Action=&Side=&Klasse=&Id=&Startside=&ForumID=

image, regardless of the task asked. The educational assignment was the same for all regardless of conditions, but the goal was differentiated. The following software is used: Screencastify, Presentme, Movenote and Padlet.

The project aims, through the involvement of IT and digital media, to create new forms of teaching and organization, which together enhance students' skills in collaboration, creativity, innovation, production and problem solving.

In the project researchers, consultants and schools (teachers, educators, IT-facilitators and managers) collaborate to develop innovative frameworks for the use of IT in schools. It comprises six courses, where schools work with IT in the subjects in ways in which students' creative and collaborative skills are strengthened, while those ways of working together create more time for the teacher to teach.

Purpose:

Contribute to the development of a school culture through the involvement of IT in innovative lessons and by establishing other forms of cooperation. The objective is students learning 21st century skills and releasing of the eacher's time.

Multi-faceted intervention:

- Technological action:

  A Media Patrol, which is organized by the IT-facilitators of the schools, involving students at different grade levels. The media patrol students are taught about the various technologies - focusing on those involved in the didactic processes - and that knowledge they pass on to class mates at various year levels. The basic idea of the project is to bring about lasting change of education in the schools, and therefore a change of school organization and culture is also part of the intervention.

- Organizational action:

  Efforts through an organizational unit

- Didactic actions:

  1. Experimental communities: Danish, pre-school
  2. Ponder troll Tumble (Danish: Gruble trolden Tumle): Math, 3rd grade
  3. Young people and the media: Math, 6th grade
  4. Energy - now what? Interdisciplinary Science and Danish, 7th grade
  5. Shop a blog: English, 8th grade

Participants:

4 schools: Vestre School, Bakkevejens School, Kulsbjerg School, Sønderskov School

Consultants and researchers led by project manager Charlotte Area Skott (cksk@ucc.dk), University College Capital.

Special educational needs

Inclusion is not the primary focus of the project. However, the learning scenarios are developed with differentiation in mind - often with elements that teachers can turn up or down. In this context, the "experimental communities" are the most explicit, because the course is structured to be used on 0th, 1st or 2nd grades. This means that through the course e.g. a 2nd grade teacher can get ideas on what goals and activities may be relevant for students with special educational needs by identifying those of 0th or 1st graders. In this course, some of the teachers experienced, for example, that students who often did not participate actively and with little benefit from their education, were engaged and produced something.

The set-up around the course The Ponder troll - the fictional story about the troll - may make it easier for students with special needs to engage in the process and be absorbed by it - let alone produce something to help the troll.

On the technical front the Media Patrol may relieve the teacher using new technology, so that the teacher can concentrate on students with special needs.

5 : LEADING INCLUSION

Leading inclusion is about cultural change and innovation, among other things based on recognition, dialogue, new knowledge, new practices, cooperation and community.

Management of inclusion is about decorating both the culture and structure of schools so that both support inclusive learning environments. The inclusive view of humanity and organizational perspective are contextual. It is the individual leader, who presents the opportunities in interaction with the environment.

All municipalities have focused on inclusion. There is a wealth of thoughts, reflections and ideas in motion, which constantly generate new knowledge, experience and practice in schools. For the same reason, there is a diversity of views on what it takes to create successful inclusion.

It is an important management task to understand and deal with this complexity and act strategically in relation to it.

"Just as teachers need to think inclusion in relation to their students, the school leaders must think about inclusion in relation to their staff and consider why they react as they do, and invite them into the process. Inclusion should not be a fight between two cultures. ", says PhD Fellow Helene Ratner, who researches the inclusion and leadership of CBS and UCC in Copenhagen.

Management Strategies in the perspective of inclusion

University College Capital, the Danish Association of School Heads, and the Center for School Leadership at CBS have produced the report, "What is the name of the child?"[23], which examines how the leadership of inclusion unfolds in practice and how inclusion can be perceived larger and broader in a managerial context.

---

[23]Danish document: Hvad skal barnet hedde?),
http://www.kl.dk/ImageVault/Images/id_52713/scope_0/ImageVaultHandler.aspx

The report aims to shed light on strategies and practical examples of school leaders and school managers, and their recommendations for working with strategic management of inclusion.

According to the report, four codes are central to defining inclusion:

- Economics, where inclusion is seen as a strategic tool for local governments to save money

- Policies that do not want to segregate children because they thus have less chance of being included in the community

- Education, where children are not perceived as some who have difficulties, but are in trouble

- Ethics, attached to a perception that the normality concept has been too narrow and thus leads to children excluded, although they can be accommodated in the Danish public school.

Management of inclusion is about strategically to get the various codes to play together, challenge them and play them against each other in order to create the best possible conditions for the stakeholders of the organization to link to the inclusion strategy and thus take ownership.

The report also presents empirical examples of strategies that can reduce the complexity of inclusion. The strategies mentioned include:

- Providing financial incentives for inclusion

- Improving teachers' competences in relation to lifting the task of inclusion

- Creating changes to the school structure

- Ensuring greater involvement of parents in the process of inclusion.

Many close coalitions

Many schools must change the way everyday life is structured and increase the cooperation between both management and teachers - and among teachers. The different disciplines of the professionals must be approximated through close interdisciplinary collaboration.

"When we execute strategic changes in the educational field - as it is to create inclusive learning environments - we can only do that by creating strong coalitions between politicians, parents, professionals and administrators. And that is the main management task - to facilitate these coalitions. It is a strategic management craftsmanship that municipal leaders at all levels must exercise. ", says Klaus Majgaard, independent consultant in public management and welfare development.

Therefore there is a need to focus on how school leadership can create constructive engagement with the view to the continuous implementation and ongoing shift towards an inclusive practice:

- Teachers and pedagogues must educate in community

- also with specialists like ACT tutors, special educators and inclusion agents or - spearheads

- management can create time and space for staff to discuss their own practice and development of methodology

- management can strengthen the individual employee disciplinarily through supervision and feedback.

A flexible framework

Management that can fruitfully be pursued:

- adapt the organizational framework, so that barriers are removed for employees' work with inclusion

- work with flexibly organized educational settings, for example in the form of varied use of base classes, team forming, in small groups, individually, in large groups, in the forest or Outdoor schools. All with the assumption that there are many ways to learn and to develop

- prioritize the academic advisors (reading

- tutors, ACT tutors, etc.) as resource persons to assist in upgrading the school locally - but also across the municipality for the purpose of knowledge sharing initiatives and experiences.

ESTONIA

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 the following classes shall be established, 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 behavioral problems;
- Boarding school facilities for children who have social problems

In 2013 Lifelong Learning Strategy 2020 was officially approved by Estonian Government [24]. One of the objectives of the Lifelong Learning Strategy 2020 as the strategy of choices is to contribute to the more expedient and effective use of modern digital technology upon learning and teaching and to improve the digital competence of the entire population.

Digital competence means readiness to use digital technology to cope in a rapidly changing knowledge-based society when working, studying, acting and communicating as a citizen. The internet has entailed an abrupt increase in the learning opportunities from which everybody can gain a lot. However, upon the unskilled use of the internet, the possibilities that information society offers, may be entirely lost. In essence, the digital focus means a knowledgeable and smart study process of integrating digital opportunities, enriching thereby studies, taking into better consideration the needs of the present learners and contributing to meeting labour market needs[25].

