

TutoDYS

USER GUIDE

for parents, teachers, tutors, specialists



A project supported by Erasmus+ program



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INTRODUCTION

We have created this user guide to make it easier for you to use the TutoDys platform. This guide will provide you with all the technical and practical information you need to use the platform in a learning context.

This guide describes the platform's functionalities clearly and completely to allow all users to use the content in the most efficient way possible.

TutoDys is an Erasmus+ project dedicated to specific learning disorders (SLD) known as "DYS": Dyslexia, Dysphasia, Dyscalculia, Dyspraxia (also known as Developmental Coordination Disorder or DCD).

These conditions, considered as difficulties, disorders or disabilities, overlap or coexist to a large extent.

Even if dys disorders do not affect intelligence in any way, students with "dys" might experience difficulties at school when left without appropriate adaptations or tools. This need for support and appropriate tools is abundantly demonstrated in the literature (e.g., Dr Mazeau, Dorian Yeo) and in the analyses made by the various national associations of dys learners (such as FFDYS and APEDA in Belgium) and national bodies (INSERM in Belgium).

It is also confirmed by the direct observation of the different partners and their network of teachers, families, and specialists, but also by the numerous participants (more than 17,000 in total) of two previous projects focused on dys and led by some partners of this consortium: Dyspraxiatheca and Mooc Dys.

Thus, this project aims to provide a platform dedicated to supporting the development of basic skills for children with DYS aged 6 to 12 and a pre-testing tool that will promote early detection.

In practice, the TutoDys platform developed by the project partners offers specific levels of exercises linked to the learners' academic curriculum. The topics covered are part of the basic skills that primary school children need to acquire in reading, writing, speaking, STEM and general knowledge. Through TutoDys platform, learners will be able to practice outside of school and feel more independent, engaged in a stress-free and gamified environment.

The target groups of this project are children aged 6-12 with dys and educators, teachers, parents and specialists who can rely on this tool and freely access a large, dedicated amount of resources, exercises and explanations related to the curriculum.

All project's resources are available on:

WWW.TUTODYS.EU

This user's guide to the platform covers the following aspects:

- What are Specific learning disorders (SLDs)?
- How are pupils with SLD supported in their schools and curriculum in the partnership countries?
- General guidelines for creating content for pupils with SLD
- The TutoDys project: general description
- The levels and curriculum addressed (Basics skills in Reading, Writing, Speaking, &Sciences &General Knowledge Module
- Why is SLD early detection important: pre-testing module
- Conclusion

WHAT ARE SPECIFIC LEARNING DISORDERS?

Definition

Perceptions of what constitutes a learning disorder have changed over the years. Terms, such as “learning disability” and (specific) learning difficulties, are also used in literature. Researchers disagree on whether these concepts should be distinguishable or interchangeable. The understanding and use of the terms differ from country to country (hence the adopted definitions and classifications). For the purposes of this guide, we will use the term “specific learning disorders”.

According to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-5, 2013), specific learning disorders are generally diagnosed in a child's early school years, although in many cases they remain undetected until adulthood. Disorders are neurological in nature and are characterized by permanent impairment of abilities in at least one of the three main areas: reading, writing (written expression) and/ or math.

The explanations, offered by the latest edition of the International Classification of Diseases of the World Health Organization (ICD-10, 2016), highlight the fact that these difficulties are not “a consequence of lack of learning opportunities, are not the result of intellectual disability and are not due to some form of acquired brain injury or disease.”

It is specified that the presence of a specific learning disorder does not prevent effective learning in an unconventional way (using different methods and strategies).

Types

Dyslexia

Dyslexia is the most common specific learning disorder of a neurological nature, occurring in about 80% of all cases of learning disabilities (Donfrancesco et al., 2010). It is difficult to be defined as the reasons behind its various manifestations can be very diverse. The fact that the manifestations

of dyslexia (reading and writing difficulties) can vary depending on the cultural and linguistic characteristics of each individual, makes the problem even more complicated.

In general, “Dyslexia (or developmental dyslexia) is a neurological development disorder that results from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction.” (Lyon, Shaywitz & Shaywitz, 2003).

People with dyslexia usually have average or above-average intelligence, so despite the difficulties, they can achieve very good academic results if the problem is identified in time and addressed adequately.

Dysgraphia

In general, dysgraphia is defined as spelling difficulties and/ or problems with expressing thoughts and ideas in writing. They become most obvious in the process of learning to write when the child starts school. However, some early markers (in early childhood) suggest possible writing problems in the future. Dysgraphia can manifest itself in different ways - incorrect/unusual grip when holding a pencil, different size and distance between letters, illegible and sloppy handwriting, slow and pressure writing, misspellings, non-compliance with grammatical and punctuation rules, difficulty in expressing thoughts and ideas, etc. (National Institute of Neurological Disorders and Strokes, 2006).

