

## “OMDER – Orientation and Mobility: Digital Education Readiness”

# The Manual

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## **Chapter 1 – Partners' introduction**

This chapter is dedicated to the presentation of the four partners involved in the activities of the OMDER project as well as to the presentation of the Orientation and Mobility (OM) activities they exploit inside their organizations.

### Istituto Regionale Rittmeyer per i Ciechi, Trieste, Italy

The Istituto Regionale Rittmeyer per i Ciechi was founded in 1913 thanks to the munificent donation of Baroness Cecilia de Rittmeyer, very sensitive to the issue of visual impairment, in the spirit of Protestant patronage.

The progress of the activities of the Institute has been marked by scientific and social progress and by the changing needs of users: from Centre for the Blind to Educational Institution, with also multi-disabled nucleus and occupational laboratories.

Nowadays it maintains many of the already consolidated activities – support for school and university students, professional training, the occupational laboratory, the Residence for the elderly with reduced vision and the daytime recreation centre for the elderly.

The multidisciplinary approach is possible thanks to the skills of the professional educators and establishment of a multidisciplinary team. Specialists in typho-pedagogy, psychology, psychomotor skills, physiotherapy, music therapy, speech therapy, visual rehabilitation, basic stimulation, pet-therapy, multi-handicap, horticultural therapy, personal autonomy, orientation and mobility. In addition, we work actively in the development of an effective path in support of school integration with specialist intervention in favour of children, presence in schools, support for teachers, programming of parallel activities.

The OM course is aimed at people belonging to all age groups: with children, the work is gradual, has a playful imprint and is initially aimed at the acquisition of OM prerequisites (use of the senses vicarious to sight, possession of the body scheme, the concept of laterality; spatial and temporal orientation skills, general and fine motor skills; cognitive, social and communicative skills). With adults, the course is more intensive, and takes into account factors such as: age, modalities already acquired, the socio-environmental context of the trainee, and the trainee's needs in order to structure an ad hoc project for the user.

### National Rehabilitation Centre for Blind, Plovdiv, Bulgaria

The NRCB was established on October 17, 1966 with training in basic rehabilitation (OM, daily living skills) and vocational training in electrical installation and basketry. In 2004, NRCB received a license from the Ministry of Education for vocational training of the visually impaired. Over the years we have provided training in massage, upholstery, office secretary, word processing, ICDL, bicycle repair, hand knitting,

complex instructors, etc. The Complex instructor curriculum prepares basic rehabilitation instructors for the needs of day centers across the country. Guide dog trainers also take the OM course at NRCB.

The following activities related to OM training are carried out in the NRCB:

- Motivation and diagnostic assessment.
- Accompanied mobility.
- Moving around in the small space.
- White cane techniques.
- Leading lines.
- Crossing a street.
- Exploring routes.
- Using tactile maps and three dimensional models.
- Learning to use different vehicles.
- Using special technical aids and applications for navigation and location.
- Remote learning.

#### IRIS Centre for Education, Rehabilitation, Inclusion, Counselling for the Blind and Partially Sighted, Ljubljana, Slovenia

Centre IRIS was established in 1919 as the central educational institution for children and youth with visual impairment. Following the act from the year 2000, the population of visually impaired can enroll in the central or mainstream educational institutions. Centre IRIS implements some educational programs inside its premises. Since today only a few students attend the Centre IRIS educational programs, itinerant teachers support youth with visual impairment across the country. One important area of work and services offered by the centre is training of special education activities in areas of expanded core curriculum for blind and partially sighted pupils and students, namely OM, compensatory skills, daily living skills, recreational and leisure time activities, social skills and assistive technology.

The OM courses take place in Centre IRIS for learning basic indoor and outdoor OM skills, as well in one part of the Centre IRIS's Sensory Garden, which is a special range with different tactile floor surfaces, higher or lower obstacles, bridge for maintaining balance etc. OM training as well takes place in home towns and mainstream schools of visually impaired pupils. We teach the children to learn their body image, spatial concepts, use of protective body posture, strategies of exploring new indoor places, toys (as pre-canes), use of tactile graphic maps, use of white canes, sighted guide techniques, etc. We teach the youth how to use tactile mental maps and the use of public transport. Centre IRIS organizes education about OM for parents and teachers in mainstream schools. We inform the parents and youth with visual impairment about the rights for special aids and the process of acquiring them. The assessment of pupils'

environment is also made with given recommendations about adjustments to enhance the use of residual sight.

