



**Inclusion in Europe through
Knowledge and Technology**

**Teaching Foreign Language
to Students who are Partially Sighted
Guidebook**

Inclusion in Europe through Knowledge and Technology

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Inclusion in Europe through Knowledge and Technology

Information on the fundamental principles, practices, educational material and teaching aids used to teach various subjects to students with special needs are few and far between. In some cases, material has been prepared for internal use at specialised schools or in other closed environments. In other cases, knowledge has been passed from teacher to teacher as part of workplace training.

No systematic material on pedagogical principles, practices, educational material and teaching aids exist for areas such as teaching first language teaching, foreign language teaching, mathematics and foreign language for the blind/visually impaired or partially sighted.

With this in mind, the goal of this European project is to further develop, implement and disseminate good practices in the area of inclusive education and learning technologies by delivering three primary components: *Teaching Guides*, *Guide on good practices Inclusive learning and Teaching* and *SMART E-learning objects*.

Teaching Guides

In completing the project, RoboBraille partners have created a series of twelve educational guides covering fundamental principles, practices, educational material and teaching aids covering first language teaching, foreign language teaching, mathematics and foreign language for the blind, partially sighted and dyslexic.

Inclusion Guide on good practices Inclusive learning and Teaching

In support of this, the project has collected and collated information on good inclusion practices in five select areas (teacher skills, alternate media, support structures, preparation for inclusion and teaching environments) which are published in a catalogue of good practices.

SMART E-learning

Finally, the project will adapt a comprehensive set of educational material on the RoboBraille service prepared in the LLL LdV RoboBraille SMART project into a set of learning objects for popular e-learning platforms for web and tablet deployment.

Introduction to this Teaching Guide

General Principles

Low vision/Partial sight

Low vision consists in a non-correctable vision loss that interferes with daily activities. It is defined in terms of function, rather than [numerical] test results. It takes into account both visual acuity and visual field.

Teachers must keep into the account the variety of partially sighted students (different pathologies, central or peripheral visual difficulties, daily or nocturnal vision etc.) and therefore different strategies and recommendations must be selected for each of them.

Partially Sighted Students' teaching and learning approach is not the same as that for the blind students, however in both cases teachers know that total or partial lack of vision is not an obstacle to learning.

Unlike blind students, partially sighted students have a partial command of the experiential world around them, often they can take advantage of the experience accumulated before the loss of sight.

Modern pedagogical criteria referred to students with disability are based on the International Classification of Functioning (ICF)¹. ICF measures both health and disability, takes into account the context and therefore teachers must base their strategies on the functioning profile and not only on the disability of their students.

Teachers may evaluate the opportunity of programming a personalised educational plan for each student with visual disability, based on the learner's abilities, needs, special requirements, prior learning, individual experiences, specific areas of strength and weakness. The special plan should include strategies based on each student's pace and learning style, being specifically goal-oriented. It needs a continuous re-adjustment according to the feedback received from the student (new skills, knowledge, attitudes) and his learning outcome.

¹ ICF is the WHO framework for measuring health and disability at both individual and population levels. (2001 Resolution [WHA 54.21](#))

Sensory-Perceptual Learning

Partially sighted persons spontaneously use alternative channels to acquire and re-organise information. Anticipatory function of sight: a full sighted person can “see” the door handle while he/she is approaching the door; the blind or partially sighted person must first go through the details of the door using a “touch mode” and only after decide what to do.

The perceptual process to acquire information goes through sequential steps, it is not a global, simultaneously visual approach as with “seeing” people.

Teachers should encourage this alternative mode and base teaching and learning strategies on the use of all the senses: visual (sight), auditory (hearing), kinaesthetic/tactile (touch and balance), gustatory (taste) and olfactory (smell). They represent an integrative support to help the student to acquire the missing details and re-adjust distorted information. Each student will have his own channel of preference and his own perceptual mode. The multisensory approach is recommended for **all** the students and is an inclusive strategy.

Narrative, descriptive mode. More complex situations, items, themes will be introduced during the lesson through a descriptive, narrative, mode to compensate for the lack of interaction with the real object, situation etc.

The support of life-like situations will help stimulate concept development and cognitive functions.