Dyscalculia

Dyscalculia refers to a wide range of mathematical difficulties (National Center for Learning Disabilities, 2006). In general, dyscalculia affects a person’s ability to understand and/ or work with numbers, perform arithmetic operations, and perceive numbers as an abstract concept of comparative quantities (Pierangelo & Guiliani, 2008). The problem can be assumed even before the child starts school in the period when they are learning to count, to compare (bigger - smaller), to connect a number of objects (e.g., two toys) with their number concept, etc. Understanding and working with sequences can also be a sign of problems with math at a later stage. It is good to identify this difficulty as early as possible and address it immediately.

How do they manifest?

There are four basic language skills: listening, speaking, reading and writing. Reading is the most challenging and complex to master of all. Reading is a process that involves two main operations: decoding and comprehension. The decoding includes not only the processes of distinguishing and recognizing letters and words, but also connecting graphic symbols with their corresponding sounds. In other words - it depends on visual and phonological perceptions, as well as memory characteristics, attention and speech development.

However, reading is not just about decoding words. The ultimate goal of reading is to comprehend the content of the text and the ability to extract information. Decoding and comprehension are equally necessary and important. They run in parallel and are interconnected. At the same time, comprehension is not a necessary condition for decoding, while a good level of understanding can be achieved only if there is proper decoding.

If a child finds reading difficult, if they cannot understand what they are reading, it is obvious that they will not enjoy reading at all. Moreover, if the child does not see an improvement in their reading technique or level of comprehension, despite their efforts, they will lose interest in reading and motivation to read very soon.

When we talk about acquiring literacy skills, we mean forming and developing both reading and writing skills. Difficulties in learning to read are often accompanied by difficulties in writing.

In fact, most subjects require reading and writing. Therefore, if the child has difficulties in reading and writing, this will affect the learning process as a whole and the results they are going to achieve. Deficiencies in reading technique, reading comprehension, memory, visual and auditory processing, time organization and management as well as working with sequences all affect, more or less, learning in all subjects.

Science-related subjects (including elements of physics/ chemistry/ biology) are also problematic for students with specific learning difficulties. Such subjects cause additional difficulties in mastering the specific vocabulary of the subject, as well as in using a systematic step-by-step approach to learning

because in these subjects understanding and learning depends on the degree of the acquired previous knowledge.

In the modern world, knowledge of at least one foreign language is not a luxury, but a necessity, it helps communication, provides opportunities for personal enrichment and a better job after graduation. However, learning a foreign language is a serious challenge for children with learning disorders because all the difficulties they face in mastering reading and writing in their mother tongue are also transferred to learning the new (foreign) language.

The belief that children with specific learning disorders are lazy is wrong. What is observed in their case, is rather a matter of a slower pace of processing the information necessary to deal with the variety of intellectual activities. Short-term memory deficits not only affect their reading and writing skills, but also make it difficult for them to plan their time. Many of them fail to complete all learning tasks (to prepare their lessons, to do their homework). This is usually not because they cannot do it, but because they need more time than other students to do it.

The time management ability is not innate in people, it is formed with growing up and it is improved with practice. However, some children perceive time differently and for this reason, this skill must be purposefully formed and developed in them.

HOW ARE PUPILS WITH SLD SUPPORTED IN THEIR SCHOOLS AND CURRICULUM IN THE PARTNERSHIP COUNTRIES?

In France

The legal framework

In France, the treatment of students with DYS is based on the "Law n° 2005-102 of February 11, 2005, for equal rights and opportunities, participation and citizenship of disabled people". This law considers 4 families of disabilities: motor, sensory, cognitive and psychic.

The second paragraph of Article 114 states: "To this end, the action taken aims to ensure that the child, adolescent or adult with a disability has access to institutions open to the whole population and that they remain in an ordinary school, work and living environment.

It guarantees the accompaniment and support of the families and relatives of disabled persons."

The French education system does not officially count students with specific learning disorders, but the FFDYS (Fédération Française des DYS) estimates that 8% of students have one or more of these disorders.

The Ministry of Health and Solidarity strongly recommends early detection and treatment. The families concerned can contact the child's educational team directly, ask for an interview with the school medical service or contact the MDPH to obtain more information.

MDPH and CDAPH

The mission of the MDPH (Maison Départementale des Personnes Handicapées) is to welcome, inform, support, and advise people with disabilities and their families, as well as to raise awareness of disability among citizens. Each MDPH sets up a multidisciplinary team that assesses the needs of the person with disabilities and a commission for the rights and autonomy of people with disabilities (CDAPH - Commission des droits et de l'autonomie des

personnes handicapées) that makes decisions concerning all the rights of the person in its field of competence. Thus, for a student whose disability is recognised, the MDPH can allocate benefits, recommend school orientations, and set up medical and social or professional assistance.

The MDPH intervenes at the request of a disabled person or his/her legal representative.

Possible accommodations in the school setting

The PAP (Personalized Support Plan)

The Personalized Support Plan allows any student with long-term academic difficulties due to a learning disability to benefit from educational accommodations and adaptations. It also allows the student to use the school's computer equipment or their own computer equipment.

