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LEARNING DISABILITIES AND CONTEMPORARY SOCIETY

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Summary. This article provides a comprehensive overview of Specific Learning Disabilities (SLD), such as dyslexia, dysgraphia, and dyscalculia, within the dynamic context of the 21st century. At a time when there is an enormous emphasis on academic results, information processing speed, and digital literacy, individuals with learning disabilities face unique challenges. The text examines how the perception of SLD has evolved – from an earlier stigmatizing view that mistakenly associated them with laziness or low intelligence to a current understanding as neurodevelopmental differences that require targeted and individualized support. Furthermore, the article focuses on the social and technological factors that influence the lives of individuals with learning disabilities. It discusses how the digitization of education offers new opportunities through assistive technologies and personalized learning platforms, but can also increase pressure and disadvantage those who struggle with certain digital formats. A key part of the text is also an analysis of the role of inclusive education and its implementation in various educational systems. The article emphasizes that true inclusion does not lie solely in a student's presence in a classroom, but in the active support and adaptation of teaching methods to meet diverse needs. The goal is to offer a deeper insight into the psychological and social impacts of SLD and to encourage a discussion about how society can create an environment that is respectful, supportive, and stimulating for everyone. It points to the need for better collaboration among parents, educators, and specialists, as well as the necessity of destigmatization and raising public awareness that learning disabilities are not an obstacle but rather a challenge that requires a different approach, not lesser abilities.

Keywords: assistive technologies, adaptation mechanisms, dyslexia, dysgraphia, dyscalculia, digital education, destigmatization, functional literacy, inclusive education.

1. Introduction

This paper provides a comprehensive analysis of the topic of Specific Learning Disabilities (SLD) within the context of contemporary society. The choice of topic is based on its growing social relevance as well as the author's professional experience. The main objective is to offer a more detailed perspective on the issue, incorporating both theoretical frameworks and the viewpoints of individuals with first-hand experience of SLD. The work is grounded in the premise that SLDs represent neurodevelopmental differences, which require the application of special adaptation mechanisms and the principles of inclusive education. Social perceptions of SLDs have undergone a significant transformation in recent decades – from previously stigmatising views to a modern understanding rooted in neuroscientific findings. Nevertheless, individuals with SLD still encounter various obstacles, particularly within the traditional educational system. External assessments, such as those conducted by pedagogical-psychological counselling centers, can at times lead to limited educational or professional opportunities if they do not fully take into account individual potential. The analysis focuses on key aspects essential for understanding SLD in the 21st century, including the role of digital education and assistive technologies as tools for compensating for difficulties associated with dyslexia, dysgraphia, and dyscalculia, and for supporting functional literacy.

The implementation of inclusive education in the Czech school system will also be discussed, with attention paid to current challenges, such as insufficient preparedness for the integration of students with diverse needs. The work supplements expert knowledge with authentic experiences and insights that bring to light the everyday situations faced by individuals with SLD. Given the possible increase in the prevalence of these disorders within the Czech population, the text may contribute to destigmatising the issue

and improving the discussion around creating a supportive environment for all members of society, regardless of their neurodevelopmental differences.

Theoretical Foundations of Specific Learning Disabilities (SLD)

Within the professional literature, specific learning disabilities (SLD), as well as attention and behavioural disorders, are described from both psychological and pedagogical perspectives. These terms encompass a set of partial disorders, such as dyslexia, dysgraphia, dyscalculia, and dysorthographia. It is important to note that some terms, including dysmusia, dyspinxia, and dyspraxia, are specific to Czech terminology and are not encountered in international scholarly literature (Pipeková in Šafrová, 1998, pp. 27–30).