In the period 2014-2020 European Structural Funds will finance the improvement of the learning environment of general education, including special needs schools. The wider

---

[24] http://www.hm.ee/sites/default/files/estonian_lifelong_strategy.pdf
[25] http://www.hm.ee/en/activities/digital-focus

implementation of e-learning materials and the creation of educational instruments for students with special needs will also be financed[26].

In 2014 the Concept of Organisation of Instruction for Pupils with SEN for years 2014-2020 came into force. It stipulates that students shall be provided with the services of at least a special education teacher, psychologist and social educator (support specialists). The head of school appoints a person whose duty is to organise cooperation between support specialists, instructors of talented students and teachers for the purpose of supporting the study process and development of a student with special educational needs.

All schools have to describe the SEN policy and the organisation of instruction for pupils with SEN in their own school curricula.
1. Philosophy – common values and principles
2. Coordinating system – responsibilities (i.e. teachers, SENCO, school leaders, other staff)
3. System of identification, support measures, data collection and evaluation.
4. Cooperation and participation (parents, all students at school, all teachers, other schools, community, external institutions etc.)

From September 2014 in PathFinder (Rajaleidja) counselling centres, support specialists and study guidance services are available for all schools. PathFinder Centres are in every county in Estonia. The centres provide all schools with study guidance services for pupils, teachers and parents free of charge and support specialist service (special pedagogical and psychological) at the smaller general education schools.

The Information Technology Foundation for Education (HITSA) was formed on the 1st May 2013 by merging Estonian Information Technology Foundation, Tiger Leap Foundation and EEnet. The role of the HITSA is to ensure that the graduates at all levels of education have obtained digital skills necessary for the development of economy and society and the possibilities offered by ICT are skilfully used in teaching and learning, which helps improve the quality of learning and teaching at all levels of education. HITSA initiates and guides innovation and development in our area of activities and introduce the best practices. We represent Estonia in international cooperation projects and initiatives in the field of information technology and education[27].

The HITSA Innovation Centre provides teachers with in-service teacher training. There are two special courses dedicated to SEN pupils' teachers:
● Face to face training "Teaching of SEN pupils and ICT"
● A 20 hour academic course "Hariduslike erivajadustega õpilaste õpe ja IKT", an e-course for Estonian teachers on the theme 'Inclusion of pupils with special needs in mainstream schools'

HITSA also coordinates the eTwinning programme in Estonia. Teachers of SEN pupils have been interested in to find colleagues from other European countries to exchange the best pedagogical practice and carry out collaborative projects with their pupils. For example the

---

[26] http://www.hm.ee/en/structural-funds
[27] http://www.hitsa.ee/files/HITSA_strategy_2020.pdf

Tartu Hiie School (s*peech and hearing disorders* and learning difficulties) have been involved in 50 eTwinning projects.

HITSA also coordinates the Estonian Educational portal Koolielu www.koolielu.ee. There is also the repository of e-learning resources in the Koolielu. There are special sections (erivajaduslik) for SEN. The section is moderated by educational technologist who is working in a special needs school[28].

---

[28] http://koolielu.ee/waramu/search/sort/created/curriculumSubject/2%3A73978588

ITALY

In the following pages we document the innovative educational experiences on school inclusion that were presented during the Festival of Handimatica 2014. They have been the starting point for a discussion with teachers, head teachers and policy makers and can represent a way to keep on showcasing.

In the second part of the Italian review, we document the experience of a customized tablet for students with learning disabilities, which is particularly interesting for the link with the 3rd SENnet Thematic Report - focussing on inclusion via mobile technologies.

INNOVATION AND INCLUSION

THE NATIONAL PLAN FOR THE DIGITAL SCHOOL

The National Plan for the Digital School (NPDS) was conceived to support a deep change in the teaching paradigm, from a transmissive way of teaching to a collaborative, inquiry-based and hand-on approach to learning, from a teaching communication only based on text to a communication where new media and network solutions would be predominant.

The Plan was deployed in two phases: the first phase focussed on the dissemination of digital culture whilst the second was more action-oriented.

Among all the actions of the Plans, where a massive introduction of interactive whiteboards and the creation of Classes 2.0 and Schools 2.0 were implemented, were the following measures:

- HSH (Hospital School Home), whose objective was to provide hospital schools with technological facilities, devices, tools and teacher training in order to enhance virtual communication and to better guarantee the right to education for hospitalized students or homebound students;

- @urora, a measure against the drop-out, promoting school and professional guidance and embracing prison education in order to guarantee to at-risk students a specific training in multimedia;

- Digital Textbooks, whose objective was to test how schools can contribute to the creation of innovative digital contents and fuel the research on innovative formats that school publishers could create.

The second phase, started on July 2012, was about mainstreaming the results of the first phase to all schools.

In November 2013, thanks to the Wireless measure, a new step was taken in the direction of guaranteeing wifi connection to schools since bad connectivity conditions can hinder the use of digital contents and devices in the classroom.

FESTIVAL HANDIMATICA

Within the 10th edition of the Festival Handimatica[29], INDIRE, together with the ASPHI Foundation, organized a round table with researchers and policy makers and a workshop, addressed to teachers, to share school best practices on the topic of inclusion with ICTs.

The round table was an occasion to assess the state-of-the-art of ICT and inclusion, sharing practices and planning future actions, since cloud computing technologies, mobile devices and touch screen solutions, ever more customizable, bring about a total restructuring of school and classroom settings, including flexible furniture and virtual environments. All these changes open new opportunities for laboratory approach lessons, student participation and inclusion.

Within the workshop, teachers and schools presented their experiences and illustrated new methods and models, highlighting how new organizational models allow SEN students to be ever more included.

The experiences were selected through a public call, disseminated by INDIRE and ASPHI from June to September 2014.

Among the criteria for the selection there was the criterion of holding activities in school time and of impacting on the whole school. That's why extra-school and single-subject experiences were discarded. Furthermore, only fully implemented activities were taken into consideration, leaving out projects, planning or activities centred on SEN students only.

The call sought to gather implemented activities focussed on a whole approach to inclusion so that the discussion would deal with changes at organization, education and policy levels.

The schools whose experiences were selected are the following six:

1. IC scuola-città Pestalozzi of Florence;
2. ITTS A. Volta of Perugia;
3. The centre for Vocational training CONS-FAP in Venice;
4. IC Cadeo e Pontenure of Piacenza;
5. IC Virgilio 4 of Naples;
6. S G. Natta di Bergamo.

The six schools were invited to speak at the workshop "*Inclusive digital school: actions speak louder than words. Experiences and models in Italian schools*". These are not the only innovative and inclusive schools in Italy. However, they are meaningful examples that can inspire other schools. Moreover, they were born in schools that have benefited from the past

---

[29] Handimatica is a biennial festival on inclusion through ICT that has become a reference point at national level for those who work on these topics. The 2014 edition was held in Bologna, from 27 to 29 November. Since the early 1990s, Handimatica is organized by the ASPHI Foundation, a non-profit organization that is active in the inclusion of the disabled through ICT, in all the domains (work, school, free time etc.).

National Plan on Digital School and show how Ministry[30] funds can be employed in a serious and ethical way.

The school is located in the historical centre of Florence, where a wide range of social groups live. It is a primary and lower secondary school, where classes are not homogeneous, with a maximum number of students (20) per class. The school's vision is to be a sort of laboratory, focussing on competence development rather than knowledge transfer. The school is trying to involve parents and school personnel the most they can.