The personalized support plan is a standardized document that defines the educational accommodations and adaptations that the student benefits from. It is written on the basis of a national model. It is revised every year in order to take stock of the accommodations already in place and make them evolve along with the student's schooling and the courses followed.

Who to contact? At the suggestion of the educational team or at the request of the family.

The PPS (Personalized Schooling Project) on recognition of the handicap

The PPS concerns all children whose situation meets the definition of disability as set out in article 2 of the 2005 law and for whom the MDPH has pronounced on the situation of disability. The personalized schooling project takes the form of a national written document. It organizes the progress of the disabled student's schooling and ensures the coherence and quality of the necessary support and assistance. It also specifies the necessary educational adaptations and accommodations and promotes the coherence of actions. It allows the Commission for the Rights and Autonomy of the Disabled (CDAPH) to make decisions concerning schooling in terms of orientation, adapted educational material (computerized or not) and human assistance (specialized class or school life assistant).

Who to contact? The MDPH.

Other programs

Other programs are possible in order to temporarily remedy certain difficulties that the student may encounter, such as the PPRE (Personalized Program for Educational Success), an intensive support program to fill in gaps and reinforce the acquisition of basic skills, or the PAI (Individualized Reception Project), a program that provides for accommodations for students with chronic pathologies.

Since learning disabilities are not an "illness" but a "handicap", the associations recommend that students receive ongoing support within the framework of a PAP.

In Belgium

In Belgium, most pupils with learning disabilities are educated in mainstream education. For those whose difficulties are too severe, there is special education, called 'type 8' education. This type of education only exists for primary school. Afterwards, pupils return to mainstream secondary education, but with special arrangements in place.

Belgium ratified the United Nations Convention on the Rights of Persons with Disabilities in 2009. On the basis of this ratification and on the basis of the Belgian anti-discrimination legislation, every student with a disability (physical, sensory, intellectual, learning or behavioural impairment, chronic illness) is entitled to reasonable accommodation in education.

The "Reasonable Accommodation" decree of 7 December 2017 requires ordinary schools to make reasonable accommodations for a student with special needs, provided that the students' situation does not make it essential for them to be taken care of by special education.

What is a reasonable accommodation?

Reasonable accommodation is a concrete measure to reduce, as far as possible, the negative effects of an environment on a person's participation in society. Making reasonable accommodation for a person with a disability is an obligation.

In education, accommodation for a student with a disability can take different forms: material, pedagogical, organisational, etc.

This accommodation is made according to the needs of the pupil so that he or she can access, participate and progress on an equal footing with students who do not have a disability. The aim is not to give an advantage to children with disabilities, but to compensate for the disadvantages linked to the disability and to an unsuitable environment in order to enable them to overcome their difficulties and to achieve the objectives expected at the end of their schooling.

What are the criteria for a good accommodation?

- it meets the needs of the pupil and enables him/her to participate effectively in an activity;
- it allows the pupil to participate on an equal footing with his or her peers (by taking part, at his or her level, in the same activities as others; by trying to achieve the same learning objectives, but through other activities; by aiming at personal learning objectives);
- enables class work and movement around the school to be done as independently as possible;
- it ensures the safety and respects the dignity of the student with a disability.

How is the 'reasonableness' of the accommodation assessed?

- Cost: the facility must be reasonably priced. In judging this cost, the financial capacity of the school should be taken into account;
- the impact on the organisation: if the accommodation does not cause lasting disruption to the organisation of the classroom and school, it is more likely to be considered reasonable;
- the frequency and expected duration of the accommodation: an accommodation that is costly, but is used regularly or for a long period of time or could be used by several pupils with disabilities will be more easily considered reasonable;
- the impact of the accommodation on the quality of life of the student or future students with disabilities;
- the impact of the accommodation on the environment and other pupils: the accommodation will be considered reasonable if it does not create a barrier for other pupils;

- the absence or lack of alternatives: an accommodation will be considered reasonable more quickly if no other alternative can be found.

P.I.A. and “Pass Inclusion”

In addition to this lever of 'reasonable accommodation', the Ministry of Education has also set up two other systems to support pupils with learning difficulties: the Individual Learning Plan and the Inclusion Pass.

According to the decree of 3 March 2004 organising special education, "the Individual Learning Plan (ILP) is a methodological tool drawn up for each pupil and adjusted throughout the pupil's schooling by the Class Council, on the basis of observations and data provided by the various actors: the student and their parents, the teaching team, the PMS centre, the staff in charge of remediation, the remedial teacher, the therapists. In the IEP, specific objectives to be achieved during a specific period are listed. The IAP is therefore a dynamic tool which is constantly evolving and which follows the pupil throughout his or her schooling (basic and secondary). It gives each team an overview of the pupil's progress, the work accomplished, the projects underway and those to be continued.

The "Inclusion Pass" is a right that can be activated for every learner with a proven learning disability. The "Inclusion Pass" accompanies the student in order to optimise their inclusion in the school by enabling him or her to have access to facilities adapted to his or her needs. The central objective of this Pass is to promote the exchange of information between the student, their parents, the teaching team, the PMS centre and the multidisciplinary team of specialists concerned about the specific needs of a student and thus to enable them to better adapt their environment - school and family - so that they can make progress in their learning and develop to the full. It is a tool proposed to adults who accompany the schooling of pupils with learning disabilities.