SLD may be defined as an unexpected and unexplained condition that manifests in individuals with average or above-average intelligence, accompanied by specific difficulties in one or more areas of education (Krejčová et al., 2018). These difficulties include the acquisition of basic skills such as speech, comprehension of spoken content, graphic representation of speech (writing), and mathematical data processing (Matějček, 1995, p. 24). These learning anomalies are associated with changes in the neuroplastic system of the brainstem, which is crucial for the compensation of cognitive strategies and data processing. Although the aetiology of SLD has not been fully elucidated, it is well established that these difficulties persist into adulthood and do not disappear completely, although they may lessen with age. Socialization, personality traits, and the individual's intellectual potential have a significant influence on the management of SLD (Zelinková, 2015). Attention disorders are demonstrably linked to SLD and often occur concurrently. Affected individuals are often described as experiencing "dysfunctional blindness", which is related to the central nervous system (CNS), also referred to in scientific literature as Systematis Nervosi Centralis (Matějček, 1995, p. 26).

Scheme of the Categorisation of Specific Learning Disabilities (SLD)

– The diagram begins with general categories such as F80. Specific Developmental Disorders of Speech and Language and F82. Specific Developmental Disorder of Motor Function.

– The main branch focuses on F81. Specific Developmental Disorders of Scholastic Skills, which is the category under which most learning disabilities are classified.

– This main category is further divided into specific subcategories, such as F81.0. Specific Reading Disorder (dyslexia), F81.1. Specific Spelling Disorder (dysgraphia), and F81.2. Specific Disorder of Arithmetic Skills (dyscalculia).

– The scheme also includes less specific diagnoses, such as F81.3. Mixed Disorder of Scholastic Skills or F81.9. Developmental Disorder of Scholastic Skills, Unspecified.

– The scheme concludes with the category F83. Mixed Specific Developmental Disorders, which encompasses combinations of various disorders (Zelinková, 2015).

Comorbidity and Manifestations

Specific learning disabilities (SLD) very frequently occur in comorbidity with other developmental disorders, such as various forms of intellectual disability, sensory impairments, or social-emotional disorders. It is highly unlikely that an individual would present with only one disorder; rather, it is common for learning disabilities to be combined with other deficits, which further exacerbate the overall condition. For instance, among preschool and school-aged children, the simultaneous occurrence of dysgraphia and dysorthographia is most often observed (Matějček, 1995, p. 27). This information highlights the complexity of SLD and the necessity for a comprehensive approach to diagnosis and support.

Aetiology of Specific Learning Disabilities

The aetiology of specific learning disabilities (SLD) is a complex field that investigates their causes from the perspectives of neurology, psychology, pedagogy, and social sciences. Historically, research focused on the direct consequences of SLD, such as grammatical expression and pupils' overall academic performance. In recent years, however, the emphasis has shifted towards biological and genetic predispositions, including the influence of heredity and neurodevelopmental differences (Matějka, 2020).

Heredity and Biological Factors

Earlier research, for example the work of psychiatrist O. Kučera from the 1960s, suggests that genetic factors play a role in the aetiology of SLD. According to Pokorná (1997, p. 74), hereditary predispositions

account for up to 20% of cases of congenital dyslexia, with a presumed transmission from father to son. While modern science recognizes that heredity is not the sole or direct cause of SLD, genetic influences, as well as environmental factors, are considered key predisposing factors (Zelinková, 2015).

Matějček (1972) draws attention to the importance of the lateralisation of brain structure, which occurs between the 12th and 20th week of gestation. Mild brain dysfunction (MBD) is regarded as a significant aetiological factor of SLD. Previously, this term was associated with "mild childhood encephalopathy" or "minor brain injuries", which occur during the prenatal, perinatal, or early postnatal period. While more severe damage may lead to motor or intellectual disabilities, the mildest form of MBD manifests as minor disturbances in psychomotor development, behavioural disorders, perception, speech, and attention (Šafrová in Pipeková, 1998, p. 98).

Social and Environmental Influences

Contemporary perspectives on the aetiology of SLD do not overlook social and environmental factors. Michalová (2004) emphasizes the importance of considering the individual needs of the student, their social background, family, and friends. Conditions for study, the environment of educational institutions, and support from the family play a significant role in personality formation and influence the management of difficulties associated with SLD. This comprehensive view of aetiology, encompassing both biological and social factors, provides a more holistic understanding of SLD (Matějka, 2020).