HILFSGEMEINSCHAFT DER BLINDEN UND SEHSCHWACHEN OSTERREICHS VEREIN,  
Wien, Austria

The Austrian Association of the Blind and Visually Impaired is a non-profit association and has been working for an equal and self-determined life of visually impaired and blind people since 1935. Autonomy and independence as well as increasing quality of life for all visually impaired and blind people in Austria are our goals.

Under the motto "We see the world a little differently", the Hilfsgemeinschaft works for blind and visually impaired people on these topics:

- Free counselling for blind and low vision members.
- A colourful range of leisure activities for people of all ages.
- House Waldpension for vacations, permanent living and care.
- Awareness raising in the public on the situation of blind and visually impaired people.
- Representation in different national and international committees.

The Hilfsgemeinschaft offers advice to companies, organisations and authorities in planning and implementing barrier-free measures that are so important for visually impaired people and OM. It provides information about new developments in several technological domains (smartphones, tablet computers, e-book readers, etc.) and shows which devices are helpful for visually impaired persons and how they can be used in everyday life.

## Chapter 2 – Orientation and Mobility in different countries

This chapter is dedicated to the explanation of how national governments can support OM activities at a national level and how to become an OM teacher in the partners' countries.

### In Italy

In Italy there are no training schools or university courses aimed at becoming a Rehabilitation Technician in Orientation and Mobility. Only in 2019 a first level Master course in this field was promoted by the University of Genoa. Currently there are only training courses promoted by the Regions with the partnership of Institutes or Training Bodies (such as I.Ri.Fo.R.) accredited in the field of visual impairment. These courses, the last of which was held in 2010/2011 in Trieste (thanks to the Regional Institute Rittmeyer for the Blind, which strongly supported it), employ instructors belonging or not belonging to professional associations and already specialised previously in similar courses for training.

During their training, the OM technicians experience, through simulations of visual impairment, the difficulties, fears and uncertainties that normally characterise a visually impaired person, and it is in this situation that they are given lessons on strategies, techniques and good practices for safe mobility. By means of notebooks, the future instructors are then invited to transcribe the techniques taught orally by their trainers, enriching them with their own emotional and experiential experiences in order to promote the empathic aspect that will have to characterise the role they will have to play tomorrow.

### In Bulgaria

The government provides an annual subsidy to the NRCB for all activities. Once every three years, a visually impaired person can receive a free white cane from the Social Assistance Agency.

The OM discipline is taught in the Bachelor's degree of Special Pedagogy and also in the Master's degree of Pedagogy of the Visually Impaired at the Sofia and Plovdiv Universities. The NRCB, under programs approved by the Ministry of Education, annually conducts courses to train OM instructors for the needs of day care centers across the country and also for the needs of late-blinded adults.

### In Slovenia

The government provides financial support to private citizens in buying special aids (as for example the white cane).

There are also some adjustments such as for example tactile floor leading system in public places – centres of cities, near IRIS school or the Union of the Blind. There are tactile models of cities in main cities of Slovenia and Braille descriptions in public transport stations, ATMs, medications, elevators. Also, there are audio and tactile signs on traffic lights and audio support on buses for stations. There is a network of

assistants (Union of the blind) supporting the organizations for visually impaired, like Union of Societies for the visually impaired, Eye clinic national rehabilitation centre, etc.

To become an OM teacher in Slovenia, people have to attend a study program typhlo pedagogics (to become teacher of visual impairment), opened only once in Slovenia.

### In Austria

Depending on the personal situation (e.g. place of residence, employment status), different sponsors are responsible for financing these trainings. The approval of the reimbursement of costs can therefore vary greatly. The costs for OM training are financed in full or in part by the Social Ministry Service, the Vienna Social Fund and other public cost bearers.

In Austria the Social Ministry Service has set up in year 2019 a recognized full time Training as a specialist in the field of "Orientation & Mobility for visually impaired and blind people" (rehabilitation specialist)

Interdisciplinary collaboration with other professionals from the fields of medicine and therapy, education and social services is of central importance.

