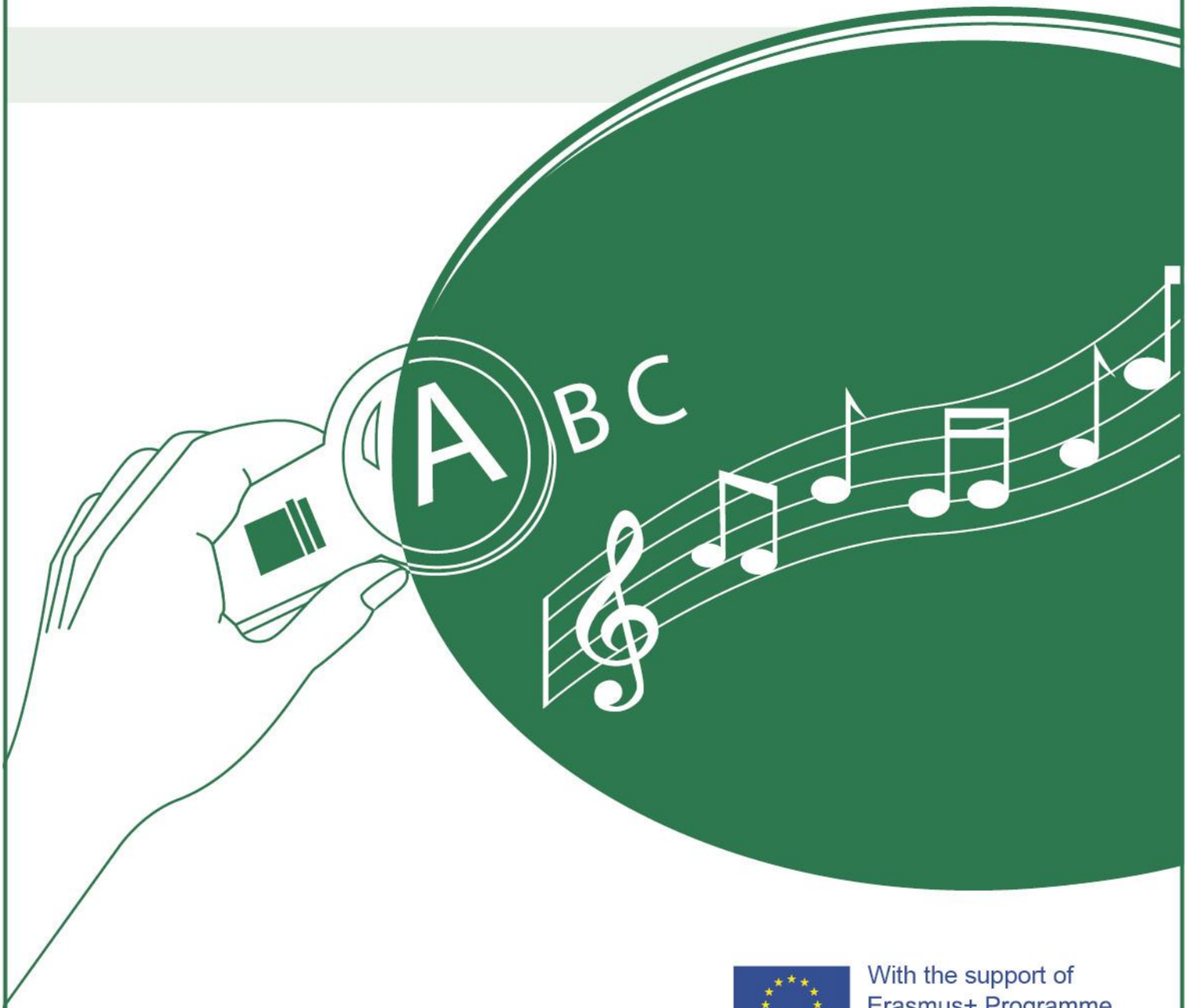
Teaching the Partially Sighted

Music



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A series of special education teaching guides

Inclusion in Europe through Knowledge and Technology

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Teaching Music to Students who are Partially Sighted

Contents

Inclusion in Europe through knowledge and technology 7

Teaching guides 7
Inclusion guide on good practices inclusive learning and teaching 7
SMART e-learning 7
For all materials produced by this project 7

Introduction to this teaching Guide 8

Low vision/partial sight 8
Sensory-perceptual learning 8

Specialised pedagogies for teaching music to partially sighted students 10

Challenges relating to the disability/specific learning difficulty 10
A description of suitable teaching methodologies and practices 11
Learning technologies for inclusive teaching of music to partially sighted students 15

References 18

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 music for blind and partially sighted students.