Manifestations of Specific Learning Disabilities

Individuals with specific learning disabilities are characterized by difficulties in acquiring basic cognitive skills, which manifest in their academic performance. The most prominent problems arise in adapting to the school environment, where students struggle with reading (dyslexia), writing (dysgraphia), and arithmetic (dyscalculia). These challenges result in the effort exerted by the pupil often not matching the academic outcome, which can negatively impact motivation and self-confidence (Zelinková, 2015). The manifestations of SLD are often developmentally conditioned and change with age. To understand the full spectrum of manifestations, it is important to observe their development from preschool age through to adulthood. The following table illustrates typical manifestations of dyslexia across different developmental stages.

Table 1

Overview of Typical Manifestations of Dyslexia at Different Developmental Stages

Developmental Stage	Typical Manifestations
Preschool Age	– Mixing up sounds and syllables (e.g. s-š, r-l, p-b); omitting sounds.
	– Incorrect use of words in context. – Phonological awareness difficulties: inability to determine the first/last sound in a word, problems with rhyme.
	– **Memory problems:** difficulty remembering poems, names of common objects.
	– **Fine motor skills and orientation:** difficulties with description and tracing, mess on paper, dyspraxia (motor clumsiness, problems with tying shoelaces).
	– **Orientation difficulties:** confusion between right and left sides, difficulty distinguishing colors. – Rhythm problems: inability to repeat rhythm.
Early School Age (1st level of elementary school)	– **Insufficient stability of performance:** slow pace, high error rate.
	– **Reading and writing:** skipping words and lines, confusion of letters (p-b-d), difficulty learning the alphabet, multiplication tables, days of the week.
	– **Orthographic difficulties:** difficulties with grammar and spelling.
	– **Motor skills and organization:** difficulties copying from the board, strange positions when reading.
	– **Cognitive skills:** problems with attention and concentration, poor vocabulary.
	– Psychological manifestations: anxiety, dislike of work, psychological difficulties as a result of failures.
Older School Age and Adolescence	– **Reading and writing:** persistent difficulty with skipping lines, difficulty organizing text on paper, letter confusion, difficulty pronouncing complex words.
	– **Language and terminology:** difficulty using a dictionary, punctuation, difficulty memorizing technical terms.
	– **Memory:** problems with memory for historical dates, country names.
	– Organization and planning: difficulty planning time for school and extracurricular activities.
	– **Social and emotional impacts:** reduced self-confidence, feelings of helplessness, withdrawal, aggression or depression, difficulties in social relationships.

Source: Own elaboration 2025 according to (Bartoňová, 2012)

The Importance of Adaptive Mechanisms

As evidenced by the table above, the manifestations of specific learning disorders (SLD) are not limited to the academic sphere but also affect the social and emotional domains of the individual. Therefore, it is crucial to focus on early diagnosis and appropriate intervention, which should encompass both pedagogical and psychological approaches. The use of assistive technologies and personalized educational platforms can significantly help compensate for specific difficulties and reduce the psychological burden on the student. The aim is to support adaptive mechanisms that will enable individuals with SLD to fully develop their potential (Krejčová et al., 2018).

Dyslexia as a Specific Learning Disorder

Dyslexia is the most common learning disorder, affecting approximately 10% of the Czech population. It is a neurodevelopmental disorder that may be congenital or acquired and is characterized by significant difficulties in reading and related skills (Krejčová et al., 2018). These difficulties can considerably disadvantage individuals in traditional school environments and everyday life. To better support these students, specialized classes are now often established, where children with similar difficulties feel less isolated (Matějka, 2020).

Etymology and Typology

The origin of the word "dyslexia" comes from Greek, where "lexis" means "word" or "language" and the prefix "dys-" denotes difficulty or disorder. The term was first used by the German ophthalmologist Dr Rudolf Berlin in 1887. In the International Classification of Diseases (ICD-10), dyslexia is classified under the diagnostic group "specific reading disorder" (Bartoňová, 2004, p. 25).

In the literature, dyslexia is commonly divided into two main types, which differ in their manifestations and presumed neurological basis:

– P-type dyslexia (right-hemispheric): This type is characterized by slow, fragmented and inaccurate reading. Individuals often lose their place in the text and experience difficulties with reading fluency.