The focus was on the flexible organization of teaching and on the use of new educational settings, so that in this new School 2.0 all students could feel to be active participants. Curiosity, creativity, peer tutoring, learning by doing and hands-on activities are just some of the key points that this school is working on, in conjunction with a new meaning that is given to the teachers' role and to diversity.

The main objectives of this project were:

- The construction of a new identity of the school, given the challenges set by the third millennium society, with cultural and social characteristics that differs enormously from previous one;

- The customization of the curriculum to meet the different needs and the multiple learning styles and preferences of students;

- The use of ICT to support SEN students;

- The stress on students' motivation, personal autonomy and responsibility as for their own educational path.

The general objectives were the following:

- Developing students' digital literacy so that they could use new media in a conscious, critical and creative way;
- Improving teachers' digital competences;

- Producing a wide range of digital content using different communication channels, languages and formats;

- Developing computer literacy for all students.

To sum-up, the school's strategic actions encompass the following aspects:

- Flexibility (to allow a wide range of experiences, learning occasions and activities, such as play, hands-on activities, etc.);

- Inclusion and well-being (the school should be a welcoming, safe, beautiful, familiar, attractive and beautiful place to stay);

---

[30] The present Ministry of Education agenda is explained below since the 6 experiences selected match some of Ministry agenda items.

- Accessibility (usable by all the students, barrier-free, interconnected, etc.);
- Equipped (providing adequate tools, devices, facilities and furniture);
- School-community relations (the school should be open to the local community, like in the civic centre model of school).

The school is an upper secondary school providing vocational education, with several professional strands.

The organization of the entire school is totally different from traditional settings where the teacher passes from one class to another. In this school, it's up to the students to move from one classroom to another, since the classrooms are conceived as labs. Teachers are encouraged to exchange teaching material and experiences, where peer education and knowledge sharing play an important role.

All classrooms are equipped with technological facilities and teaching is based on a mixture of experiential learning, frontal lessons, computer simulations, experiments and so on. The stress is on "learning how" rather than on "learning that". They use interactive whiteboards (IWBs) and an online platform - such as Moodle for virtual classes - enrich the educational offer.

In this school an Annual Inclusivity Plan was established, taking into account the following actions:

- Early identification of problematic situations through systemic and in-depth observation of learning approaches and students' behaviours;
- Construction of a welcoming climate so that relational competences can be easily developed;
- Collaborative approach to teaching planning, with regards to specific needs and situations;
- Participation of families, companies, associations and institutions to the school life;
- Use of effective methods and strategies (cooperative learning, situated learning, etc.);
- Organization of flexible learning spaces, with modular furniture that can be rearranged and customized according to the needs of the students;
- Personalization as for learning time and tasks schedule;
- Immediate feedback and recursive assessment;
- Personnel training.

In this panorama, ICTs - IWBs, tablets and elearning platforms - are an important added value for innovating teaching, for example by using the web quest or the flipped classroom approaches.

This Centre for vocational training offers courses on computer graphics, mechanics and engineering. The use of ICTs is massive and it has been designed starting from an organizational (identifying a coordinator, creating a team of teachers) and facility-oriented perspective (wi-fi connection, management of the network in the classrooms, selection of storing protocols).

The change in teaching through ICT made it possible for students and teachers to create ebooks, tutorials, digital stories and to flip the lessons. In this way vocational courses were adapted to single students' needs and preferences, including specific special educational needs.

4. LIBR@, IPAD FOR ALL - INNOVATION AND INCLUSION: IC CADEO E PONTENURE OF PIACENZA

The school is made up of the kindergartens, primary schools and lower secondary schools of two Municipalities and it is working on didactic continuity (from on school level to the following one). Libr@ is the name of a project whose objective is integrating digital content and school textbooks in lower secondary schools, where tablets are used by all the students.

Some of the reasons for running the Libr@ project are:

- Saving 50% on the costs encountered by the families for buying schools textbooks;
- School textbooks loaning to help families and guarantee the right to education for all. Families have been asked to buy the tablet (iPad) and, thanks to an agreement with local banks, they could pay in installments. Tablets were also loan to those who could not buy them;
- Reduction of the stigma by the adoption of tablets for all and not only for SEN students;
- Wireless in all classrooms;
- Training on the job on digital competences for teachers (i.e. the use of Youtube, tablets, IWBs, digital content creation).

The Libr@ project is inspired to the laboratory work approach, which is a principle declared in the School Educational Offer Plan. In fact, many extra-school activities are organized by the school with an interdisciplinary approach and a competence-based rationale. Since 2012, the school has been equipped with informal spaces and with specific educational settings - such as the "iPuff room" and the "Mondrian room" - where cooperative and experiential activities are performed.

The school is also a Local Support Centre for SEN education and it is fostering two measures in particular: the first one is focussed on the use of ipad for SEN students with autistic disorders spectrum and the second one on the use of iPad for students with learning difficulties (dyslexia, dyscalculia etc.).

Another aim of the Libr@ project is to reduce the digital divide of the population of the two Municipalities communities. Three hundred access points for a population of 5,000 people is a significant starting point for allowing citizens to actively participate in the innovation process - including school innovation. Local companies, providers and school publishers play an

important role in the project, which is perceived as a common and shared plan by all the stakeholders.

5. LIBR@: TOUCH MATH: IC VIRGILIO 4 OF NAPLES

The school is located in the district of Scampia, a very problematic peripheral area of Naples. The student population is characterized by a poor socio-cultural background. There are over 50 SEN students in the school. The school is working on laboratory work and the use of ICT (school-developed software) is a crucial point. Teachers and students created an interactive application for teaching geography entitled "Around the world in 60 hours".

Some of the projects - such as "Touch Math" and "My Friend Math" - carried out by the school focussed on making maths more understandable by the students. Now they are working on a "Math lab" aiming at:

- Fostering a different approach to maths traditional teaching by insisting on learning by doing and discovery learning;
- Perceiving maths as an interdisciplinary competence to serve other curriculum subjects.

The use of an elearning platform - multimedia tools, creation of digital content, software - was functional to support the project's objectives.

ICTs turned out to be a "learning compensation tool" for students with learning difficulties and disabilities, in particular for those suffering from dyscalculia and dyspraxia. This happens because ICTs made it possible for teachers to deliver content in alternative and multiple ways and formats and, as a result, this kind of students feel included and their motivation and self-esteem increase.

As for maths related content, they work in groups, using small chunks of maths to make it understandable to younger students and thus co-teaching with the maths teacher. They became authors of maths learning material (educational videos, games, software), which is freely distributed through the platform.

6. LEARNING BY SURFING: IS G. NATTA OF BERGAMO

The school is an upper secondary school located in Bergamo, in the Northern part of Italy. It covers three technical subject areas: chemistry, material engineering and biotechnologies. It is also a high school focussing on applied sciences. The institute uses applied research and interdisciplinary approaches for teaching/learning all curriculum subjects - thus taking into account all the angles of a single topic, that is historical, cultural and ethical ones. The school offers many additional courses and initiatives carried out in cooperation with the local community, so that competences can be better developed.
The school is equipped with many facilities, devices and technologies and its quality is certified according to the standard UNI EN ISO 9001:2008 as for its area of activity. Broadband wifi connection is guaranteed (100 mbps), there are 18 digital classes using Android tablets and 150 computers. Flexible furniture is also present so that different educational settings can be arranged according to teaching/learning activities. The school is

open from 8am to 7pm, so that curricular activities can take place when specific needs arise (i.e. for remedial teaching, repetition, peer learning, lab activities etc.).