Prerequisites for participation in the course are training in the social, pedagogical or psychological field is an advantage. There is an admission interview which allows to the training, whose aims are related to acquire knowledge and skills to train people with visual impairment or blindness in various techniques for independent orientation and mobility. The contents are mainly: basic training in orientation & mobility, assistive devices, low vision, self-awareness; the theory regards relevant sub-areas the teaching practice is accompanied, supervised, unaccompanied. The course duration is a full-time training with a total of 1,200 hours, divided into 5 modules plus teaching practice; including self-awareness and theory plus "course for specialists in visual impairment or blindness". The total costs is € 24.000,00 and the certificate is as Specialist in the field of "Orientation & Mobility for visually impaired and blind people".

### Chapter 3 – Inputs

This chapter is dedicated to the definition of the prerequisite that are needed to become an OM teacher; it means which requisites a person already needs to acquire before to become an OM teacher.

A very essential part of the OM teacher's personality is his/her personal and psychological-pedagogical qualities: as personal characteristics, a good instructor must possess empathy, readiness for interpersonal helping relationships and a good psychophysical balance. Other relevant personal qualities are the ability to maintain verbal contact and to be a good listener, the tolerance, the ability to motivate, the flexibility and adaptability in relationships. Important creative skills are the ability to work as part of a team and to be able to work with parents and relatives, to ensure complete security and safety, to have a good mental stability, sociability, empathy, and predisposition to trust.

An OM teacher should be patient, emotionally stable and good at finding common ground with the trainees. He/she should possess an open mind, a positive attitude towards people with vision impairments and great communication skills. A very important skill for OM teachers is the ability to put themselves in the trainee's shoes and structure the lessons with the trainee's individual needs in mind. The skill to give precise, short and adequate instructions that are understandable for each trainee is also very important.

The instructor must also:

- be able to carry out study and research, teaching, consulting and support activities in all areas in which his or her specific professionalism is required;
- contribute to the training of support staff and contribute directly to updating their professional profile;
- promote professional activity in social-health facilities, public or private, on an employed or freelance basis;
- be interested in disability issues, to possess a discrete knowledge on the problems of blindness and low vision, possibly driving skills and educational background and knowledge of information technology. It also comprehend the acquisition of special aids procedures, the knowledge of the different types of white canes, as well as the sighted guide techniques, the knowledge of use of mental map, reading Braille;
- know the principles of urban accessibility and planning, show willingness to move independently within the provincial/regional territory, also in areas not served by public transport and, of course, have a good knowledge of country language.

Finally, for the OM instructor of the practical training in the environment, a basic requirement is that he/she has good eyesight: this is believed to be important for the safety of visually impaired trainees.