– L-type dyslexia (left-hemispheric): This form is associated with more fluent reading, but with a high rate of errors, such as slips of the tongue and word substitutions (Matějíček, 2004).

Key Manifestations of Dyslexia

The manifestations of dyslexia are diverse and often vary from individual to individual. The most common manifestations include:

– Errors in Reading and Writing: Frequent mistakes during reading and poorly legible words. Individuals with dyslexia often confuse letters that sound similar (e.g. g for k, v for f) or letters with a similar visual structure (e.g. b for d).

– Omission and Addition of Letters: A tendency to omit or, conversely, insert letters into words, thereby altering their meaning.

– Slowed Pace: Tasks require a longer allocation of time to complete.

– Motor and Spatial Difficulties: Mirror writing, confusion of numbers (e.g. 6 and 9), or difficulties with spatial orientation.

– Cognitive and Memory Problems: Impaired rote memory for data, numerical information, or lists, making memorization more challenging (Bartoňová, 2004, p. 31).

These manifestations highlight the complex nature of dyslexia and underscore the necessity of an individualized approach and support.

Dysgraphia as a Specific Learning Disorder

Dysgraphia is a specific learning disorder (SLD) characterized by an impairment of written expression. Although it often occurs alongside dyslexia and other SLDs, it is an independent disorder. An individual with dysgraphia encounters difficulties in acquiring individual letters and their shapes, resulting in generally illegible and disorganised handwriting. This condition affects not only writing, but also the ability to connect phonemes into words and sentence structures (Matějíček, 2004).

Manifestations of Dysgraphia

The manifestations of dysgraphia are highly individual, but they can be classified into several categories:

– Slow Pace and Errors: Writing is slow and requires considerable effort. Frequent errors occur during transcription, copying, and dictation. Handwriting is often untidy.

– Motor Difficulties: A typical feature is a cramped and incorrect grip of writing instruments. Fine motor difficulties are common, manifesting as poor coordination of hand movements.

– Cognitive and Attention Problems: The effort to focus on the graphic aspect of the text diverts attention from spelling, leading to additional errors. The individual tires more quickly, requires frequent breaks, and is unable to properly coordinate eye and hand movements (Kučera, 2001, p. 23).

– Visual Perception: Difficulties in recognizing letter shapes, placing them correctly on the line, and distinguishing similar forms (e.g. b-d, s-z).

2. Causes of Dysgraphia

The causes of dysgraphia are complex and range from motor difficulties to problems with visual perception. Primarily, it is a disorder of fine motor skills and sensorimotor coordination, which means that the brain is unable to properly connect visual stimuli with the motor skill of writing. As Bartoňová (2005, p. 7) states, writing difficulties in children with attention disorders are often caused by problems with fine motor skills and eye-hand coordination.

Although an individual with dysgraphia may have sufficient intellect, their brain cannot efficiently coordinate the processes required for fluent and correct writing. These difficulties lead to frustration and low self-confidence, which can negatively affect their personal and professional life (Šimek, 2022).

Dysorthographia

Dysorthographia is a specific learning disorder (SLD) that primarily affects spelling and grammatical phenomena. Individuals with dysorthographia often fail to notice that their letter substitutions or word structures change the meaning, as they are convinced of the correctness of their writing. This disorder most commonly manifests in primary school pupils and has a direct impact on functional literacy.

Manifestations and Types of Dysorthographia

Dysorthographia often overlaps with other disorders, such as dyslexia and dyscalculia, and can present in various forms:

– Visual type: Characterised by reduced quality of visual memory, which means the individual cannot recall similarly shaped letters. This can lead to difficulties in recognising geometric shapes, for example, when associating a triangle with the number three (Pokorná, 1997).

– Auditory type: Arises from impaired auditory perception. The child has trouble distinguishing and correctly ordering sounds in a word, which is reflected in their written output.

– Motor type: This type is often associated with dysgraphia and is manifested by slow and laborious writing. Emphasis on writing technique diverts attention from spelling (Jucovičová, 2008).