The students take responsibility for the school facilities and technologies, since the school is appointing each student in turn to play a role in the management and in the surveillance of them.

The main teaching/learning approach in the laboratory work, integrated with the use of tablets and other devices that can improve learning. The school has a School Inclusivity Plan also providing students with evening lessons on study methods and on metacognition, so that every student's learning process can be sustained.

The most used teaching strategies are: cooperative learning, learning by doing, and the organization of a learning week. Teacher training is also very important so continuing professional development courses are organized and teachers are encouraged to share knowledge and to use peer education to work in team.

Three keywords can be mentioned do describe the school's vision: being digital, playing and networking.

EDITOUCH[31]

INTRODUCTION

Dyslexia cannot be prevented or cured, but it can be managed with special instruction and support. Early intervention to address reading problems is important. Children diagnosed with dyslexia, are entitled by law (in most U.E. countries) to have specialized educational and support services. Italy was late to adopt this approach (L. 170/2010) but we are starting to pay attention to this in almost every school. Currently in "Italy" the child with dyslexia:
- Can do specific exercises with speech therapists & neuropsychiatric to acquire some of those mechanism that typical reader have (specialist are often provided by Italian public health care system – "ASL");
- Is entitled to have a personalized didactic plan (PDP) which will include exempting measures and compensatory tools (such as laptops).

About the last point we have to consider that:
- Younger children find traditional PC-based compensatory tools complex to use;
- Use of the computer in class is often rejected by the child who feels "different" from his friends ;
- A tool as complex as the PC is sometimes a source of distraction for children who are struggling to concentrate on what they need to do;
- Some teachers are not familiar with the PCs and find difficult to teach younger children how to use it;
- PCs are not optimized for readability by default: default text to speech libraries are not good in reading aloud Italian, fonts are small and don't simplify reading;
- The traditional compensatory tools and PCs are a major cost for families;

---

[31] *EdiTouch: a tablet specially designed to support children with dyslexia*, by Marco Iannacone, presentation at "Transforming the classroom: tablets as assistive technology" workshop in Brussels Tuesday 21 October 2014

- The loss of self-esteem during primary schools has a negative impact on subsequent educational levels.

EdiTouch™ is the first tablet to support the learning activities of Special Educational Needs (SEN) and Specific Learning Difficulties (SLD) students.

It originally started as a personal project as a father of a dyslexic child, not being fully satisfied by the solutions for dyslexia available on the market, decided to build one for his son. Subsequently the interest aroused by his work - together with the desire to make available to others what was helping his son - drove him to self-fund a start-up business that would provide a complete solution (hardware-and-software) at a price comparable to that of the tablet already on the market (which, however, are not equipped specific software for dyslexia).

Its interface and the main programs have been designed with the support of speech therapists and specialists in learning disabilities.

In addition to the contribution of parents of dyslexic children who every day try to find new ways to facilitate the study of their children.

DESIGN PRINCIPLES OF EDITOUCH™

We wanted EdiTouch to be a simple, light and low-cost tool supporting children in their study activities since the early years of school. We have therefore chosen a large format reminding to school notebooks. Due to the type of device and the nice interface, it is able to propose a way of working that overcomes the resistance of the children and gives them gratification, increasing motivation, and as a result facilitating academic success. For the packaging, communication and user interface, we used the figure of a child with light lines, drawn in marker that could be nice and acceptable to boys and girls. Also the icons of the programs are large, colourful and made with the same style.

Minimum Viable Product is the mode of development we adopted: an iterative process during which the initial idea is continuously modified and adapted after the feedback received from initial users (so-called early adopters). This process goes on until the desired product is obtained.

The development and evolution of applications is driven by the information provided by speech therapists, psychiatrists and teachers involved in the project, but also from the comments receiving from the dozens of parents who use our products every day with their children.

Comparative studies conducted indifferent countries have shown that some fonts are more readable and pleasing to SLD subjects. In general, Sans-Serif seems to be the favorite type, but research has also highlighted other features. In Italy, the most famous are the fonts Easyreading® and Biancoenero®, used in their highly readable necklaces (on paper) and recently the font TestMe. To be mentioned among foreign ones are Dyslexie and OpenDyslexic – an open source font created by Abelardo Gonzales from Spain. We

designed EdiTouch so that specific fonts can be used in order to validate their effectiveness also on tablet: these fonts are preinstalled and applied to every app!

Through a mechanism of parental control, the-teacher or parent can decide which applications are immediately accessible to the child during the time of study, allowing them to limit possible distractions from the activity.

EdiTouch is available in several models:

- EdiTouch Primary school
  Processor: Cortex A9 Quad Core 1.60Ghz
  RAM: 2 GB DDR3
  Screen: IPS capacitive (1920x1200 px)
  Connectivity: Wi-Fi b/g/n, Bluetooth 4.0
  Memory: 16 GB (expandable to GB)
  Camera: post, 5 MPx (con LED); ant. 2 MPx
  Ports: 1 mini HDMI, 2 micro USB, 1 earphone
  Audio: 2 casse interne
  Battery: 7.600 mAh
  OS: Android 4.2.x

- EdiTouch Lower Secondary School
  Processor: MediaTek Quad Core 1.2Ghz
  RAM: 1 GB
  Connectivity: Wi-Fi, Bluetooth, 3G (only EdiTouch 1025s)
  Memory: 16 GB (expandable to 64 GB)
  Camera: post. 5 MPx; ant. 1.3 MPx
  Audio: dual speaker Dolby DS1
  Battery 18 h. standby
  OS: Android 4.2.x

- EdiTouch High School
  Processor: Snapdragon Quad Core 1.6Ghz
  RAM: 2 GB
  Screen: IPS capacitive (1920x1080)
  Connectivity: Wi-Fi, Bluetooth, 4G (HSPA+)

Memory: 16 GB (expandable to 64 GB)
Camera: post. 8 MPx; ant. 1.6 HD MPx
Ports: wireless HDMI (miracast), 1 micro USB
Audio: 2 casse Dolby, 1 cuffia 3.5
Battery: 9.000 mAh al litio
OS: Android 4.3.x

FIELD TESTING[32]

In the territory of Rome where the ASL Roma D (the local Public Health Care organization) operates, there are no structured programs connecting students affected by SLD, the school environment, teachers and parents enabling the usage of "compensatory" tools such as PCs.

The traditional compensatory tools (a combination of PC and commercial software) can be extremely costly for the family with an SLD-affected child and can amount to considerable sums (ASL estimated a cost of € 2K). This problem not only slows down the accessibility to the software for the students, but is a-further source of inequality in the access to learning and enhances social inequality in education access. Additionally when the family individually adopts computers and software there is a very high rejection rate (only 25% of those who buy these products still use of them after 6 months). For this reason, ASL Roma D becoming aware of EdiTouch a tablet specifically developed to help dyslexic children, has decided to launch a scientific trial in the 7 schools in its territory.

In the school years 2012-2014, a multidisciplinary team composed by doctors, nurses, neuropsychiatrist and speech therapists (ASL Roma D) along with biopsycho-social research methodologists (University of L'Aquila) and information technology professionals (Digitally Different Srl) conducted an 18-month long trial to assess the psycho-educational effectiveness of a tablet specifically designed as a compensatory tool. Among the technological solutions ensuring the use of educational support (Law 170/2010; DM 5669/2011) a tablet which could provide a variety of software in a single technological solution, matches the criteria of "competence", "consonance" and "contextualization" (Andrich, 2009) if implemented in a conscious and inclusive environment.