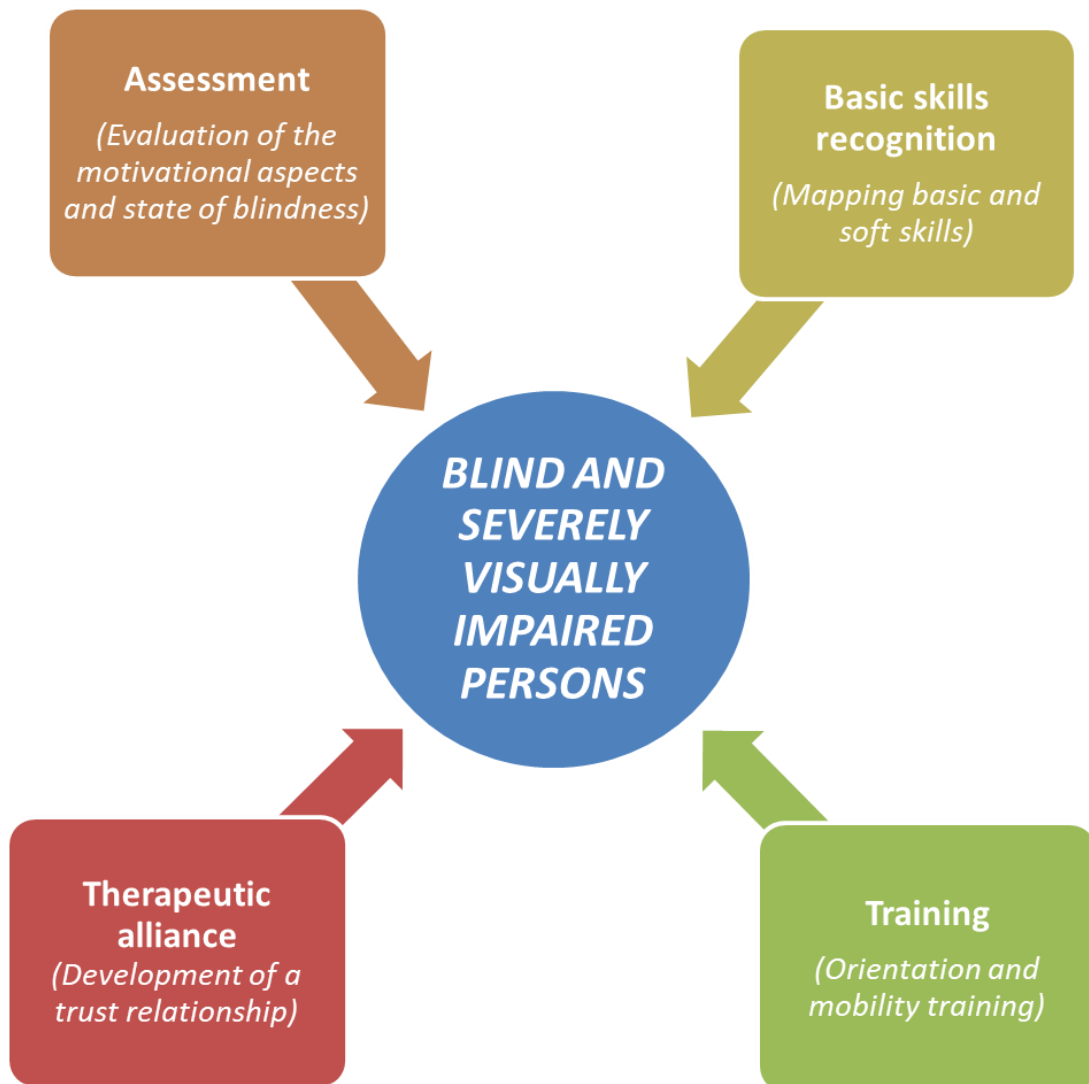


## Chapter 4 – Outputs

This chapter is dedicated to the result of the definition of the ideal characteristics of an OM teacher prepared by project partners.

### Skills set for OM trainers

The four pillars in the relationship between the OM trainers and the blind or severely visually impaired persons are:



Pillar	Skill of trainer
<b>Therapeutic Alliance</b>	<ul style="list-style-type: none"> <li>→ Empathic skills (listening to and communicating with the blind and severely visually impaired persons and his/her family members)</li> <li>→ Knowledge of the grieving process</li> <li>→ Knowledge of local social and health services</li> <li>→ Knowledge of income support measures</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>→ Basic knowledge of evolutionary psychology principles</li> <li>→ Basic knowledge of ocular physiology</li> <li>→ Knowledge of the main ocular pathologies</li> <li>→ Knowledge of the different disability types with impaired or reduced mobility</li> <li>→ Ability to empathise with the blind and severely visually impaired persons condition</li> </ul>
<b>Basic skills recognition</b>	<ul style="list-style-type: none"> <li>→ Competences in needs mapping</li> <li>→ Competences in social needs</li> <li>→ Ability to understand a mental map</li> </ul>
<b>Training</b>	<ul style="list-style-type: none"> <li>→ Knowledge on digital assistive devices and solutions (e.g. physical and mobile applications in support of orientation and mobility in the environment)</li> <li>→ Knowledge about the different solutions concerning urban accessibility and barriers (e.g. ramps, architectural barriers)</li> <li>→ knowledge about standards and regulations (e.g. tactile marking surface on the floor)</li> <li>→ principles and fundamentals of typhology</li> <li>→ typhlotechnical knowledge</li> <li>→ typhlodidactic competences</li> <li>→ Knowledge about the UN convention on the rights of persons with disabilities, and how this is applied at different level (e.g. national laws and at the municipal level)</li> <li>→ Orientation and mobility skills</li> <li>→ Flexibility and adaptability (e.g. weather conditions, work schedule)</li> <li>→ Linguistic skills</li> <li>→ knowledge on safety</li> <li>→ Organisational competencies</li> </ul>

## Chapter 5 – Subjects

This chapter is dedicated to the definition of which kind of subjects are needed to become an OM instructor.