Causes of Dysorthographia

The causes of dysorthographia are multifactorial and include both neurodevelopmental and cognitive aspects. The main causes include:

Dysfunction of the right cerebral hemisphere: Scientists believe that this disorder may be linked to dysfunction in the area of the cerebral hemisphere involved in visual and spatial perception (Pokorná, 2015).

– Attention and memory disorders: Dysorthographia is often associated with concentration disorders and weakened memory, which impairs the ability to acquire spelling rules.

– Problems with graphomotor skills: As with dysgraphia, difficulties with fine motor skills and a slow working pace also play a role (Jucovičová, 2008).

Insufficiently developed auditory perception: This cause is directly related to the auditory type of dysorthographia, where the child cannot properly process auditory stimuli.

Given the interconnectedness of dysorthographia with other SLDs and disorders, it is crucial to approach diagnosis and intervention comprehensively. Early and targeted support is essential for successfully managing the difficulties associated with this disorder (Bartoňová, 2004, pp. 28–32).

Dyscalculia

Dyscalculia is a specific learning disorder (SLD) manifested by significant difficulties in mathematical skills. These difficulties mainly concern basic arithmetic operations such as addition, subtraction, multiplication, and division, even in the presence of average or above-average intelligence. According to the International Classification of Diseases (ICD-10), dyscalculia falls under code F81.2 and is included in the category “Specific Developmental Disorders of Scholastic Skills” (Jucovičová, 2008).

Aetiology and Typology

The causes of dyscalculia are complex and range from congenital predispositions to environmental influences. The disorder may have a genetic basis, and is thus hereditary. In addition, it may be caused by damage to certain parts of the brain hemispheres during the prenatal period, which are crucial for the development of mathematical functions. To understand the diversity of manifestations of dyscalculia, it is important to be familiar with its typology. The most commonly used classification is according to L. Košč, who divides dyscalculia into several types based on the nature of the impairment of mathematical abilities.

Table 2

Classification of Dyscalculia according to L. Košč (1975)

Type of Dyscalculia	Characteristics and Manifestations
Practical-Gnostic	Disorder of perception and manipulation of quantity and concrete objects. Manifested by an inability to grasp the concept of natural numbers, compare the number of elements, manipulate concrete objects or symbols, and recognize geometric shapes.
Verbal	Disorder in verbal expression of mathematical concepts. The individual has difficulty naming mathematical symbols and signs and is unable to correctly enumerate numbers in sequence.
Lexical	Disorder in reading mathematical symbols. Typically, the individual is unable to read numerals, numbers, or mathematical signs. It often presents as confusion between visually similar numerals and difficulties with spatial orientation.
Graphical	Disorder in writing mathematical symbols. Manifested by an inability to write numerals or mathematical signs from dictation, difficulties with drawing geometric figures, and problems when recording multi-digit numbers.
Operational	Disorder in performing mathematical operations. The individual has impaired ability to carry out basic arithmetic tasks, confuses mathematical operations, and struggles to acquire memorized numerical facts.
Diagnostic	Disorder in understanding abstract mathematical concepts. Manifested by difficulties in grasping relationships between concepts, generalizing, and solving word problems.

Source: Adapted from Bartoňová, 2004, pp. 42–44, and Zelinková, 2003, p. 99).

Accompanying Manifestations and Causes

Dyscalculia manifests not only in the field of mathematics but also in everyday life. Typical signs include uncertainty when reciting numbers, inability to concentrate on mathematical tasks, limited short-term memory, and a slow working pace. Compensatory finger counting, which persists into higher school years, is also frequently observed (Košče, 1972).

The main causes of dyscalculia include:

– Congenital and genetic factors: Heredity plays a significant role, with the assumption of transmission from parent to child.

– Neurodevelopmental factors: The disorder is associated with immaturity or damage to brain areas responsible for mathematical functions.

– External factors: Inadequate motivation for learning or errors in pedagogical approaches by teachers and parents can exacerbate problems related to dyscalculia.