For this purpose, about 400 students from 8 primary, secondary and high schools in the hinterland of Rome were involved in the trial. The research design and assessment methods are based on a target group "A" (placed in a facilitated learning environment by "EdiTouch" tablet) consisting of primary and secondary school children (9:16 years) with SLD certification in the absence of cognitive impairment and pre-existing psychopathological disorders. The control group B (100 with and 50 without SLD) is balanced for chronological age and socio-economic conditions. The battery for assessing the psychological well-being and the skill levels was evaluated in an A:B:A design consisting of a pre-test (at the beginning of the project), a treatment (present-absent) using the tablet equipped with specifically designed and tested software, and a post-test (follow-up at 18 months from

---

[32] Excerpt from *Psycho educational effectiveness of a studying method based on the usage of a tablet specifically designed as a compensatory tool for sld*, by Marco Iannacone (Digitally Different Srl), Debora Vilasi (ASL Roma D), Barbara Rossiello (TSMREE ASL Roma D), Lorenzo Toni (TSMREE ASL Roma D), Pasquale Plateroti (ASL Roma D), Assunta Marano (University of L'Aquila), Claudio Fantini (ASL Roma D).

starting the project). The methodology includes both individual case-studies and multivariate modes by type of treatment. We have been following the action research model, which aims to activating a process of change through the contribution and the participation of the subjects involved.

Phase 1 of the survey (effective prevention capacity of a "facilitating" environment versus the secondary discomfort) involves the cross-sectional analysis, by different classes in which the compensatory device has been inserted, study styles, the basal psychopathological state after complete diagnosis of SLD, from the third class of the primary school to the second class of high school. This cross-sectional analysis was performed in the longitudinal study in order to verify the desired change, in the psychological well-being as well as in the learning, and the increased motivation to study. Everything was compared longitudinally with a control sample that was not massively exposed as the previous group to compensatory standardized measures. The research design will also allow to evaluate the effectiveness of the new instrument (EdiTouch) and to collect specific recommendation from teachers, pupils and parents in support of a more widespread use.

The assessment battery enabled us to observe teaching effectiveness aspects, psychological well-being and skill levels improvement, tested during the whole trial, at the beginning when we provided the compensatory instrument, after 6 months and at the end of the project (18 months later).

The evaluation followed the action research model, which aims at activating a process of change through the contribution and the participation of the subjects involved. The longitudinal research design allowed the systematic observation of individual and context variables, during the experience, interpreted according to the modeling of risk and protective factors in childhood.
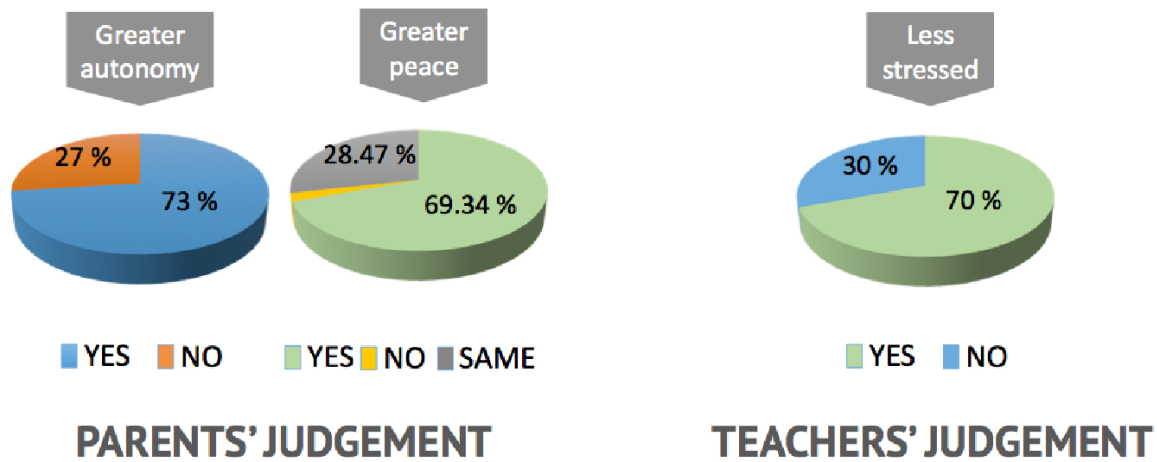
Essentially innovative was the planning of a capillary "computer literacy" program for pupils, parents and teachers (a feature lacking in other similar experiences reported in the literature) in order to create a facilitating environment at home and at school thanks to a competent network (teachers/students/parents).

About half of the students with SLD had previously used compensatory software on a PC. Instead 72% in the group of teachers was aged more than 40 years.
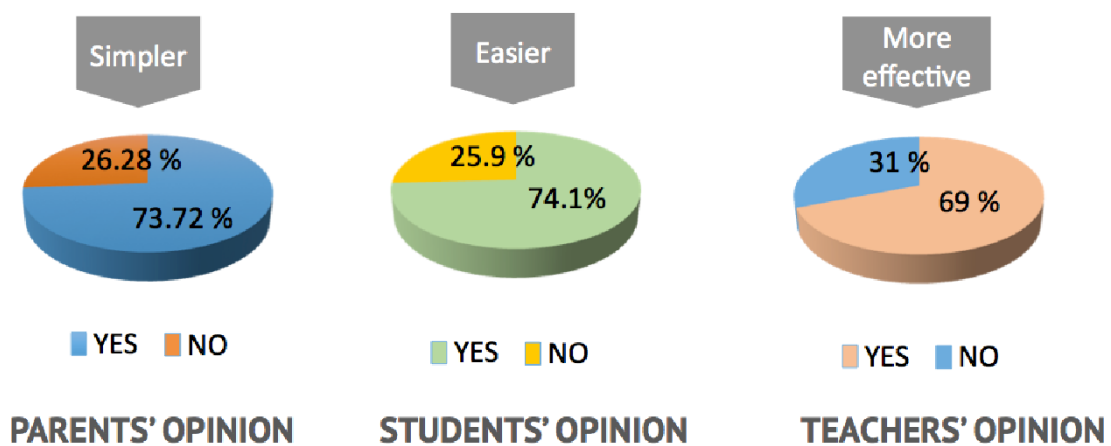
CONCLUSION

The results obtained in the sample examined indicate that the personalized method of study, centered on the use of EdiTouch tablet in conscious environment, favors greater capacity in terms of academic performance, higher self-esteem, autonomy and motivation, in a short time. This encourage us to believe that this better school achievement will be gained consistently also in future.

Variation of some psychological elements of SDL students with tablet vs previous year.

Greater autonomy

27 % NO
73 % YES

Greater peace

28.47 % SAME
69.34 % YES

Less stressed

30 % NO
70 % YES

YES | NO

YES | NO | SAME

YES | NO

PARENTS' JUDGEMENT

TEACHERS' JUDGEMENT

From an educational point of view, more than 70% of the subjects in all three categories involved (teachers, students, parents) had no hesitation in declaring the greater effectiveness of this tool compared to other PC compensatory tools available in the market.