In Bulgaria

The current framework

In Bulgaria until the first years of 21st century existed so called “special schools” for SEN students, and around 15,000 children attended such schools. In 2004, the process of inclusion of SEN students in mainstream schools

started and since then the most of the special schools have been closed. However, there are still 8 special schools in Bulgaria: 3 for visually impaired children, 2 for and auditory impaired children, 3 boarding schools for children and youngsters who have committed anti-social acts.

Starting from 2004, when there were only 129 specialists supporting students with SEN in the mainstream schools, now there is more than 2500 specialists. In each country region has been established a Centre for supporting the process of inclusion, which is under the direct authority of the Ministry of Education. The Centre provides methodological support, organizes trainings for teachers, has specialists (SEN teachers, psychologists, speech therapists, special pedagogues) who work with children with SEN on-site at the Centre or in their schools.

The protection of laws

The terms "Specific Learning Difficulties" and "Specific Learning Disabilities" are used without special distinction in Bulgarian legislation. Specific learning difficulties (SLD) is an umbrella term used to refer to certain commonly occurring difficulties together, the most common being: Dyslexia, Dyspraxia/ Developmental Coordination Disorder, Dyscalculia, ADD/ADHD.

In the documents of children referred for SEN support the following diagnoses can be found: R48 - Dyslexia and other disorders of cognition and understanding of symbols and signs not elsewhere classified and F81 - Specific developmental disorders of school skills and their subtypes (the classification is according to the ICD-10).

In the Regulations for implementation of the Public Education Act, Additional Provisions, § 3.2. (amended, SG No. 43/2014, effective 23.05.2014) we read: "Children and pupils with special educational needs are children and pupils with educational needs who may experience sensory disabilities, physical disabilities, multiple disabilities, mental retardation, communication disorders, specific learning disorders (dyslexia, dysgraphia, dyscalculia), autism spectrum disorders, emotional and behavioral disorders."

In December 2017, Ordinance No. 1 was replaced by a new legislative document - the Ordinance on Inclusive Education. Students who are formally diagnosed with SLD (including dyslexia) are entitled to educational support from a SEN

teacher, psychologist and/or speech and language therapist, depending on their specific needs.

Inclusive education according to this new document adopted by the Ministry of Education and Science of Bulgaria (2017) is “a process of awareness, acceptance and support for each child or student based on their needs and for diversification of the needs of all children and students by activating and including resources aimed at removing all obstacles in the process of studying and learning, and providing opportunities for development and participation of all children and students in all aspects of community life” (Section II, Article 3 [1]). Each child and student should be provided with chances to learn and achieve results in accordance with their skills, abilities and potential.

The biggest problem that the educational system in Bulgaria faces is that all kinds of support are available only for children/students who are officially diagnosed with SEN and the assessment can be done only upon parents' request. At the same time, many parents refuse the assessment out of fear that their children will be labeled.

Available support

According to the new Law of education for children and youngsters with learning disabilities and chronic diseases (2017) there are two possible types of support:

General support, aimed at development of the potential of each child/student in the kindergarten and at school and **Special Support**, aimed at supporting children/students with special needs.

General Support

It includes (early) assessment of the needs of each child/student, speech therapy (for pre-school and first school years), additional consultations on school subjects (for students), psychological support (when needed), activities of interest, prevention of violence, etc.

Special Support

It is available after assessment of the individual needs of each child/student done by a commission of pedagogues, SEN teachers, a psychologist, a speech therapist; may include a paediatrician, a psychiatrist, a neurologist (if necessary). The commission decided what kind of help a child needs and for

how long. For children/students entitled for special support the SEN team develops an IEP (individual educational plan). The SEN team (SEN teacher, a psychologist and/or speech therapist) works in close collaboration with the group/class teacher. Regular sessions (discussions), reports on the child's/student's progress, meetings with parents, amendments of the IEP if necessary. SEN team together with the class teacher and subject teachers (for students after 5th grade) decided if the student can be evaluated by "digit marks" (like 3, 4...), or should receive only quality marks (like "satisfactory", "good" ...). The first option is for those SEN students who can match the "required educational minimum"; the second option is for those SEN students that can't match it.

In Croatia

In the Republic of Croatia, according to applicable laws and regulations, education of everyone is based on the principles of:

- accepting student diversity,
- accepting different features of student development,
- providing conditions and support for achieving maximum development of the potential of each individual student,
- equalizing opportunities to achieve the highest possible level of education
- ensuring education as close as possible to the place of residence.

The same law and regulations define students with disabilities as those whose abilities in interaction with environmental factors limit their full, effective and equal participation in the educational process with other students, and arise from physical, mental, intellectual, sensory impairment and dysfunction or a combination of several types of impairment. Thus, students with specific learning disabilities belong to the group of students with disabilities.