Integration of Psychological and Special Educational Knowledge

Psychology, as the science of the mind and behaviour, is inherently linked to special education. While psychology examines the general principles of human psyche and mental processes, special education focuses on the upbringing and education of individuals with various types of disabilities and developmental disorders. These disciplines complement each other, especially in understanding aetiology, diagnostics, and effective support.

Diagnosis and Classification of Developmental Disorders

Modern psychology and special education rely on comprehensive diagnostic systems, such as the International Classification of Diseases (ICD). According to ICD-10, specific learning disabilities (SLD) and developmental disorders are included in one diagnostic group. This underscores their neurodevelopmental nature, i.e., the fact that these disorders originate in the early development of the central nervous system. The diagnostic process for developmental disorders involves assessing a range of psychological functions, including cognitive abilities, motor skills, speech, and socio-emotional development.

Manifestations such as dyslexia, dysgraphia, and dyscalculia are considered specific expressions of broader developmental difficulties, which often occur concurrently (comorbidity). For example, children with SLD frequently also have attention deficit hyperactivity disorder (ADHD) or coordination difficulties (dyspraxia).

Special Education as an Applied Science

Special education utilizes psychological knowledge to create effective intervention strategies. It is not just about identifying the disorder but about finding suitable adaptation mechanisms and methods that compensate for weakened functions. The aim is to enable the individual to receive a full education and integrate into society, which aligns with the principles of inclusive education (Šimek, 2022).

Special educational support may include:

– Assistive technologies: Tools facilitating learning (e.g., text-to-speech software for individuals with dyslexia).

– Individual education plans: Adapting teaching methods and pace to the student's needs (Šimek & Lengyelfalusy, 2020).

– Development of cognitive skills: Exercises aimed at strengthening weakened functions, such as short-term memory, attention, or phonological awareness.

Relationship to Other Sciences

The integration of psychology and special education is now essential for a comprehensive and modern approach to developmental disorders. Additional insights from neuroscience and medicine help us better understand how the brains of individuals with disorders function and what the biological bases of their difficulties are. This interdisciplinary approach is key to destigmatisation and the creation of a supportive environment that focuses on an individual's strengths rather than their deficits.

Neurobiological Basis of Specific Learning Disabilities (SLD)

Modern neurobiological research shows that specific learning disabilities (SLD) are not the result of lower intelligence but rather reflect specific differences in brain structure and function. Using methods such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG), it is possible to observe that individuals with dyslexia exhibit decreased activity in key left-hemispheric regions, such as the temporo-parietal cortex and fusiform gyrus. These areas are essential for phonological processing and automatic word recognition. Research also points to differences in the structure of white matter, which connects various brain regions. Disruption of myelination (insulation of nerve fibres) can slow information transfer, contributing to difficulties in reading and writing (Šimek & Lengyelfalusy, 2020).

Neurobiological Approaches to SLD Support

Neurobiological findings suggest that support for SLD should focus on compensating for and strengthening weakened neural pathways. Neuroplasticity – the brain's ability to change its structure and function based on experience – plays a key role here.

Targeted training of cognitive functions: Training focused on phonological awareness in dyslexia can activate hypofunctional brain regions. Systematic exercises that teach the association of sounds with letters stimulate neural pathways linked to reading, leading to improved performance.

Multisensory approaches: Educational methods involving multiple senses (hearing, sight, touch) bypass weakened neural pathways and create new, stronger connections. For instance, individuals with dysgraphia may use touch screens, writing in sand, or modelling letters to improve handwriting. This method supports sensorimotor integration (Moody, 2007).

Assistive and adaptive technologies: The use of text-to-speech software for dyslexia or specialized programmes for mathematics in dyscalculia enables students to bypass their primary deficits. This reduces cognitive load and increases their chances of successful learning. Technology serves as an adaptation mechanism, allowing for more effective information processing (Šimek & Lengyelfalusy, 2020).

Future Directions for Research and Support

Future research is likely to focus on an even more detailed analysis of genetic and epigenetic factors. Understanding how external influences affect gene expression in early development could lead to personalized and highly effective preventive and intervention programmes. The aim is not only to alleviate symptoms but to strengthen the very neural circuits that are weakened in SLD (Michalová, 2016).