Specialised pedagogies associated with teaching a Foreign Language to students who are partially sighted

Foreign languages are an important part of education in every European country. Traditionally, children begin studying foreign languages at secondary school. Many educationalists recommend to study foreign languages at an earlier stage. Young children pick up languages very easily. Their brains are receptive to language acquisition and this facilitates learning another language in addition to their mother tongue.

The Inclusive features and values of learning a foreign language are unique: Since the 1990s, the Common European Framework of Reference for Languages (CEFR)² has tried to standardise the learning of languages across Europe and has included interaction as a fundamental language skill to be developed.

Learning a foreign language can have multiple functions: social, educational, cultural, emotional and inclusive. It represents

- A personal fulfilment
- A culturally broadening exposure and experience in linguistic and cultural diversity
- A path to European mobility exchange
- A contribution to the strengthening of general literacy skills and knowledge through the links and comparisons which can be made between patterns of mother tongue and foreign language
- An interactive way of learning

Knowledge in a foreign language must meet the requirements for:

- Measurability – through specialised tests for each level, consistent with the first five levels of the common European framework.
- Feasibility – the minimum requirement for the degree level of proficiency in a foreign language, i.e. should be attainable for around 80% of the students
- Integration and interdisciplinary connections
- Speed – a partially sighted pupil often need extra time to solve a problem.

² The Common European Framework of Reference for Languages (CEFR) is a European Indicator of Language Competence. It was put together by the Council of Europe as a way of standardising the levels of language exams in different regions. There are six levels: A1, A2, B1, B2, C1, C2

Challenges relating to the disability /specific learning difficulty

General challenges

In some countries, all pupils are taught foreign language from first grade. In books, the learning often is based on drawings. These – and especially details at the pictures - might be very difficult to see if the child is partially sighted.

The most common barrier to teaching the partially sighted students is represented by the traditionally sight based visual teaching approach, with information and teaching material offered in a visual format.

- Non-accessible textbooks (small print, too many images, diagrams, illustrations)
- Handwriting difficulties
- Copying from the chalkboard
- Timed tests
- Lack of eye contact and impossibility to catch non-verbal communication such as gestures, smiles, sad faces)

Other barriers are:

- Lack of assistive technology
- Lack of specific teaching competence related to visual disability and its implication in the learning process
- Difficulty in understanding and complying with the partially sighted students' learning style

It is essential that the teachers assess the visual condition and modality of the PS student (central vision, peripheral vision, visual acuity, visual field etc.) and their preferable communication channel (tactile, auditory, verbal).

A good level of space perception and coordination is fundamental in the learning process of students with partial sight.

Specific challenges

Special attention must be given to the specific aspects of a foreign language such as new and different sounds (pronunciation) and grammatical or spelling rules.

In primary school learning a foreign language foresees the achievement of the same basic skill as mother tongue (listening and speaking, reading and writing).

In secondary school learning a foreign language involves the use of categories and concepts formed in the framework of other school subjects (history, civilisation and geography).

Linguistic competences to be achieved are oral comprehension and oral production, written comprehension and written production.

A description of suitable teaching methodologies practices

Adjustable, flexible, sequential teacher's presentations

- Step by step presentation and description of the subject, theme, problem, procedure.
- Extra timing allowance.
- Replace written tests with oral tests.
- Setting (lighting, possibility to sit near the blackboard).
- Labelling system.
- Explain what steps are needed to reach the desired outcome.
- Repetition and routine.

Relief strategies

- Visual communication must be integrated by descriptions, exploratory and experiential approach.
- Face to face learning activities.



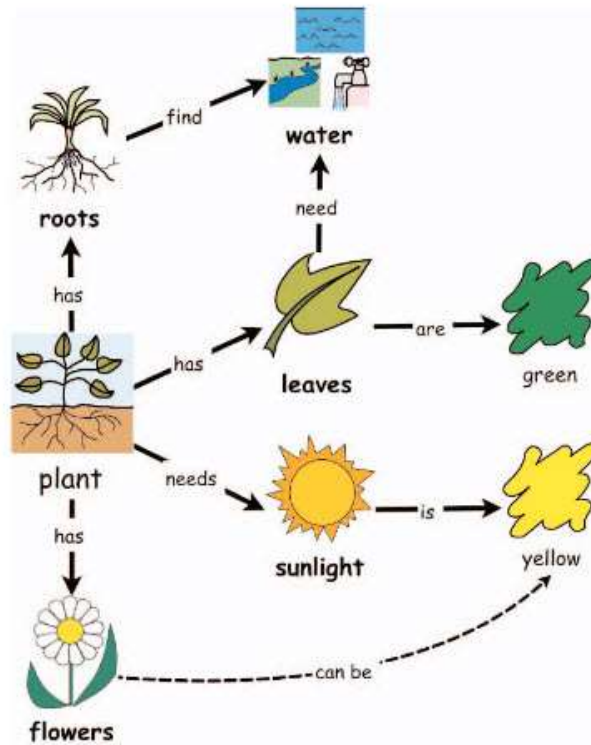
Student making eye contact with his teacher