Accordingly, it is necessary to provide appropriate educational programs and appropriate forms of assistance in education for every student. Those are realized with appropriate program, professional support, and pedagogical and didactic adjustment.

Appropriate programs can be:

- a regular program with individualized procedures,
- a regular program with content adjustment and individualized procedures,
- a special program with individualized procedures
- a special program for acquiring competencies in activities of daily living and work with individualized procedures.

These programs can be realized in the regular class department, partly in the regular and partly in the special class department, in the special class department or in the educational group. In addition to the appropriate education program, students can be provided with additional educational and rehabilitation procedures.

Appropriate education programs and educational and rehabilitation procedures are determined by the Expert Commission at the level of each county, based on the proposal of the school the student attends and mandatory documentation (medical, psychological, educational-rehabilitation and other documentation). Once the decision on an appropriate school program has been made, it is valid until the end of the primary and secondary education of a particular student and is binding on the school(s) the student attends. If necessary, the Decision may be amended, extended, or revoked.

There are several categories of developmental difficulties within which there are several subcategories. Specific learning disorders belong to the category of impaired speech and language communication and specific learning disorders, and are further divided into: specific disorders in reading, writing, arithmetic, specific developmental disorders of motor functions and mixed learning difficulties.

If a student with specific learning disorders has average or above-average intellectual abilities, an appropriate form of education is a regular program with individualized procedures in the regular classroom. This means that the student masters the regular curriculum without content restrictions, but due to the specifics of functioning, they need individualized procedures. Individualized procedures involve different forms of support with regard to:

- student independence;
- working time;

- working methods;
- testing students' skills, knowledge and abilities;
- monitoring and evaluating student achievement;
- student activity;
- technological, didactic and/or rehabilitation aids for work and appropriate spatial conditions.

Individualized procedures can be for one or more subjects. All individualized procedures are contained in a written document which is prepared and implemented by teachers who teach the student, in collaboration with expert associates of the school (pedagogue, special education teacher, psychologist, speech therapist). They are also obliged to present the document to the student's parent/guardian. The document, the so-called "The individualized curriculum form" must contain, in addition to basic information about the student:

- the names and functions of class teacher(s) and persons who occasionally or permanently support the student at school (e.g., speech therapist, psychologist, teaching assistant),
- the results of the initial assessment (learning - attention, concentration, memory, independence, skills, needs, interests, prior knowledge),
- a description of individualized procedures that will be applied to students (how to present content and requirements for activities; time needed to teach, learn or perform tasks; active involvement of students in the process of learning, teaching and evaluation; ways of evaluating the achievement of educational outcomes, ensuring appropriate spatial conditions, adaptation of materials and application of assistive technology).

If a student with specific learning disorder has reduced intellectual abilities, their educational program contains content adjustments and individualized procedures. That includes adjustments in methodologies and in content (reducing the scope of teaching content). In this case, the form of an individualized curriculum must contain the peculiarities of school learning, educational needs of students, time period of content acquisition, and topics/thematic units, educational outcomes, student activities, support strategies (adaptation of methods, tools, forms, procedures, requirements) and the achievement of educational outcomes.

The appropriate form of education proposed for a student with specific learning disorders must contain the opinions of relevant experts (school doctor, psychologist, pedagogue, special education teacher, speech therapist, other doctors) and reports of the teachers on: educational achievements of students, appropriate methods of work with which the student achieves positive results, specific teaching aids used in the work, the opinion of the class teacher on the regularity of attending classes, identified opportunities and abilities, activities undertaken to help students master the curriculum, cooperation with other teachers and parents, as well as achievements (grades) and descriptive monitoring of students by subjects. In this way, an insight into the overall functioning of students is gained, and appropriate forms of assistance can be better determined.

Although the process of determining appropriate support for a student with specific learning disorders is well defined, difficulties arise in recognizing specific learning disorders and continuing to work with such students. Only a small number of primary schools have speech therapists and psychologists. Specifically, out of 880 primary schools, there are less than 200 speech therapists, and the majority of them are in the capital city, Zagreb. Teachers and other expert associates who are most often employed in schools (pedagogues) do not have enough competencies in this area. The support that such students could receive in the community (health system, specific organizations) is also often lacking, as it is generally only available in larger cities. Nevertheless, the need for additional support for students with specific learning disorders is increasing which is evident in the number of persons diagnosed with specific learning disorders. According to a report by the Croatian Institute of Public Health in 2020, over 33,000 people had some difficulty in the category of impaired speech and language communication and specific learning disorders, while that number only two years earlier (2018) was about 30,000.

In Italy

The current framework

In Italy, attention to students with special educational needs has come late. Specific guidance on how to assist and integrate students with specific learning

disorders in the classroom has come slowly and not always clearly. They are currently supported through guidelines given by the Ministry of Education and the intervention of the Regions.

Teachers now have fairly in-depth knowledge and good skills to compensate for the difficulties of these students, with specific teaching plans and the use of ad hoc tools to ensure the acquisition of knowledge in class and at home.