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 g*ood 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 music 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.

For all materials produced by this project

Because the material covers teaching of students of various age, they are named students, learners, pupils and children. The material also reflects the different culture and level of inclusion practices of the project partners. The guide is not a substitute for formal training of teachers.

Introduction to this teaching Guide

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 him, often he/she 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 an Individual Education Program (IEP) 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 IEP 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.

Sensory-perceptual learning

Perception is fundamentally multisensory. The 21st century civilisation is predominantly visual. An inclusive teaching and learning environment must stimulate **all** the students towards sensory integration rather than let them proceed "sense by sense".

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

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

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 sighted 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.

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 for teaching music to partially sighted students

It is a well-known fact that the human body is so efficient that it is able to supplement the lack of a sense through very complex functions so it can operate as a whole. What we are talking here, specifically, is about the compensatory auditory functions, the perception of beauty through hearing is the simplest and most straightforward development of the right hemisphere functions. If auditory perception of beauty is accompanied by the ability to represent beauty (e.g. the child is able to play the piano), then we have truly reached to the core of the problem.

Music triggers affective processes of the most varied and unexpected kind, from musical emotion with a wide range of expressions – joy, inner experience, the feeling of harmony, spiritual elevation – to explosive discharges of collective exaltation.

Music is very important in the life of a visually impaired child, both as a therapy (emotional balance) and also as a possible form of future professional orientation.

Music also stimulates inclusion and equal opportunities between sighted and partially/non-sighted students.

Challenges relating to the disability/specific learning difficulty

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 such as pictures, tables, diagrams and videos.

Teachers should definitely rely on technological devices such as magnifiers, electronic pads, lots of audio material to compensate for the limited sight.

A good level of space perception and coordination is fundamental in the learning process of students with partial sight. This applies also to teaching and learning to play a musical instrument.

Learning the piano (one of the most popular instruments among partially sighted or blind students) involves, besides developing pure physical skills, the creation and stabilization of complex conditioned reflexes.

The physical abilities required are related to the capacity of differentiated coordination of certain body segments. Like fingers, for instance. It's pretty hard for a child to play on five consecutive keys using his right fingers in a certain order and his left fingers in the reverse order. This coordination exercise has a tremendous effect on the two hemispheres. For visually impaired children this is an even greater challenge because they cannot visually control the movement of the fingers on the five keys. After consistent practice a highly effective first conditioned reflex is developed that will be useful in other areas of learning and life.

After developing physical skills, the next stage involves increasing the students' self-consciousness. Once a piece of music has been learnt, interpreting it, has to do with self-consciousness. Students who can coordinate their body parts in order to express emotional states through nuancing the sounds produced belong to a category with clearly developed self-consciousness.

A description of suitable teaching methodologies and practices

Auditory perception and education to listening

Visually impaired children usually listen to a lot of music and learn spontaneously, without coercion, dozens of songs. They sometimes show outstanding musical skills (rhythm, auditory perception, voice playback, auditory memory, good hearing, musical creativity).

Before getting to the notations activities all children need a good education to listening.

We can deliberately close our eyes and choose not to see the outside world, we can select what to look at, but we cannot deliberately or consciously close our ears: the sound world come uninvited to us.

For children having sight problems the education to sound listening (distance, range, intensity, rhythm, source and amplification) is particularly significant: the environment is the easiest source of all the existing variety of sounds including what the space itself offers in terms of sounds. Teachers will stimulate students to distinguish the pace, timbre, duration of sounds and to identify its origin. As a second step, teachers may introduce instruments, encouraging students to recognise them by their sound, and telling which role they play within a song, thus adding a brick in their cultural background.