- Instruct classmates to avoid no-verbal language /to be aware of the non-verbal language, that a partially sighted student might not observe or understand (gestures, mimics that need eye contact) or addressing the student without calling out his/her name.
 - Note: It is difficult to avoid using the non-verbal language among students, which is used in all connections in the society. The partially sighted students have to cope with that anywhere else. It is perhaps better, that the other students are aware of the lack of ability to read this language.



Teacher's pointing hand (inappropriate body language)

- Notify changes in the classroom (obstacles, students sitting in different desks from the previous day).
- Life-like situations must be selected in order to stimulate concept development and cognitive functions.
- Continuous exposure to listening and understanding (relying on partially sighted students excellent vocal-auditory abilities).
- Integration of alternative sensory channels to stimulate imagination, to acquire missing details or re-adjust distorted information:
 - Auditory channel (e.g., noise of water/sea, the perception of a draft air, a distant emergency alarm sound).
 - Tactile channel or olfactory medium (the smell of freshly cut grass or burning smell etc.).
- Dramatised activities (role play, speech and drama).
- Adaptation of curriculum.
- Support of conceptual maps.



Conceptual map of chlorophyllian function in photosynthesis

Adjustable, flexible format of teaching material and test material

- Large print (font size 16 and over), bold print (avoid slanted/italic printed characters).
- Avoid crowded, close together or full pages of print).
- Preferable font style: sans-serif.
- Marked graphic contrast.
- Simple shapes.
- Digital presentation.
- Use of broad felt pens or markers (black or coloured), with special pencil grips for the student, if necessary.
- Use of highlighter markers to help with reading (if needed).
- Use of preferred colours and shade of contrasts.



Student writing with a broad felt pen

Compensatory and dispensatory measures

- Reduce the number of items on the page).
- Allow students more time for copying from the board and/or move students closer to the chalkboard, or place material to be copied on his/her desk.
- Provide students with a bookmark to help keep place when using a standardised scan sheet, have someone fill in the sheet for the student or do not require the use of a scan sheet.
- Frequent visual breaks during sustained near point work.

Details on didactic material

Teachers should adapt the format of the didactic material to the residual visual acuity of each student. For some students enlarged copies and paper material could be sufficient, other students will need digitalised material.

Irrelevant pictures, drawings and diagrams, all should be deleted from the document. Those necessary to the comprehension of the text should be clearly described. A conversation that is presented in a book in a cartoon-like format (e.g. with the use of callouts) should be re-written in a dialogue format.

In case a text includes lists, they should be clearly organised and ordered. e.g. with numbers or letters.

Text irrelevant to the content (like headers, footers, or references) should be either excluded or included in a different way e.g. footnotes and references at the end of the text.

Extra spaces and blank lines should be avoided.

Teachers can also rely on reflowable ebooks (turn to the “Learning technologies section”).

Presentation and adaptation of tests format

The format of multiple choice exercises, filling the gap exercises and combination of sentences are very hard to visualise.

- **Matching exercises** should be completely adapted and written in two lists, sequentially placed in the document in two different vertical rather than horizontal columns, in order to facilitate the reading of the items by the partially sighted students.

e.g. *Match the questions with their answers*

- | | | |
|----|---------------------------------|------------------|
| 1. | Are you coming with us? | A. No, he didn't |
| 2. | Did he tell you about it? | B. Yes, they do |
| 3. | Do they understand the problem? | C. No, we aren't |

This exercise should be so reorganised for the partially sighted students in this form:

1. Are you coming with us?
2. Did he tell you about it?
3. Do they understand the problem?

- A. No, he didn't
- B. Yes, they do
- C. No, we aren't

- **Filling blank spaces**

Exercises that require **filling blank spaces** could be also reorganised in various ways. The teacher can decide with the partially sighted student the most comfortable way to present the exercise.