The protection of laws

Of course, already in the 1990s, Law 104/92 aimed to protect pupils with disabilities, but the magnifying glass toward other types of difficulties and needs came into focus in the early 2000s and led to concrete results from 2010 onwards.

Law 53 of 2003 enshrined the concept of personalised teaching for the first time. The student is encouraged to grow and develop according to their capacities and identity; they must be respected and valued because of their features. Thus, learning must be adapted and sized to the student, in order to let them succeed without being limited or discriminated.

The commitment is that everyone should have the opportunity to be granted lifelong learning, with the same chances as the others. Students must be able to achieve high learning levels and develop hard and soft skills through methods that have to respect and be adaptive to the personal aptitudes of pupils. Education is key to integration and personal development, hence even students with difficulties can have the chance to access the world of work successfully, and settle their life at local, national and European levels.

In 2010, specific learning disorders such as dyslexia, dysgraphia, dysorthographia, and dyscalculia were finally recognised. Law 170 of 2010 guarantees and protects the right to study for students with these types of conditions. Schools and universities are responsible for identifying both the teaching methods and the most appropriate assessment methods so that students with SLD can achieve educational success.

Furthermore, the implementing decree of 12 July 2011 and the Guidelines for the right to study of pupils and students with specific learning disorders laid down the final stakes and some operational instructions to schools on how to proceed in this area.

Italian ministerial guidelines provide a number of didactic and technological tools (compensative tools) that can be used by SLD pupils to overcome their difficulties in performing certain tasks.

Compensatory tools

Voice synthesis transforms a reading test into a listening test. A recorder helps students in writing down lesson notes, while word processing programmes with a spell-checker enable them to produce sufficiently correct texts without the effort of re-reading. Calculators facilitate operations, and tables and concept map aid reasoning. On the other hand, dispensatory measures allow students with SLD not to perform certain tasks that are particularly difficult in the condition they are dealing with.

The Guidelines state that "it is not useful to make a pupil with dyslexia read a long passage, as the exercise, due to the disorder, does not improve his reading performance". Among the dispensatory measures, which must always be evaluated in order not to adversely affect the student's learning pathway, there are scheduled questions, the granting of longer time to complete a task or the use of the dictionary.

Differences between needs

Special Education Needs have also been introduced lately, these are learning difficulties that cannot be certified, but which are nevertheless present. All these students have the right to have access to personalised teaching.

In the case of disabilities and SLDs, certification or diagnosis is required, otherwise, teachers may identify any special educational needs, which can occur continuously or for certain periods of time, based on the International Classification of Functioning model of the World Health Organisation.

Concrete support

The student is therefore considered as a whole person from a bio-psycho-social perspective. Regional school offices and the Italian Ministry of Education have also set up a support network that is the Territorial Support Centres which collect and spread knowledge and resources (hardware and software) for the educational integration of SEN pupils. The network provides practical support to schools in the purchase and use of new technologies for school inclusion and offers advice on the subject to teachers, parents, and pupils.

In Italy, there is also a large network of non-state associations that assist students with special educational needs or specific learning disorders. These organisations train tutors who then complement the work of teachers who often fail to provide personalised teaching to these students in the classroom. Tutors do a valuable job, following pupils by deviating from traditional teaching methods, but using techniques and devices that enable pupils to learn despite their difficulties. Tutors often work together with the teaching staff and agree on a personalised teaching plan for the student in question. These figures are not yet officially integrated into the teaching staff, but now the support teacher, who is provided for pupils with disabilities, is required to have the necessary skills to also assist SLD or SEN pupils.

THE TUTODYS PROJECT PROPOSAL

General Description

The project aims are to create a platform of educational activities dedicated to the support of basic skills development for children with DYS from 6 to 12 years old and a pre-testing module that will allow its users to get early support for potential DYS learners.

The pre-testing module

The pre-testing module contains a series of questions for teachers and parents to enable early detection of specific learning disorders. This module aims to help parents or teachers to check their suspicion of a potential issue and to be able to provide adequate support. In practice, this module contains two questionnaires for parents and teachers and a test for students, which contains ten questions and exercises per level.

This module is an optional step if one wants to start using the platform.

This module does not offer a diagnosis but rather serves as a tool to support adults in identifying if the child is potentially an undiagnosed learner with dys, to provide some information about the disorder and encourage them to see a specialist if needed.

The platform of adapted learning paths

For learners

The platform provides a database of adapted learning paths connected to the school education curricula and dedicated to the improvement of pupils' abilities in the following domains:

- a module with learning paths on reading, writing and speaking
- a module with learning paths on STEM,
- a module with learning paths on general knowledge.

Each module contains 9 learning paths per grade level (162 in total) consisting of approximately 10 to 15 exercises, for a total of over 2,000 exercises available on the platform. These 162 learning paths will be integrated into frame of level so, depending on the results in each learning path, the pupils will be offered a following learning path of a basic, intermediary or advanced level.

In order to enhance students' engagement, a specific focus has been put on the visual aspects of the platform.