An OM teacher should be someone who has the necessary training and knowledge. He/she is someone who has graduated from a full training course with enough theoretical and practical coverage, and qualified and certified trainers have to conduct this course.

To become an OM teacher, one must have excellent knowledge on all the guiding techniques, cane techniques, techniques for independent movement, studying routes and working with tactile maps and models. He/she should have at least basic knowledge on the most common eye diseases causing visual disability and on their specifics.

### Theory:

- Elements of physiology and pathophysiology of the visual system
- Elements of the psychology of disabilities and rehabilitation
- Psychosocial, praxial, physiological and functional aspects of the visually impaired person with or without additional impairments
- Methods of designing socio-educational interventions, rehabilitation and rehabilitation protocols
- Classification systems such as the ICF
- Knowledge of tyflop pedagogy aids and equipment (also Braille) and a basic knowledge of tyfloinformatics
- Specific techniques in OM
- Teamwork techniques and management of group dynamics, listening and empathy
- Social and health counselling techniques
- Techniques for strengthening interpersonal relations; elements of communication and motivational techniques, involvement techniques
- Ophthalmology
- Interpretation of medical reports and visual field measurements
- Audiology
- Individual support of the child in all areas of development
- Therapeutic and educational measures in children and adolescents
- Multiple and complex disabilities
- Basics of barrier-free design in public spaces
- Teamwork – multidisciplinary approach

### Basic training:

- General theory, instruction in OM in theory and practice
- Self-experience under blindfold and simulation glasses, training in darkness and twilight
- Teaching aids, electronic aids, technical aids, navigation systems
- Low Vision, Braille writing and reading, click sonar, smartphone accessibility functions
- Teamwork – multidisciplinary approach

### Practical implementation with clients:

- Techniques:
  - o pre-cane and white cane techniques,
  - o developing body image,
  - o body (upper and lower) protection techniques,
  - o exploring indoor places,
  - o long cane techniques,
  - o audio description,
  - o getting information,
  - o using aids that can be helpful in public spaces,
  - o safe participation in traffic,
  - o using public transportation,
  - o helping to overcome fears in public spaces
- Dog guide
- Diagnostic – orientation and mobility
- Use of technical special aids and the process of acquiring them
- Providing adjustments of environment
- Echolocation and listening skills
- Sport
- Tactile maps and models
- Applications for smart devices

## Chapter 6 – Digital Education Readiness

This chapter is dedicated to the analysis of the subjects that can be taught in a virtual way. The specific focus of the project is connected to digital education readiness. In effect, find a way to train an OM teacher is difficult, it is nothing compared to find the way to do it in a virtual environment. We decided specifically to work on digital education readiness due to Covid pandemic that stopped, for a long period, on one side the OM courses for VIP and on the other side also the preparation of new possible OM teachers and technicians. The results of the project partners analysis can be read in this chapter and the partners hope that this is only the starting point of future studies, research and cooperation in this field.

The theoretical part of the OM training can be taught virtually without a problem. This includes:

- Basic terminology in OM;
- Historical development of OM;
- Ophthalmology
- Psychological, economical, physical, and social impact
- Pedagogical psychology And Psychology of special needs,
- Braille (basics)
- Teamwork – multidisciplinary approach
- The pros and cons of each mobility option (sighted guide, independent moving with a cane, and guide dog);
- Motivation aspect of the training – how to convince VI trainees that OM training is useful and necessary
- Use of tactile maps
- How to create a tactile map
- Providing adjustments of environment
- Dog guide - basics
- Use of white cane pre-cane and white cane techniques
- Use of OM tools and devices (for example audio description Applications for smart devices)

Planning routes also can be done partially online, after the trainee has already mastered the practical aspects

Organizing and holding OM workshops can be done partially online too, after the trainee has had enough hands-on experience.

The use of remote video technologies could allow remote control by the instructor of the exercises performed by the trainee.

## Chapter 7 – Tools & Devices

Each partner has to make a list of which are the materials, tools and devices that can be used during the OM teaching activity.

Which are the different types of white canes that can be used and why, how is it possible to realize a tactile map, which are the best Application for smartphone to be used, etc.