Filling the gaps exercises represents a problem because it is difficult for the partially sighted students to visualise the exact position of the gap to fill in.

One solution is to place the gaps at the beginning of the line. The gaps should be identified as empty spaces (3 or more) in order to facilitate the reading or through a screen reader.

Another way to present these exercises is to define a word together with the teacher who will then replace the gaps with the chosen word.

Example:

“Complete the descriptions with the words below:”

red

house

ice cream

pizza

1. When I was in Italy, I ate a delicious in a typical restaurant.

2. My favourite colours are and blue.

3. Our son loves having an on Sundays with his friends.

4. Is your right there?

Adaptation 1:

The words are positioned below the exercise in list form:

red

house

ice cream

pizza

Adaptation 2

The blank space is replaced by a chosen word = e.g. *wow*

red

house

ice cream

pizza

1. When I was in Italy, I ate a delicious *wow* in a typical restaurant.

2. My favourite colours are *wow* and blue.

3. Our son loves having an *wow* on Sundays with his friends.

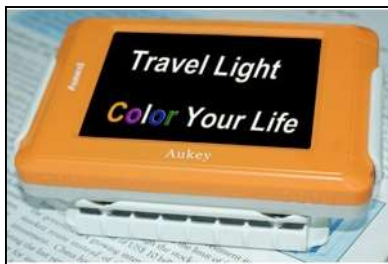
4. Is your *wow* right there?



Desktop Magnifier



The portable version is a device with a camera on the underside that captures the image of text, pictures, or other items, and a monitor on the top side that displays the image. It can also have a built-in bright light. It can be hand held or meant to be placed directly on the reading page. A hand-held magnifier is especially useful for brief "spot" reading and for portable use. They have a smaller field of view than a CCTV.



Hand held portable video magnifier

Portable video magnifier



Portable magnifier combining distance and near viewing

There are also models specifically produced for use in the classroom, because they have a flexible camera that can be directed towards the blackboard and display on the student's monitor what the teacher is writing on the board.



Long arm video magnifier

Computer accessibility tools

The two main computer accessibility tools are screen magnifiers and screen readers. They are both used for ASR audio supported reading. A screen magnifier is a software that interfacing with a computer's graphical output, enlarges part (or all) of a screen. Some screen magnifiers enlarge text, icons, cursor and other graphics up to 20 times or more. Screen magnifiers provide features such as colour inversion, cursor customisation, different magnification (the presentation of the enlarged portion can cover the full screen, provide a lens that is moved around the un-magnified screen, or use a fixed magnified portion). Screen magnifiers also offer speech output. It can be used in concert with a screen reader. The digital text is displayed in on-screen magnified print in synch with speech driven by screen reader technology. Partially sighted students accessing visual and audio information simultaneously can have the advantage of seeing each word highlighted as it is spoken via speech.



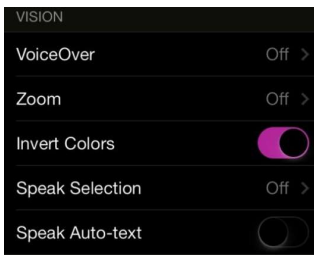
Screen mag|Screen reader

A Screen reader is a reading software, which reads aloud all of the text and text-based elements (such as characters, words, titles, paragraphs) displayed on a computer screen. Screen readers speak letters, words, numbers, punctuation, and elements aloud, sending the voice output to the computer speakers or connected headphones. Screen readers announce each keystroke as you press it, decode and describe icons, and even describe certain graphic images. Screen readers also include special mouse navigation keys to manipulate the mouse pointer, moving it on the screen and to press other keys to perform a mouse click or double click. Screen readers are meant for blind students by they are also used by partially sighted students because they reduce eye strain and because sometimes the magnification offered by a screen magnifier is not sufficient.

Digital books

Partially sighted readers, though supported by enlarged prints or magnifiers take appreciably longer to complete tasks requiring reading than do their sighted counterparts and their reading rate levels are not comparable to those of average print readers. Students therefore supplement their print access with audio supported digital material.