While the specific needs of DYS in terms of fonts, spacing, image quality, etc. have been taken into account, the platform also offers tools to:

- choose and modify their graphic working environment at any time,
- choose and modify at any time the size of the characters and/or the font used to display the texts at any time.

Finally, to keep them engaged throughout their learning journey, the platform offers:

- a system of rewards (stars, progress gauge, etc.),
- a dedicated dashboard.

For parents, teachers and specialists

In addition to the modules targeting the learners, a dedicated dashboard for parents, parents, teachers, and specialists has been created. In this area you will find a lot of functionalities:

- Create a classroom

To take advantage of the platform, teachers can create their class and the list of children they want to involve in the program. Here, only one student is needed to open a class.

This operation generates a unique access link, sent by email to each student who, thus recognized, will be able to easily connect to his dedicated space.

Once the class is created, the accompanying persons are invited to define a learning path.

- Use the existing learning paths

You can start by offering your students to take the pretesting module or the entry test for each module. This will suggest a learning path as close as possible to their identified needs.

Otherwise, use the options: age, level, category to display the list of learning paths.

These learning paths can be modified: you can remove an exercise from your list, reorganize the order, etc. For your whole class or for each of your students.

- Follow-up monitoring of the students' progress

Consult the tools at your disposal to follow the progress of your students: you can modify a learning path in progress to readjust it to the level of a student who seems to be in difficulty or for one who could face more challenges.

- Create your own learning paths with your own exercises

Duplicate an existing exercise to modify it or use the exercise templates at your disposal to create your own content: you can add sound, videos, images, texts, etc.

You can then share your creations with your students, but also with the recipients of your choice. These new courses will then be proposed in the dashboards of your educational contacts.

You can also decide to make them available to the whole community of TutoDys users by registering them in "public" mode: circulating good practices and increasing the offers for students with learning difficulties is the main mission of this collaborative project!

The tutorial videos

The TutoDys platform offers many features and space dedicated to its various uses. To help you learn how to use it, many videos are available. You can consult them to:

- discover the platform as a whole,
- help you at each step of your journey according to your profile,
- guide your students, your educational partners, etc.

The levels and curriculum addressed

Exercises and tasks in the LMS platform are divided according to age and level of complexity. Age from 6 to 12 years is included, which would correspond to the school level from 1st to 6th grade (e.g., age from 6 to 7 years corresponds to first grade). Within each age group, there are 3 levels of complexity: basic,

intermediary and advanced, and within each level, there are 10 to 15 tasks and exercises. Exercises and tasks are focused on the three main modules:

1. Reading, writing and speaking module
2. STEM module
3. General knowledge module

Furthermore, the STEM module covers mathematics and sciences (informatics, technology, nature, biology), and the general knowledge topic includes history, geography and English language.

Within each module, and according to age and level of complexity (difficulty), topics connected to the school curriculum were selected. At each age, at each level of complexity, through tasks and exercises, one or more themes from one of the listed topics are covered (eg. for ages 6-7, 1st grade, basic level, reading topic, themes are: vowels and consonants, blending sounds, reading in syllables). All tasks and exercises are additionally adapted to the specifics of the curriculum of each of the countries participating in the project.

The student, teacher or parent chooses the topic, level of complexity and age for which they want to practice the tasks. Tasks are of different types (memory, pairs, reordering the lists, filling the blanks, etc.), and are accompanied by clear instructions, often with audio and visual representations of instructions and tasks. Each task is followed by feedback on success or failure and additional support in the form of clarification of the task if it is not successfully solved. After completing all tasks within each learning path, it is recommended to continue working at a higher level or return to a less demanding level.

Reading, writing and speaking are the essential skills to successfully acquire knowledge in any setting, but they are a great challenge for students with DYS. All the exercises are accompanied by explanations and focus points to develop specific notions or key skills. For each grade (from 1 to 6) there are 3 different levels of complexity of learning paths in 3 categories: reading, writing and speaking (a total of 54 paths). Each path contains 10-15 exercises plus explanations divided into different themes (e.g., reading complex letters, enriching vocabulary, expressing themselves in the correct way, etc.). In total, there are more than 600 tasks. The objective is to propose a wide diversity of exercises with different ways of approaching the topics for the learners.

STEM topics in primary school are essential and often appreciated by children since they are curious and want to understand the world surrounding them. Unfortunately, these topics can sometimes be complex, especially for children with DYS. Since the STEM field is very broad, the tasks and exercises are divided into 2 subfields: mathematics and science. The field of mathematics refers to typically mathematical knowledge (e.g., addition, subtraction, fractions, etc.), while the field of science refers to knowledge from nature, biology, informatics and technology. For each sub-area and for each grade (1 to 6) there are 3 levels of complexity of learning paths (basic, intermediary and advanced), giving a total of 36 learning paths. About 7 to 8 exercises have been created for each learning path, which gives a total of over 250 exercises and tasks. All the contents are adapted to children with DYS and there is a special focus on gamification. The objective is to encourage children with DYS to practice and then feel at ease with STEM exercises. The content is designed in a sense that children never endure the exercises nor find them boring or reluctant.