Efficacy of studying with this tablet as compared to other compensatory instruments available in the market (Ericsson, Anastasis, LeggiXme, Ballabolka)

Simpler

26.28 % NO
73.72 % YES

Easier

25.9 % NO
74.1% YES

More effective

31 % NO
69 % YES

YES | NO

YES | NO

YES | NO

PARENTS' OPINION

STUDENTS' OPINION

TEACHERS' OPINION

INTRODUCTION

The national network of ICT Resource Centres for Special Needs (CRTIC) was created in the framework of inclusion policy of students with permanent special needs in mainstream schools, dating back to 2007-2008.

Centros de Recursos TIC
Educação Especial

CRTIC aim to assess pupils with permanent special needs in what concerns assistive and inclusive technologies and the use of ICT for learning purposes. The Ministry of Education and Science finances part of the products and technologies the CRTIC recommend.

They have also an important role in disseminating information and training teachers, staff and families using the devices they recommend as well as in what regards learning strategies to deal with different kinds of disabilities.
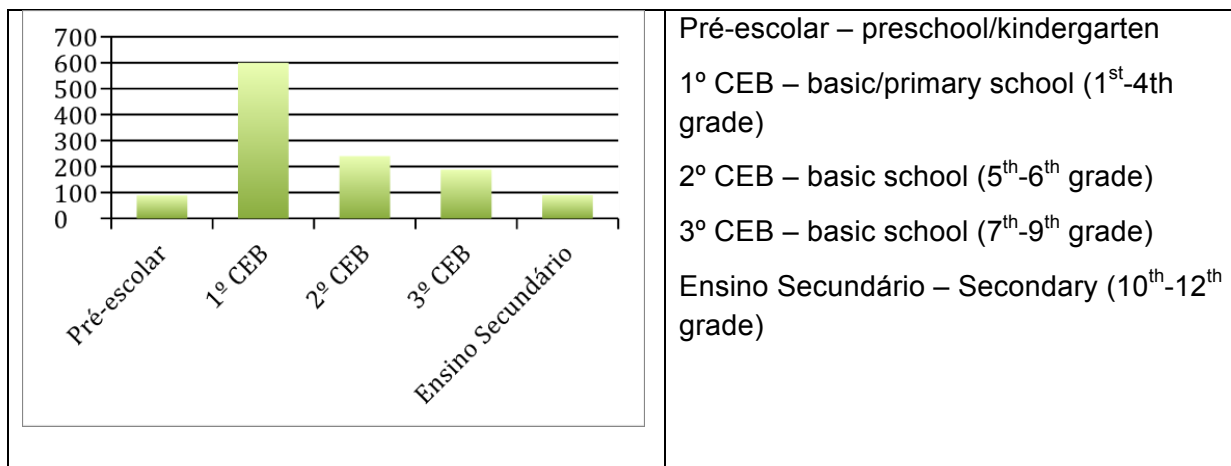
There are 25 CRTIC distributed across the country, located in schools. Each CRTIC supports a large group of schools, at district level.

CRTIC lead their activity according to central guidelines, presenting annual activity plans and activity reports to the central department that coordinates them (DG Education).

CRTIC have webpages, blogs and LMS platforms to disseminate their services and activities to the school communities they support. DG Education manages a Moodle community that integrates all CRTIC, as a sharing and discussion platform.

In 2013-14, the CRTIC network assessed 1.436 students, in what regards assistive/inclusive technologies for learning needs. The majority of pupils assessed belong to primary school level, according to the following table:

Pré-escolar – preschool/kindergarten

1º CEB – basic/primary school (1st-4th grade)

2º CEB – basic school (5th-6th grade)

3º CEB – basic school (7th-9th grade)

Ensino Secundário – Secondary (10th-12th grade)

The characterization of students, according to the International Classification of Functioning (ICF-CY), reveals an incidence in mental/intellectual, neuromuscular/movement and vision limitations.
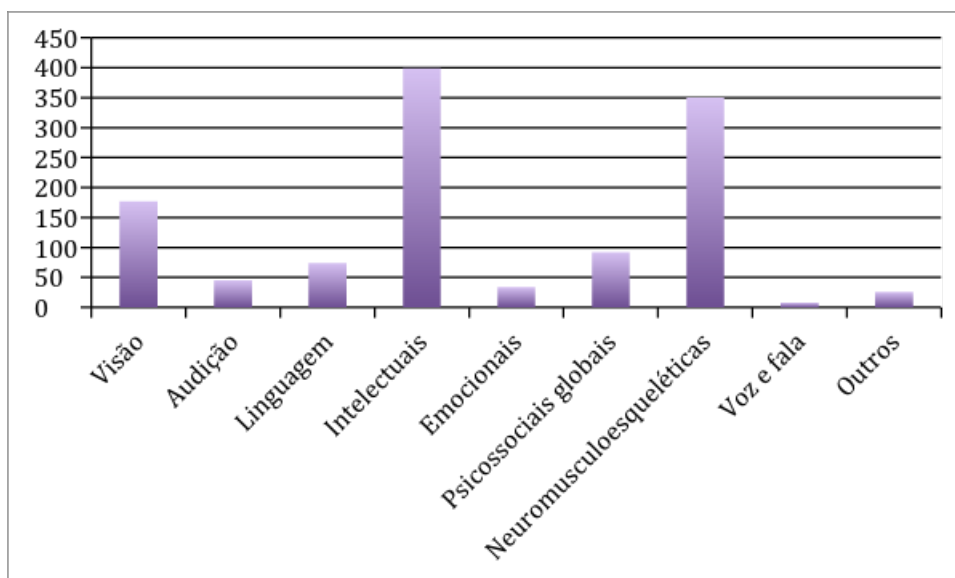
Vision – Hearing – Language – Intellectual –Emotional – Psychosocial – Neuro-muscular skeleton – Voice and speech – other

As mentioned above, the CRTIC network has an important role in the dissemination of information and teacher training and in 2013-14 has dedicated around 1.351 hours to a target public that has included about 3.573 teachers, 400 technical/therapeutic staff, 164 assistants, 1.510 students and 175 parents. The CRTIC network also monitors the situation of students with serious diseases that use videoconference systems at home and in hospitals.

MAGICKEY PROJECT

In the scope of CRTIC activity of assessing students' needs in what regards accessibilities and technologies, some solutions have been disseminated and recommended in cases where students have severe mobility issues and access to computer is eye controlled (e.g. quadriplegia and cerebral palsy).

A solution developed by a Portuguese researcher has been subsidized by Portugal Telecom[33] – MagicKey[34]-

One of the case studies (WP2) presented by CRTIC Stª. Mª Feira refers to it[35].

The solution embraces several products, namely:

MagicEye calculates the user gaze direction and places the mouse cursor on the screen location where he/she is looking. The user can move the head that does not interfere with the operation of the application.

MagicKeyboard is a virtual keyboard with predictive text features. The predictive text is based on a dictionary with about 700,000 Portuguese words and a complex data structure that records the probability of occurrence of each word according to the written words previously.

SCHOOL VIDEOCONFERENCE IN HOSPITALS (TELEAULA)

TeleAula is an answer to hospitalised children to maintain contact with their colleagues and the school's tasks. At the moment, CANTIC/CRTIC Amadora works with four hospitals in the Lisbon area.