- Rubber and Velcro plans for conceptualising paths and maps
- Reclining desks and cold light lamps (useful for visually impaired users in table-top activities)
- Hula hops of various sizes to be used as 'pre-sticks'
- Toy pre-sticks/walkers for children
- Tactile compasses
- Speaking or braille clocks (for spatial-temporal orientation)

A specific analyse is dedicated to white cans. There are 3 main types of white canes: long white cane, signal cane and guide cane. The long white cane is the classical type of cane, used by people with total blindness and severe vision loss. The signal and the guide canes are smaller and thinner canes, used by people with partial sight for signalling in public that the person has impaired vision, and for navigation through more challenging environments – f.e., staircases, underpasses, unfamiliar places, etc. There are various models of canes to choose from, with differently shaped tips and handles. There are also modern smart canes, equipped with ultrasonic sensors to detect obstacles. Also, there exists telescopic and foldable with different tips for different floor types, as well as fixed support canes for possible elderly users and smart-dog canes for more advanced users

Concerning tactile maps, we can say they can be made out of various materials, depending on the needs and resources. Some of the most popular methods are a thermoform machine, thermal paper, drawing with wax pens and boards with pins, bands or threads.

Regarding Smartphone with voice synthesis, satellite navigator and geolocation apps, we can remember that many people with visual impairments, who are advanced and confident enough in their mobility skills, use GPS for additional help when navigating through long and complicated routes, or through a not very familiar environment. Exemples are: a. **Moovit** is an app that provides real-time information on public transport schedules, assists in planning routes and finding the best way to reach the goal destination; b. **Sullivan+** is an app dedicated to improving the accessibility for people with visual disabilities by providing information on their surroundings. This is very useful in all kinds of everyday situations, including mobility; c. **Envision AI** is an app that describes by speech the visual world thus helping people with visual impairments to move and do their everyday tasks. This app is a combination of a smartphone and smart eyeglasses; d. **BlindBus** for audio bus announcements; e. **NextTo** for audio description of local sights; f. **Lazarillo** for discovering the

environment; g. **Find my friends** for sharing locations; h. **Waveout** for making navigation accessible for everyone; i. **BlindSquare** is the world's most widely used accessible GPS-app developed for the blind, deafblind and partially sighted.

## Chapter 8 – Team Working

This chapter is dedicated to the definition of the figures of professionals and experts with who the OM teacher has to work with.

It is important to have a holistic approach: the OM teacher need to work in-group with other professionals, such as for example IT teachers, psychologists, etc.

The OM teacher works closely with all other teachers and rehabilitation experts. This includes vision rehabilitation teachers, IT teachers, everyday skills teachers, Braille teachers, physical rehabilitation specialists, psychologists and vocational and career counsellors. All these subjects and activities are closely related and dependent on each other.

Main professionals are:

- Doctor-Oculist;
- Psychologist/Psychiatrist/Neuropsychiatrist;
- Orthoptist;
- Typhlogist;
- Specialist in ophthalmology and optometry, optometrist;
- Psychomotorist/Physiotherapist;
- Audiologist / expert of hearing acoustics;
- Music therapist;
- Social worker;
- Educator/OSS;
- Personal autonomy instructor;
- OM trainer for guide dog training for the blind;
- Adapted computer technician;
- Urban planners, architects.



## Chapter 9 – Reports

This chapter is composed by annexes which are the collection of the reports written during the project lifetime, each one dedicated to one of the mobilities.

## Chapter 10 – Conclusions

The conclusion the project partnership reached can be divided into two subgroups. In the first group we can insert the actual challenges.

In the group of actual challenges, first of all, we must define the terminology: we can use, since now on, Orientation and Mobility (OM) professional. In effect, there are OM technician, OM teacher and OM instructor. And for today there is no precise definition of the different figures.

Then, we can state that there is lack of enough professionals to cover the needs of visually impaired persons.

Also, there is the lack of courses or certified education paths and there are not enough courses.

The courses are very expensive and there are no courses also because of lack of funding; on the other side, there are different models of financing professional paths.

In the second group we can insert the future opportunities.

The subject of Digital Educational Readiness (DER) is fundamental in this field: there are no complete/full virtual course, and it is very difficult to define the structure of such course. Covid-19 changed the situation because he allowed the world that digital is possible, with lower costs and more accessible. On the other side, it results not possible to have only digital structure because it is important to maintain the practical activities due to the maintenance of the security of VIP.