General knowledge module is focused on topics that we can call « the world around us » that is to say an approach of several practical and useful disciplines. This module is divided into 3 subject subcategories:

1. Geography (e.g., continents, bordering countries, capital cities, oceans)
2. History (e.g., prehistory, timelines, historical highlights, Europe heritage)
3. English (e.g., vocabulary, colours, food).

Like in previous modules, there are 3 levels of complexity, basic, intermediary and advanced, for 6 grades (from 1st to 6th grade), totally there are 54 learning paths. For each path there are around 10 tasks, so, in total there are over 500 tasks and exercises. The objective of this output is to raise the learners' curiosity and give them alternative subjects that will increase their general knowledge. This module is also focused on European heritage and basic skills of English. Since these subjects can be quite complex, they are approached in a simple and illustrated way. Indeed, this module is even more focused on gaming and entertaining exercises for learners with DYS to gain knowledge without feeling like doing their homework or having to do boring exercises.

WHY IT IS IMPORTANT TO DETECT SLD EARLY: THE PRE-TESTING MODULE

A fundamental step in the journey of students with SLDs is diagnosis. Unfortunately, often the diagnosis is made too late compared to the recommended time.

Each disorder must be assessed early with a view to prevention and early treatment. Pre-diagnosing such disorders also means allowing other actors such as teachers and parents to take measures from the very beginning as to how to set up the educational and social relationship with the child in question.

A late diagnosis only stabilises the students' insecurities and discomforts that often lead to disinterest and demotivation for learning. In severe cases, psychological relapses such as school phobia and depression can occur.

If a student shows signs of any discomfort or difficulty, it is advisable to test them no earlier than the second year of primary school, as the variety of test results makes it too difficult to identify a specific learning disorder before these stages of the school.

Ideally, it's appropriate to run a formal diagnosis of a reading-writing SLD not before the end of the second year of primary school, to give the student enough time to automate the reading-writing processes. Calculation disorders wait until the end of the third grade of primary school.

In any case, early detection is essential, because risk factors can be identified already in the first year of primary school and, in some cases, in the last year of kindergarten, and it is possible to intervene by starting to practise certain skills to prevent the development of any issue or reducing the severity of the difficulties.

The suggested age to make some tests is six or seven years if there are issues in praxis-motor abilities. General coordination, space-time organisation, symbolisation, language, relationality, and perception of quantities are some of the main functions a child develops at 5 or 6 years. It is a transition period between kindergarten and primary school that can be sensitive to the appearance of certain indicators and allow an early diagnosis.

Early signs of discomfort can be:

- dysfunctions
- uncertain performance levels
- discontinuity
- bewilderment.

Early diagnosis prevents the disorder from hiding behind protective mechanisms that the student learns to activate, such as introversion, demotivation, disregard, etc. Failure to recognise difficulties leads the student to believe that they are not good enough, that they are worth less than their peers and this will make them lose trust in themselves but also in the school system.

Worst of all, the student will not be able to develop their potential, and this can have a definitive impact on their career but also their behaviour towards others and himself.

The diagnosis may involve various specialists, but usually, the main point of reference is the child neuropsychiatrist, who will guide the assessment process, investigate the presence of difficulties at a cognitive level and exclude any neurological or sensory deficits. Afterwards, further evaluation by other specialists can be recommended at different levels:

- the speech therapist analyses the speed, accuracy and comprehension of reading and writing, numerical skills and any automaticity that has not yet been stabilised (temporal consequentiality, calculation, and more)
- the neuropsychomotricity therapist of developmental age assesses visual perception skills, and executive functions and takes stock of motor skills, writing and all motor coordination
- the psychologist assesses the child's behaviour, emotional state and intellectual functioning, observing the child as a whole
- the orthoptist assesses eye movements in detail
- the pedagogist indicates the most functional educational paths

Anticipating the diagnosis could potentially increase the risk of altered results because the abilities of the child can be not developed yet. Nevertheless, it is possible to identify early risk indicators (personal and social) of learning disorders that may allow early intervention and early diagnosis. The co-morbidity of ASD with other disorders is frequent, both with other

neuropsychological dysfunctions (such as ADHD, and attention deficit hyperactivity disorder) and with psychopathological disorders (anxiety, depression and conduct disorder).

CONCLUSION

The provision of this guide to parents, teachers, tutors and specialists is an essential aspect of the Tutodys project: we are convinced that sharing clear and complete explanations makes the optimal use of the platform easier and more enjoyable, and above all accessible. Our aim here was to gather as much relevant information and resources as possible, on which users can rely on concerning:

- The definition of specific learning disorders, their handling in the partnership countries, and the importance of early diagnosis
- The production of content adapted to a DYS audience
- The vision of the Tutodys project
- The benefits of e-learning gamification
- The functioning of the platform and the possibilities offered to users in terms of follow-up and creation
- The resources that can be found there and how they are structured.

We hope that this guide will help you take best use of the platform and support learners and their needs!

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