The key partners are the Ministry of Education, who assigns the teachers to hospital schools, the Hospital's Administrations (Centro de Medicina de Reabilitação de Alcoitão, Instituto

---

33

http://fundacao.telecom.pt/Home/Acesso%C3%A0scomunica%C3%A7%C3%B5es/Solu%C3%A7%C3%B5esEspeciaisPT/Solu%C3%A7%C3%B5esEspeciaisPTPTMagicKey.aspx

[34] http://www.magickey.ipg.pt/EN/default.aspx

[35] http://youtu.be/GEIhKDIKiGU

Português de Oncologia Francisco Gentil, Hospital de Dona Estefânia and Hospital de Santa Maria), who provide minimum working conditions to the teachers and CRTIC, who provides technological and pedagogical support.

The stimulus to begin this project was the will to answer the needs of a student who was frequently hospitalised. Having gained knowledge of the reality of the children in hospitals and the lack of school support for most of them, CRTIC wanted to extend the first very successful experience to other hospitals. The always changing nature of the hospitals service and the various challenges that TeleAula experiences are a constant call to innovation and search for better answers.

School provision to all children with Special Needs is supported by the National legislation, namely the Decreto-Lei n.º 3/2008 (Specialized support to Special Needs Students) and Lei n.º 71/2009 (Protection of children with oncological disease)

Mapa de um Coração Sonhador

TeleAula is a set of technological resources for helping in distance communication, namely computers, mobile internet connections and videoconference rooms supported by human resources and pedagogical guidelines adapted to the situation of the children and their contexts.

Three distinct models of working are set up: (i) the classroom centred model, where the hospital school is connected to a classroom in a regular school, outside the hospital, following the curriculum of that school and doing the assigned homework; (ii) the school dynamics centred model, where the hospital connects to one or various groups in one or more schools outside the hospital and the contents of each session are defined previously; (iii) and the mixed model, where children can interact with the school of origin but also with the hospital school – if he is in isolation for medical reasons – and may also do the homework assigned by the teachers of the school of origin.

If pedagogically these models demand very different skills from the teachers, technologically, they are not very different although they need different resources.

Being driven by the needs and schedules of the Hospital, schooling must be done following these requirements and valuing the students' needs and feelings.

The main model used in each hospital depends on these constraints. The actual work with every child depends on the time of stay, the nature of the illness (isolation, mood,…), the specific needs in terms of curriculum, etc.

When a child requires special adaptations, the teachers in the hospital contact CANTIC/CRTIC Amadora in order to do an assistive technology assessment.

CRTIC experience has been very rewarding in terms of outcomes. Students maintain contact with the school activities while hospitalised; they can also contact their fellow students and (when the stay is longer) their friends and colleagues, maintaining important bonds with them when friendship is most needed; Students outside the hospital work and visit with their hospitalised colleagues – besides the curriculum, they learn how to use technology and learn social skills; hospital teachers share experiences within the context of a community that faces identical challenges; teachers form all schools involved, constrained by the limitations of videoconference, work together to create visual contents, games and activities that are fun, engaging and pedagogically relevant and reliable; every classroom has to change in order to accommodate TeleAula, making way for very productive ways of working, peer training and involvement and reflection.

Trying to maintain a community of practice that grows in knowledge and helpfulness and shares best practices is one of CRTIC main concerns. Last year, it created a blog that can be found at the web address http://aescolanohospital.blogspot.pt/ where every Wednesday a school shows what they are doing.

To evaluate the work done, every term each hospital reports the TeleAula activity and every year, the teams gather to do an evaluation of the activities completed, the students (number, age, school level,…) reached, the difficulties of each hospital – and planning of next year. A report is made every year by each hospital, presented to the other colleagues and sent to the Regional Directorate.

Creating new creative and pedagogically relevant challenges to hospital schools is very important and one continued goal so, every year, teams work to have projects that can help further improve the quality of the schools. CRTIC has worked in European projects (Comenius, eTwinning – last two years) and with Portuguese institutions and professionals (selected schools, Rotários, Olhando pelo Mundo).

A recent webinar on Hospital Schools and the use of videoconference system was made available in DGE - http://webinar.dge.mec.pt/2014/10/23/do-meu-quarto-vejo-a-escola/ .

MOOC «INCLUSION AND ACCESS TO TECHNOLOGIES»

A Massive Open Online Course «Inclusion and Access to Technologies» was organized in 2014, in the scope of SENnet project, with the collaboration of CRTIC Santarém team as facilitators.

The MOOC was built on the experience of two previous online courses run in 2012 and 2013, in DGE Moodle platform, which were evaluated by participants, with suggestions for improvements.

The MOOC was offered in Portuguese language and disseminated through the national network of CRTIC and to some entities dealing with special needs in Brazil, Cabo Verde, Angola, Mozambique. The MOOC had 927 enrolments, most of them from Portugal but also a significant number from Brazil and Cabo Verde.

MOOC INCTEC2014

At the end of the course, participants were expected to acquire the following skills:

To be able to identify strategies to include students with SEN in mainstream schools

To be able to make accommodations and modifications to the curriculum

To be able to identify principles of Universal Design for Learning

To be able to identify WCAG guidelines

To be able to identify assistive technologies for specific needs of students with SEN

To be able to plan learning units and pedagogical activities (UDL)

To be able to create open educational resources with free Web 2.0 tools respecting accessibility and adopting CC licenses

List of skills

TURKEY

AUDIO STORY AND COURSE BOOKS FOR BLIND STUDENTS AND E-DISTANCE EDUCATION FOR DISABLED

Audio story and course books for blind students and e-distance education have been prepared by our Ministry in the context of FATIH Project. The project was initiated on 22nd November of 2010 with the aim of making ICTs one of the fundamental tools used in the education process, and ensuring active utilization of those technologies by students, teachers, and other educational staff.

Within the scope of FATIH project, it is aimed to provide multifunctional printers for all public schools across Turkey, interactive whiteboards and cable internet connection for all classrooms, and tablet computers for all students starting from 5th grade level and all teachers. On account of high readiness at basic education level credited to the FATIH Project, the development of the people will be more systematic. At the same time extension of the digital education system will be provided in a shorter time and in a more effective way with a comprehensive approach.

The implementation process started in 2010 and the operation is envisaged to be completed by 2017, however, the project will transform into a program supporting ICT usage in classrooms therefore, as technology develops the ICT usage will develop within the scope of this project. Accordingly the first phase of the project covered high schools excluding general and vocational high schools and disabled students firstly for blind people by providing them special tablets. Vocational high schools and disabled schools and the students in inclusive education will be addressed in the second phase of the project. The FATİH Project aims to cover all schools providing ICT technology including local area network, wide area network, fiber cabling infrastructure, tablet computers for both students and teachers, interactive boards for all classrooms and digital content for educational and vocational curriculum to be embedded in the boards and tablets.

Turkey is a country where the young population is concentrated. Naturally, the number of students in formal education is expressed with colossal figures. In order to improve the quality of education and vocational training, various studies and projects are implemented in Turkey.

The usage of information and communication technologies reaching classrooms in an effective way will be provided by the development of technology skills of teachers and the development of effective digital contents. Ministry of National Education has developed a social platform named as Education Information Network Portal [Eğitim Bilişim Ağı (EBA Portal) in Turkish] in which the digital contents can be presented. The goal of the platform is to enable technology integration in teaching by supporting efficient material usage by means of the utilization of ICTs at home, school, in various locations including home and schools. Lots of digital resources prepared by the Turkish Ministry of National Education, students and

teachers, and firms volunteer to share their contents have been presented in EBA. Thus, a basis has been established for letting education also takes place out of educational institutions by opening educational gates to all people. In addition, it also provided the students the opportunity of gathering under the same roof of EBA, cooperate with their peers, and learn team work. Students will help in laying the foundation of a country in which individuals, who are distant from learning attitude, search, examine, and interpret well-prepared resources, and can produce new information. Owing to all those characteristics, EBA stands as a major educational tool for equal distribution of educational opportunities to learners.