The musical instrument

For pupils who are partially sighted, instruments should be presented to them taking into account their range of vision: vision loss on the right side, vision loss of the lower visual field etc.

It is important to present the instrument in the optimum visual field for the pupil in order to avoid the pupil having to use odd body posture to optimise their vision.

Bringing any instrument from outside the learners visual field can be alarming for pupils as they may not realise the instrument is there until it is very close to them. The same goes for using microphones. Give the pupils the microphone and let them bring it up to their mouth, rather than moving it towards the pupil's mouth yourself.

It is important that the students are able to explore the instrument with their hands so that they have a good spatial awareness of the layout, shape, different parts of the instrument.

A good clear contrast of colour is also very important. Coloured stickers can be used to highlight specific notes to help the pupils navigate their way round the instrument. If a

visually impaired pupil is playing two-handed percussion then it is often best to use two beaters of contrasting bright colours.

Choosing the musical instrument

The choice of an instrument must take into account the student's interest for the musical instrument and its sound; however, instruments that give the most tactile-aural feedback are usually the most appropriate for the blind or partially sighted. With violin, piano and guitar the actions of the fingers have a direct effect on the note produced.

Xylophone, and also other forms of tuned percussion that require hand-eye coordination are more challenging because the sound is produced by small movements made using a long beater. The long beater and small surface area of each note make it extremely difficult for the student to predict where the beater is going to land.

Actual presentation of as many musical instruments (different types of guitars, saxophone, singing bowls, drums, etc.) allows children to discover the preferred musical instrument and increase motivation for learning it.

Figure 1: Drums

Figure 2: Students playing guitar

Listening to certain songs, but especially listening to other visually impaired students who play different musical parts, may refine their taste and increase their desire and confidence that they can learn an instrument.

Singing

Singing in a choir or chorale can have multiple functions: musical, social, educational, cultural, emotional, and inclusive.

It stimulates the participation of the more reserved children, it brings a sense of belonging, increases confidence and self-esteem and contributes to diminish anxiety and tension.

New and significant relationships can be created within a choir.

Figure 3: An inclusive choir

An inclusive choir with mainstream and special education students can change its participants' social perceptions of the "other". It builds self-esteem because class mates discover the musical skills of the partially sighted students and what extraordinary contribution they might bring to the choir performance.

Learning music

The most important aspect to be considered at early stages of music approach is establishing whether the partially sighted student can read music sheets by means of his or her residual sight, and if so, if this can be done while playing the instrument. This is crucial for addressing the student to the most suitable approach to reading music.

In case a student cannot access music sheets, not even by using large-print notation or technical aids, then a blind-like approach is necessary, which means reading and writing the musical sheet notation using Braille signs or tactile sheets (embossed notations)

Learning music is of course not only reading it. It should focus on the sense of hearing from very early stages, by encouraging pupils to listen to different music styles as well as to different instruments, to record their performances and replay them again and again, which allows them to be aware of the mistakes they have done, of the moments that can be improved, the balanced development of self-esteem by observing the qualitative differences between a starting moment and a final one.

Developing an auditory understanding (hearing intuition) of the structure and peculiarities of music can dramatically help memorizing and reproducing a song.

Hearing intuition is achieved by listening carefully to the song to be learnt (pitch, duration, rhythm, text). In music, some skilled pupils can even develop the ability to recognise notes just by hearing them, just as if they were reading music notations. Less musically-gifted students can still benefit from using those tools that require auditory attention rather than skills, such as rain stick, ocean drums, tank drums, singing bowls, bells, etc., which will encourage them to participate in music classes.

Teaching activities

These exercises should be organised successively, logically, from simple to complex, using methods as varied and attractive, the teacher having the task to prepare and apply them with care and tact, making them an on-going form of lively game, motivated positively.

Any method can lead to either passivity or activation of children's interest. It is the teacher who must choose those methods and mobilizing processes which will determine children's conscious participation in musical activities**.**

Rhythmic exercises – these contribute to rhythmic skills, which further help to mark the breaks, the duration of the sounds, stressed and unstressed beats. For this purpose, percussion musical instruments can be used (drums, triangles, tambourines, castanets), and in their absence, the rhythm can be marked by walking in marching steps, jumping, clapping, snapping fingers. This type of exercise can lead the child to accompany the melody with rhythmic movements of the arms, body, legs, engaging his/her attention and interest in the activity.