Also, we must declare the importance of blind folded practice for OMT so they can understand and establish a connection with the way VIP live and feel in every moment of their life.

The, at different level, there are the approaches of the European Union countries and of the definition single European Union country gives by Ministry of Health and / or Ministry of Education or Social Services.

Inside this main different approach, the partnership acquire enough evidence to state that only a partnership level can support the establishment of a basic standard OM curriculum in European Union countries so to be able to a deep research/assessment at this level.

The final main objective is the proposal of the curriculum to all European Union member states also through the support of stakeholders throughout Europe and thanks to ENVITER Network that involve, today, three upon five partners of the present project.

## ANNEXES

Title: Creative approaches to O&M teaching

Subtitle: Sense of space - mobility and orientation in an urban environment

Author: NRCB

The teaching of O&M skills does not simply entail the one-to-one teaching of skills. Often O&M instructors look for the variety of ways to help their students attain their mobility goals. Some approaches that enhance the regular O&M training include interactive lessons based on sensory methodology. Instructors must find ways to incorporate simple O&M skills into complex spatial and other orientation skills.

From 2018 to 2020 in Plovdiv the project "Feel the City" of the Association for Culture, Ethnology and Anthropology "Mediator" is being implemented with the active assistance of the NRCB.

"Feel the City" is an interactive route that pays attention to different interpretations of urban space. The route consists of 6 interactive tasks, which are named and described in detail in the Special Guide. The tasks in the Guide provoke the senses and present the cultural heritage of the city of Plovdiv in a new way. The interactive tasks are designed to be passed by two people - a guide and a guided. Those passing the route can be both sighted or blind. The guide is designed to help the guide's work. The implementation methodology can be applied to getting to know any other city and developing interactive O&M lessons.

Stages of implementation of a successful project "Feel the city":

### 1. Ethnological research:

For the successful implementation of the project "Feel the city" it is necessary to collect data through interviews, surveys and questionnaires with both sighted and visually impaired people. This will help identify several places in the city that are representative and emblematic of the cultural heritage. Ethnological research will reveal the obstacles and problems faced by visually impaired people and will look for ways to solve them.

### 2. Anthropological research:

- Observation and research of body techniques, with the help of which visually impaired people "assimilate" space;
- Collecting data through interviews, surveys and questionnaires with both sighted and visually impaired people. The aim is to identify the problems concerning the access to cultural and historical heritage and the ways of communication; acquaintance with the difficulties and barriers faced by visually impaired people, ways and methods by which they cope with the challenges of the environment around them.

- Development of a model that will give innovative ideas for orientation and mobility in urban environments and presentation of the cultural and historical heritage to the visually impaired;

### 3. Development of an interactive route:

Information package that will be the basis of the interactive route. The information should be made available to the visually impaired - in Braille and audio format.

### 4. Creating an interactive map:

The places determined by the ethnological research are mapped and tactile maps with Braille inscriptions are made for them.

Tactile maps are concrete representations of spatial relationships that are beyond the reach of people with visual impairments.

Tactile maps should be simple and at the same time they must provide enough information about the place we are exploring. It is correct to make a common tactile map and several tactile maps on which certain objects are enlarged and allow for a more specific examination. Accompanying texts (audio or Braille) must contain information related to explanations of colour, size, purpose, etc.



*Common tactile map*

### 5. Multisensory feeling of the city:

We, the citizens, as part of the substance of the city, often do not realize that in most cases we use only one of our senses to "analyse" a space that we can rediscover through other methods, as long as we want to apply them.

The city can be "seen" through other senses - smell, touch, spatial division and other indicators. It allows us to feel the urban environment in a different way, "excluding" some senses at the expense of others. In this way, we can touch the city in an "alternative" way and discover the "visible" and "invisible" places in it. At the same time, we will put ourselves in the position of people who cannot use one of their senses - sight. In this way we will not only learn more about the city, the emblematic places in it and the ways in which they are "perceived", but we will also understand how the city feels through the "eyes" of visually impaired people.

To the developed tactile maps we add multisensory cards - sound recording from a certain place; smell, taste, etc. similar.