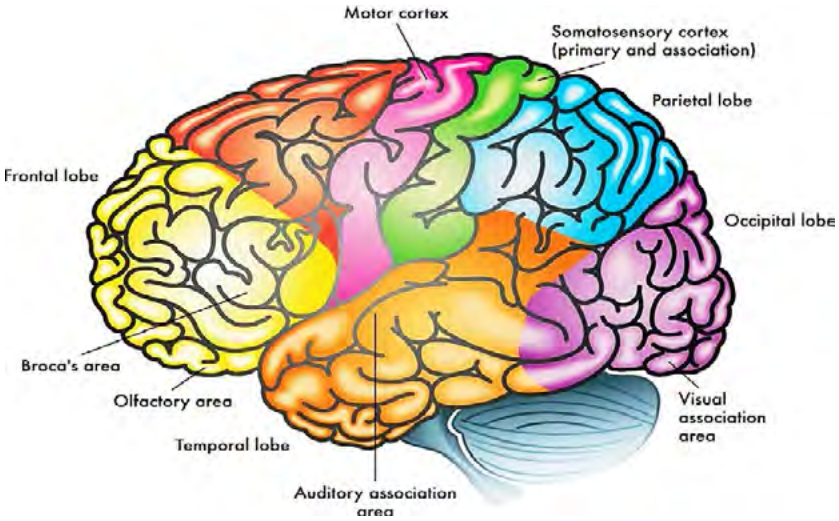

Figure 1. View of the human brain and its centres (Matějka, 2025)

Legend:

Title (English / Czech)	Function and Explanation
Frontal lobe (Frontální lalok)	The largest part of the brain, involved in planning, reasoning, problem-solving, and decision-making. It is also responsible for movement control and short-term memory.
Parietal lobe (Temenní lalok)	Processes sensory information such as touch, temperature, pain, and pressure. Plays an important role in spatial orientation and navigation.
Temporal lobe (Spánkový lalok)	The main center for processing auditory information, memory (especially long-term memory), and understanding speech.
Occipital lobe (Týlní lalok)	The primary center for processing visual information. It processes images, shapes, and colours.
Motor cortex (Motorická kůra)	The area responsible for planning, controlling, and executing voluntary movements.
Somatosensory cortex (Somatosenzorická kůra)	Receives and processes sensory information from the entire body, such as touch, temperature, and pain.
Broca's area (Brocova oblast)	A key area for speech production. Responsible for the organization and articulation of words.
Olfactory area (Čichová oblast)	The region of the brain that processes and interprets olfactory (smell) stimuli.
Auditory association area (Asociační sluchová oblast)	Assists in the interpretation and recognition of sounds, including speech and music.
Visual association area (Asociační zraková oblast)	Processes and interprets visual information that comes from the primary visual cortex, helping us to understand what we see.

3. Discussion

The work “Learning Disorders and Contemporary Society” provides a comprehensive examination of the topic of specific learning disorders (SLDs), such as dyslexia, dysgraphia, and dyscalculia, within the context of the 21st century. A key finding is that perceptions of SLDs have undergone significant transformation. In the past, these disorders were mistakenly associated with laziness or low intelligence; today, however, they are understood as neurodevelopmental differences with a biological and genetic basis. Neurobiological research, employing methods such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG), has demonstrated reduced activity in crucial left-hemispheric regions responsible for phonological processing and word recognition in individuals with dyslexia. It has also been established that SLDs frequently co-occur with other disorders, such as ADHD or dyspraxia. In the educational context, it has become clear that traditional methods often fail to consider the individual potential of pupils with SLDs, which may result in limited educational or professional opportunities. Assistive technologies have proven to be effective adaptation mechanisms, compensating for the specific difficulties associated with dyslexia, dysgraphia, and dyscalculia, and supporting the development of functional literacy. Inclusive education emerges as a key factor for the active support of these students.