Melodic exercises – they involve the execution of a simple melodic line, which includes elements of intensity, duration, pitch and timbre combined upward and downward on the musical scale. Musical memory exercises: children reproduce after hearing melodic-rhythmic fragments, improvised by the teacher or included as fragments from a song.

Story telling: this is a method less frequently used in music therapy activities, given its specific verbal exposure over the ideational content (in music, this is expressed through the

language of musical sounds). This is used more in song teaching, as a stimulus, and in listening to music activities. When listening to songs, short narratives may come in handy, exposed by the teacher on the melodic theme, to stimulate the children to imagine an action, a landscape, a dialogue etc. – this way, music greatly contributes to the development of children's imagination. Such an approach may take the form of a complex activity of educational therapy, which also involves language education by using songs.

Conversation: conversation consists in the dialogue between the children and the teacher and can be achieved in all educational-therapeutic activities related to music. Questions should take into account the degree of musical perception, understanding of ideational content and the degree of interest in this activity. By using questions and answers, the teacher sets the overall level of musical development, on an individual or group level and at the same time can arouse interest, curiosity and desire of children to learn songs, musical games or hear certain songs.

Problem-solving: when using this method, the educator verbally engages the children in unknown situations, situations that are often at odds with their experience. This method actually means finding the right tone or suitable tempo of a song, singing game or musical game.

Learning technologies for inclusive teaching of music to partially sighted students

Reading and writing music

Partially-sighted students can benefit from using common reading-writing aids, such as electronic magnifiers, screen-readers, magnifying software, large-print sheets, adjustable lighting. Although these aids can be very helpful for partially-sighted students to approach paper notation just the same way their sighted fellow students do, these sometimes fail, due to music peculiarities, such as different symbols, a wider special distribution of signs, and the importance of every single graphical sign (no word or sentence reconstruction is possible). When visual reading proves insufficient, then tactile reading can still be a choice.