For the realization of an interactive route are prepared guides who undergo short theoretical and practical training to work with blind persons.

Before the realization of the route, the guide and the guided get acquainted with the following guidelines:

1. The guided (if not blind) must be with his/her eyes always closed.
2. The guide gets acquainted in advance with the peculiarities of the route.
3. The guide carefully assesses whether the described tasks are suitable for the guided.
4. The guide must interpret what is happening and monitor the safety of the partner.
5. Organizing and passing the route by a larger group requires special training and skills.

Basic principles of the interactive feeling of the city:

- Feel the city...
- Listen to the picture! Look at the noise!
- Smell the touch! Taste the space!
- Touch the air!

Title: Orientation and Mobility Training focused on children's needs

Author: IRIS Center

Children with visual impairment need special training in different fields of the expanded core curriculum (ECC). Teachers of students with visual impairment (VI) are specified in different ECC fields, and one of those is teaching children and students with VI orientation and mobility skills.

Infants with congenital VI will need practices for developing the body image and lateralisation on their body and on others (for example the mothers). Children first explore the near distance areas, for example the area on a children's desk while playing with a toy. Children need to explore the whole "work surface" and then focus on one part, which they use for the play occasion and the toy. It is helpful if the work is limited with tactile marks.

As they grow and start walking, they should soon learn why, when and how to use correct protective postures with hand, which are the upper hand protective posture for protection of the head and lower hand protective posture for protection of the lower abdomen. Toys with audio element can motivate them to walk towards them. We can motivate children and provide them a feeling of security by walking with push toys on stick, since they have wheels on the floor. Children can also use a special pre-cane, that they can hold with both hands in front of them while walking. As a toy, they can use as well a plastic wheelbarrow, which stops them before hitting an obstacle in front of them. This may be the only way some children feel comfortable navigating independently. Some early walkers need a bit of support for balance to move freely within their environment and using a device, instead of an adult's hand, this allows them to walk more independently.

Children can learn how to explore inner spaces by picking the starting point on one of the walls (for example the door of the room) and then with following the walls with outer side of the hand palm on the wall and the other hand in lower protective posture. With walking around the walls back to the starting point they perceive the size of the room. The next step is to systematically search the inner space of the room one step at the time from one wall to the opposite wall, all the way from the one to the other side of the room. Audio description is an important way of collecting information about the environment they are exploring and is as well one of the aspects teachers of students with VI have to consider while teaching orientation and mobility.

Preconditions for successful orientation and mobility in younger population are motorial capabilities, motivation for intentional mobility, developed sensory skills, understanding spatial concepts, using the protective hand posture and following the walls in inner space. We teach the children, how to pick up things with a squat instead of leaning forward. We also teach them how to systematically search for a dropped object with their hand.

Systems that cooperate in orientation and mobility are cognitive system (activates all sensory systems, interprets information, develops images, memory, concepts), motor system (reflex, unwanted and wanted movements, fine motor skills), visual system (residual sight used for exploring the environment, following the visual target, developing sense for direction and visual-motor coordination), audio system

(listening), proprioceptive system (balance), olfactory system (smell) and haptic system (tactile perception, direction of moving, perception of distance and height).

In environment we find all sorts of landmarks, that can be stable or unstable, artificial or natural sensory information, that help the child in determining and maintaining position and/or the direction of mobility. Children can learn how to recognize landmarks in an environment through vision, audio, olfactory and tactile (both directly and indirectly through white cane) sensory channels.

Children and students with VI can learn the correct techniques of walking with a sighted guide. How to hold a sighted guide, where to stand, how to walk on stairs, sit on a chair, change the side of the sighted guide and how to walk through a narrow space behind the sighted guide. For additional sensory perception and collection of environmental information through tactile sensory, a white cane can be helpful in combination with the sighted guide.

Training of orientation and mobility starts by teaching how to correctly use a white cane with basic techniques. We pick up a silent room or outside environment with less traffic. We start with orientation and mobility in easier environments and gradually involve them in more complex environments such as a public bus to travel to for example high school by themselves with the use of the white cane. Training of O&M takes place in all sorts of weather conditions in all year seasons.

Training orientation and mobility differs for children with congenital VI or acquired VI. Student with blindness learns his traveling way by memorising the same way/landmarks all over again.