In that sense, students and teachers, who relatively use ICTs the most, have been selected as the target group. Furthermore, it is planned to extend the target group for disabled students firstly starting from blind students.

In this context, in order to provide the effective usage of information and communication technologies in educational settings and to make these students use ICT opportunities at the highest level, preparation of the digital content used by both the students and teachers in all educational system, audio books have been prepared by the Ministry.

EDUCATION COMMUNICATION NETWORK

The Educational and Informatics Network (EBA) which has been designed under the component of FATİH Project named as "Enabling and Management of the Educational e Content" within the scope of the FATİH Project is a portal which has been set with the aim of enabling the transformation of the society to information society, generalization of the information culture in education with a systematic policy and meeting the needs of information in education by blending the dynamics of the age such as search engine, social networking, and e-cyclopaedia and can carry the all educational informatics system by developing.

When the Infrastructure of this Portal is designed, it should be taken into consideration that this portal will serve to 700.000 teachers, 17 million students and parents besides all adult students within the scope of the Life-Learning Programme. Now we have nearly 1,257,640 registered users in Turkey.

There are 12 modules in EBA.

MODULES

1. TV and radio: This module is the one in which news coming (courses activity, seminars, documentaries, cine-vision, etc.) from the teachers, schools, provincial directorates which is published in video and sound format.

2. Visual: This module is the one in which all visual contents that have been produced with different purposes in different places (such as lesson, activities, seminars, documentaries or cine-vision) take place. This module meet the visual needs that appear when a book is written, an educational search is made, or a presentation for a lesson is prepared, and etc.

3. Z-book: Z-book is a software for the preparation of enriching, easing of learning process and make it more joyful by supporting curriculum course books with videos, animation ,

sound vision documents, games and etc. All books will be presented to z-book format for PCs, smart boards and mobile devices by the way of an editor. Model practice takes place in this address http://e-kitap.meb.gov.tr7test/e-kitap.html , this is a model practice of e-book.

4. Game: This is a module in which addresses students at different levels has been developed in the frame of educational directions supported with cultural elements and presents 2D and 3D games more than 500 in numbers.

5. R&D: This module is the module in which national and international educational resources, workshops, educational indicators, measurement and evaluation studies, contests, announcement, conferences, and seminars take place.

5. Project: This is an EBA module in which dynamic project sites can be prepared by project wizard, all projects are carried out by the ministry with the working devices of the project partners which will be collected together, project products and success are demonstrated .

6. E-cyclopaedia: In school cyclopaedia project, encyclopaedia form is accepted. By singly ascertaining the gains, the terms and the subjects related to the curriculum; videos (3-5 seconds), informational texts, animations, interactive web tools about the each notions, subject, terms; questions for assessment and evaluation and different supportive tools (photographs, graphics, drawings, maps, tables, forms, audial files, additional animations) are prepared.

7. E- lesson: This module is the one which is designed by inspiring MIT OCW(Massachusetts Institute of Technology –Open Courseware) and in which all lesson video presentations in accordance with the curriculum levels are presented by using the smart board and students and teachers can ask questions (ticket system) and add content.

8. E-content: This is a module in which contents are relevant to copyright engine apart from our Ministry; institutions that have educational contents are presented. There is more than one content provider, it is necessary that all these contents are categorized relevant to curriculum and take place in EBA.

9. Lesson Supportive Tools: This module is the one in which contents have been developed and learning tools are included.

10. News: this is a module in which education news from the students, teachers, schools, towns, provinces and good examples in education are published with workflow and approval.

11. School Information Network: This module is the one which is managed from a single centre, is web-enabling, has multi-tier architecture and aims to increase service quality with ease of use by prioritizing performance, to update the related content without coding of authorized users, oriented to our ministries standards and to use the available sources in the most efficient way.

12. Question-Answer: This is a kind of module in which students can ask their questions within the scope of the curriculum and the teachers can answer these questions. This is like ticket system.

PREPARING AUDIO BOOKS FOR BLIND STUDENTS AND E-DISTANCE EDUCATION

It is aimed to give e-distance education to the students who cannot go on formal education but later as a request from disabled schools the course books of general and vocational students have been vocalized for the blind students. Firstly the books which will be vocalized had been selected according to their contents. Our colleagues preferred the books which do not have much visual content but also they tried to decrease the numerical contents and change them to verbal content in order to vocalize them and help the blind people. The books with verbal contents have also been eased for these students to make them understand easily. Professional anchor men and speakers realized this procedure. There is a vocalization studio in our institution, all procedures and vocalization has been realized in this studio by this professional people. The books which have been recorded had been montage later. The required sounds and effects were added in this vocalization. The books had been divided into 15 minutes sections while vocalization. This decision has been given after a consortium with blind students and their teachers. They are transferred to CD environment. But they are also sent to the schools where blind students have education all around Turkey. At the moment we have 216.077 blind students having education in these special schools and in inclusive education. As all these vocalizations have been also put in mp3 format in EBA website as a digital content.

Statistically there are 1077 sections vocalised and recorded in 15 minutes parts in the website for secondary and high school education. These sections are classified according to the courses given at schools and divided into parts in a logical context.

http://www.eba.gov.tr/ses/acik-ogretim-lisesi-sesli-kitaplari

web sayfası resmi

Especially foreign language texts were localized by native speakers from different countries. This vocalization has not only been for blind students but also for informal education. French , English, German and Arabic native speakers came to our studios and localized the course books for informal and disabled education. This project continues for vocalization of story books and classical books in our studios. This is a sustainable project all over the country.

These are some photos while making this vocalization with native speakers. These are students living in Turkey and native speakers of English and French.

A new project will start in a few weeks about these audio books. New story books, English and French books will be vocalized by inviting native speakers from Embassy of England and French to help our disabled (blind) students listen to story books in English, French and German.

EUROPE

One European innovation of note in 2014 is the ICT4IAL project[36] which aims to develop a set of guidelines for access to information for all and apply them in schools, universities and the European Agency for Special Needs and Inclusive Education, the project coordinator.

Project activities revolve around exchange within the network and working with experts in education and ICT from across Europe, as well as those working with key international organisations to exchange and collect multi-disciplinary knowledge with regard to accessibility of information for learning. Through this exchange guidelines for organisations to improve their information accessibility have been drafted. The Guidelines were trialled in 2014 within the work of three organisations (the Agency, EUN and the International Assocation of Universities) working across the compulsory and higher education sectors with the support and direct input of key advisory bodies for ICT (DAISY, G3ict and UNESCO). A one-day SENnet workshop in May 2014 was devoted to the topic of access to information and a report is available on the SENnet website. The process of the implementing the Guidelines is being evaluated in order to identify learning points that will be of use to other organisations considering future developments in this area of work.

In 2015 a set of agreed practical guidelines to support organisations in providing accessible information will be finalized and disseminated. UNESCO will investigate the possibility of international endorsement of the Guidelines and implementation process findings through its official bodies and G3ict will plan a global dissemination campaign among education professionals and people with disabilities. The final Guidelines will be presented at a Dissemination Event planned in Riga in 2015, an official event under the Latvian Presidency of the European Union.

---

[36] http://www.european-agency.org/agency-projects/ict4ial