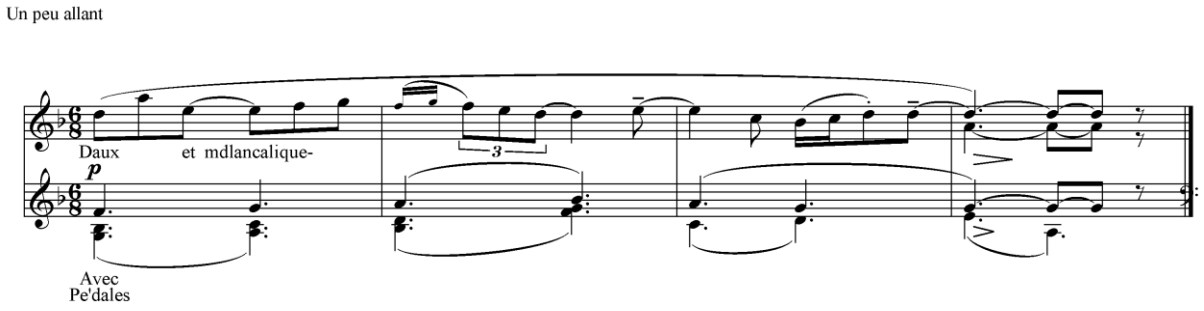

Figure 4: Musical scores - Normal size

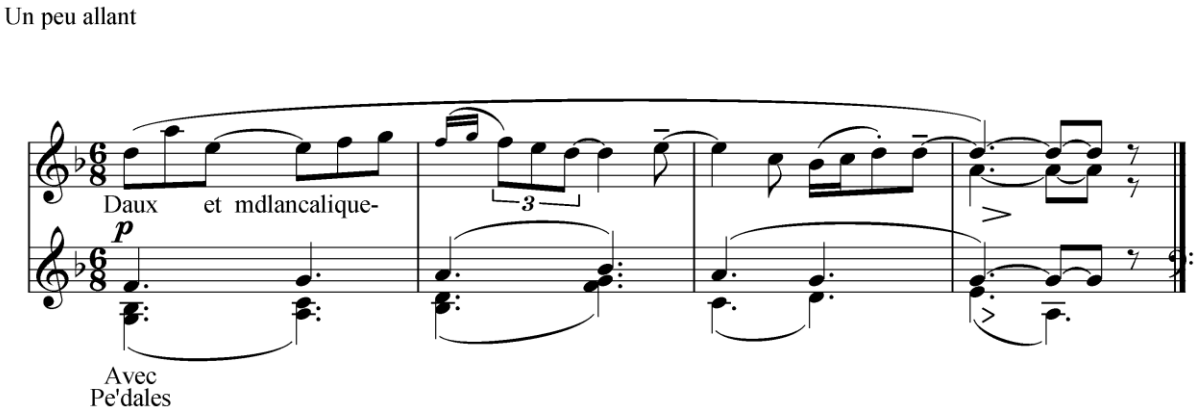

Figure 5: Magnified musical score2x

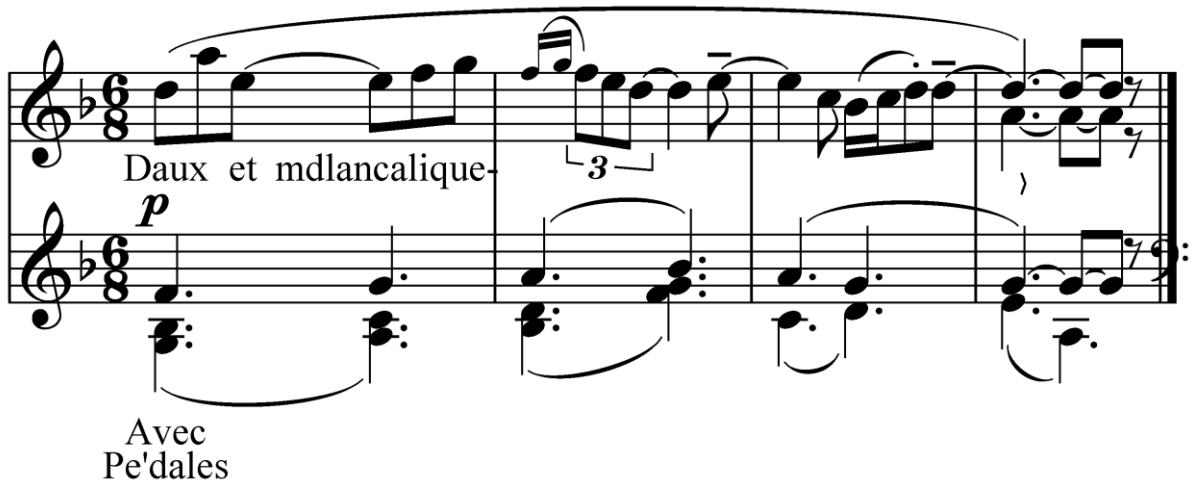

Figure 6: Magnified sheet music 4x

Paper musical notations or tactile signs can today be replaced by electronic Music Pads. Music pads are digital touch-sensitive sheet music with pre-installed software that makes the notes more legible by changing size or by using different background colours.

Figure 7: Partially sighted trumpet player reading enlarged music scores via computer

Computer software for producing music notations can prove very helpful when combined with a screen magnifier or with colour/size adjustments. This software can make it easier to access music, and can help managing music sheets, allowing conversion into accessible formats according to the specific needs of each student.

Some examples of such software are Sibelius, Finale and Dorico.

Instrument customisation

This process is especially needed on first approach to a new music instrument. With time and experience, partially-sighted students will learn to recognise the various parts of their instruments, keys, strings, etc., and special workarounds will no longer be necessary.

Colour or tactile markers, such as stickers, can be placed on some parts of the instruments, just to reference some relevant points. The student's attention should however be pointed to the instrument's native peculiarities. For instance, keys on a keyboard are black and white, the former are raised up over the white ones which are flat, a guitar's strings give a unique tactile feeling, etc.

References

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