An electronic book (or e-book) is a book publication made available in digital form, consisting of text, images, or both, readable on the flat-panel display of computers, ebook readers, tablets or other electronic devices. Also known as fluid eBooks reflowable formats support the individual needs of students with partial sight in terms of magnification, contrast, fonts as well as foreground and background colours. The two most common reflowable eBook formats are Mobi for Amazon Kindle and epub for all the other major devices including Apple's iPad and iPhone, B&N's Nook, Kobo, Google Play and OverDrive. A reflowable document is a document that can automatically rearrange its layout to fit any output device. For audio support ebooks can be read via smartphones and tablets. Some smartphones and tablets feature default accessibility options like magnification, colours inversion, speech output etc. In particular, Apple devices feature a built-in screen-reader called Voice Over, which comes pre-installed in all Apple devices, including smartphones, tablets, tvs, watches. The Android OS features a similar application, called Talk Back, which is often already present on the device or that can be installed manually.



Smartphone screen with inverted colours



Smartphone with speech output

The Daisy format boosts special features that can improve reading experience, such as deep navigation functions, bookmarking, spelling, adding notes, etc.

Text to speech

A Text-to speech synthesizer is a piece of software that can convert text from an electronic document into an audio file using a synthetic voice that closely reproduces human voice. TTS engines are available in a variety of languages, and can coexist on the same machine, thus making it easier for foreign language students to convert long blocks of text into audible format. In addition, some screen-readers combine TTS with magnification so that a student can hear spoken text and watch it at the same time, this activates both auditory and visual perceptions.

Robobrainle service

Digital material can be converted into accessible alternative formats by using RoboBraille service.

RoboBraille is a web and email service capable of converting educational material and other textual material into a range of accessible formats including mp3 files, e-books, digital talking books and Daisy. The service can furthermore be used to convert otherwise inaccessible documents such as scanned images and pdf files into more accessible formats. RoboBraille offers the partially sighted students three categories of services:

1. Audio services: All document types listed in the previous section may be converted into mp3 files. Furthermore, RoboBraille is capable of converting well-structured Word documents (doc, docx, xml) into Daisy Talking Books complete with audio. Similarly, RoboBraille can convert docx documents containing math (composed in MathType) into Daisy books with spoken math. The audio conversion services currently include high-quality voices for the following languages: Arabic, Arabic/English bilingual, Bulgarian, Danish, Dutch (male, female), English/American,

English/British, French, German, Greenlandic, Hungarian, Icelandic, Italian, Lithuanian, Polish, Portuguese, Romanian, Russian, Slovenian, Spanish/Castilian and Spanish/Latin American.

2. E-Book services: Most document types listed above may be converted into the popular EPUB and Mobi Pocket (Amazon Kindle) e-book formats. The service also supports conversion of documents into the EPUB3 format, including EPUB3 books with media overlay. Furthermore, EPUB may be converted to Mobi Pocket and vice versa. To accommodate users with low vision, the base line of the body text in an e-book may be raised to allow for more appropriate text scaling in mainstream e-book readers.
3. Accessibility services: Otherwise inaccessible documents such as image files in gif, tiff, jpg, bmp, pcx, dcm, j2k, jp2, jpx, djv and image-only pdf, as well as all types of pdf files can be converted to more accessible formats including tagged pdf, doc, docx, Word xml, xls, xlsx, csv, text, rtf and html. Word and rtf files are converted into text or tagged pdf files subject to the format specified by the user in the subject line, e.g., txt or pdf. PowerPoint files are converted into tagged pdf, web projects or rtf files. In addition to the traditional email-interface, RoboBraille is available via the web form at <http://www.robobrainle.org/>

Specific suggestions

On line translation Google translator is very useful because in addition to the translation, Google software gives the correct audio pronunciation. <https://translate.google.com> For mobile devices there are specific apps for both Apple and Android

Easy procedure:

- Choose the language (from native to foreign)
- Write the selected word or sentence
- The translation appears on the screen
- Click on the symbol of the microphone to hear the exact pronunciation
- Zoom the word to check and memorise the correct spelling

Online dictionaries accessible with voiceover are:

- New Oxford American Dictionary – totally accessible
- Cambridge Advanced Learner's dictionary - Cambridge University Press - partially accessible with voiceover, totally accessible with screen magnifier

- WordReference Random House Learners Dictionary of America English and Collins Concise English Dictionary are free online dictionaries.

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