True inclusion is not merely about the presence of a pupil in the classroom, but about active support and the adaptation of teaching methods to accommodate diverse needs. Multisensory educational approaches, which engage multiple senses such as hearing, sight, and touch, bypass weakened neural

pathways and establish new, stronger connections. For example, individuals with dysgraphia may improve their writing by using touchscreens, writing in sand, or modelling letters. In the future, it is essential to further explore the genetic and epigenetic factors of SLDs. Understanding how external influences affect gene expression in early development could lead to the creation of personalized and highly effective preventive programmes and interventions. The aim of future research should be not only to alleviate symptoms but also to strengthen the neural circuits that are weakened in SLDs. There is also a need to enhance discussion on how society can create an environment that is supportive of all its members, regardless of their neurodevelopmental differences. Improved cooperation among parents, educators, and specialists is crucial, as is destigmatisation and raising public awareness that learning disorders are not an obstacle, but rather a challenge requiring a different approach – not lesser abilities.

Personalized and Preventive Programmes

Future research should focus on a more detailed analysis of genetic and epigenetic factors. Understanding how external influences affect gene expression during early development may lead to the creation of personalized and highly effective preventive programmes and interventions. The objective should be not only to mitigate the symptoms of SLDs, but also to strengthen the neural circuits that are weakened in these conditions.

Comprehensive Support and Destigmatisation

It is essential to strengthen the discussion on how society can create an environment that is supportive, respectful, and stimulating for all. This includes the destigmatisation of SLDs and increasing public awareness that these disorders are not an obstacle, but rather a challenge that requires a different approach, not lesser abilities. Improved cooperation among parents, educators, and specialists is also key, as it is necessary for a comprehensive and modern approach to developmental disorders.

The Role of Technology and Education

Looking ahead, greater use should be made of assistive technologies and personalized educational platforms, which can facilitate learning, reduce cognitive load, and increase the likelihood of successful acquisition of knowledge. At the same time, it is necessary to ensure that inclusive education is not just about the physical presence of a pupil in the classroom, but about active support and adaptation of teaching methods to suit the varied needs of students. Multisensory approaches should become standard practice, as they help to establish new, stronger neural connections.

4. Conclusion

This work offers a comprehensive and personal perspective on the issue of specific learning disorders (SLDs), such as dyslexia, dysgraphia, and dyscalculia, in the context of contemporary society. The author, who personally contends with this issue, enriches traditional theoretical frameworks with an authentic perspective, thereby adding unique depth and relevance to the text. A fundamental finding is that perceptions of SLDs have shifted from earlier stigmatization –wrongly linking them to laziness or low intelligence – to a modern understanding of them as neurodevelopmental differences. The work confirms that SLDs have a complex aetiology, including biological and genetic predispositions, such as the influence of heredity and mild brain dysfunction (MBD). The current view, however, does not neglect social and environmental factors, such as family background and the environment of educational institutions, which play a significant role in managing these difficulties. Neurobiological research, using methods like functional magnetic resonance imaging (fMRI) and electroencephalography (EEG), points to specific differences in brain structure and function, for example, reduced activity in key left-hemispheric regions in individuals with dyslexia. This emphasizes that SLDs are not a sign of diminished abilities, but require a different approach. SLDs also frequently co-occur with other disorders, such as ADHD or dyspraxia (Michalová, 2016). In the educational context, assistive technologies and the principles of inclusive education have proven to be key adaptation mechanisms. True inclusion is not just about a pupil's presence in the classroom, but about active support and adaptation of teaching methods to suit diverse needs. Multisensory approaches in education, which engage multiple senses, have proven effective in compensating for weakened neural pathways and creating new, stronger connections. In the future, it is essential to focus on more detailed research into genetic and epigenetic factors, which could lead to personalized and highly effective

preventive programmes. The aim of future research should be not only to alleviate symptoms, but also to strengthen the neural circuits themselves. The work highlights the need for destigmatisation and raising public awareness that SLDs are a challenge rather than an obstacle. Improved cooperation among parents, educators, and specialists is also crucial, as it is necessary for a comprehensive and modern approach to developmental disorders. Overall, the work contributes to destigmatisation and strengthens the discussion on how society can create an environment that is supportive, respectful, and stimulating for everyone.

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