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AI-based Inclusive Higher Education

Compendium



2024-1-PL01-KA220-HED-000256427 Cooperation partnerships in higher education

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TABLE OF CONTENT

Introduction	3
Chapter I. Educational, social and administrative environment in the context of disability	5
1.1 Assumptions of inclusive education.....	5
1.2. Characteristics of selected disabilities.....	8
1.2.1. Students with mobility disabilities.....	9
1.2.2. Students with sensory disabilities.....	10
1.2.3. Students with psychological disabilities.....	12
1.2.4. Students on the autism spectrum.....	15
1.3. Barriers to education for students with disabilities.....	17
1.4. Needs of students with disabilities.....	19
1.5 Help and support for people with disabilities in academic spaces.....	23
1.6 Assistive technologies in the education of students with disabilities.....	26
Chapter II. Methodological assumptions of the research	36
Chapter III. Research issues in light of the results of the study	40
3.1 Knowledge of the educational needs of students with disabilities.....	40
3.2 Support of students with disabilities in academic and administrative fields.....	65
3.3 Skills level in using AI-based tools with students with disabilities.....	83
3.4 Good Practices in the education of students with disabilities.....	98
Bibliography	115
Annex	119

Introduction

Inclusive higher education is a key element in building modern societies. This idea contributes to both the sustainable development of individuals and the promotion of the values of equality, tolerance and respect. The European Union is home to more than 80 million people affected by various forms of disability. Disability is therefore an integral part of our social, economic, cultural, professional and educational life. Disability and the resulting special educational needs, due to their importance, have been covered not only by national, but also international and European laws. This is reflected, for example, in the EU Parliament and Council Directive 2019/882 of April 17, 2019 on accessibility requirements for products and services. The aforementioned law obliges all public institutions, including institutions of higher education, to ensure accessibility by introducing appropriate solutions in the architectural, digital and social communication areas.

The INEDU project responds to the need to create an inclusive culture in European higher education institutions, which is defined as a system shared by members of a community that provides appropriate values and opportunities to organize and construct different dimensions of life. One of the ways to create an inclusive higher education culture is to increase public awareness of the functioning of people with disabilities, taking into account their special educational needs.

The main goal of the project is to increase the level of accessibility of education for students with disabilities and to create a culture of inclusive higher education using modern AI solutions. This goal will be achieved through the following activities:

- 1) To increase the knowledge of academic staff, administrative staff, staff in offices for students with disabilities, students and candidates for higher education on innovative solutions through the analysis and presentation of international good practices in the field of inclusive education;

- 2) Increase public awareness and knowledge of individuals and entities that contribute to an inclusive academic community about the problems, needs and ways to support students with disabilities;

- 3) Increase knowledge and skills in building an inclusive academic environment by creating a digitized education and information platform for teachers, administrative staff and students on how to support students with disabilities;

4) Increase the level of competence in building an inclusive culture in student groups by proposing workshop scenarios for teachers and other stakeholders;

5) Reducing the level of fear and uncertainty of higher education applicants and students with disabilities by developing a guide for them on how to get support in the higher education process;

6) To sensitize various sectors of society to the problems of students with disabilities and to seek innovative solutions in this regard by organizing an international scientific conference, which will be an optimal space for the exchange of ideas and views.

In line with the objectives outlined above, it is important to recognize the innovation of the project INEDU, which with its interactions activates entire academic communities to learn effective strategies for supporting students with disabilities. This is a unique approach to creating an academic environment in which all participants are involved in shaping an inclusive community.

This study consists of three parts. The theoretical part presents the assumptions of inclusive education, referring to both historical and contemporary directives and laws. The second section characterizes selected disabilities, paying special attention to the barriers, problems and special educational needs of students with motor, sensory, mental and autism spectrum disabilities. In relation to these isolated educational needs, various forms of assistance and support that should be provided and organized at the university were presented and discussed. An important element of this part of the study was the indication of technologies supporting education with special attention to AI-based tools.

The second chapter contains the basic methodological assumptions under which the research was conducted in Poland, Germany, Lithuania and Spain.

One of the goals of the survey research was to determine the level of knowledge of university teachers about the special educational needs of students with motor, sensory, mental disorders and autism spectrum disabilities. Respondents assessed the partial stotality of communication, social, emotional, psychological, organizational and technological barriers experienced by students. The second area of research exploration was the identification of forms of support that are implemented for students with the above-mentioned disabilities at the university. An important element of the research conducted was also to determine the level of skills of the surveyed university teachers in using AI-based tools in working with students with disabilities.

In order to fully describe the social and educational situation of students with disabilities, expert interviews were also conducted with specialists tasked with supporting people with

special educational needs at partner universities. These interviews concerned both the procedures for dealing with reports of educational difficulties by students, the proposed forms of support, and the presentation of innovative solutions, i.e. examples of good practice in this area. Particular interest in the interviews was directed at existing and proposed ways of supporting students with AI-based tools

The results and conclusions of the study are presented in the empirical chapter.

This study is an important compendium of knowledge on the functioning of students with disabilities in social and educational spaces. Its special value lies in the fact that it addresses realistically identified and detailed needs, barriers and expected forms of support that need to be undertaken in order to effectively build and support an inclusive academic community.

Chapter I. Educational, social and administrative environment in the context of disability

The right to education is one of the fundamental human rights, the realization of which enables personal development and makes it possible to achieve self-reliance and independence, as well as full participation in all spheres of life. Across Europe, efforts are currently underway to increase the number of college students and graduates. At the European level, this was reflected in a statement by the Council of Ministers of Education, which identified an increase in the percentage of students as one of the goals facing the education system in Europe (Strategy for the Development of Education in Europe 2010 (2004). As stated in the Universal Declaration of Rights Human Rights (1948), the right to education, including higher education, is enjoyed by all persons regardless of race, religion or disability. In turn, the report "Education at a Glance" (2012), which is a collection of data on education systems in OECD and partner countries, reads that there is a steady increase in the number of university graduates, and the more years spent in education, the greater the chance of employment and better earnings. For people with disabilities, education not only allows them to gain knowledge, but is a basic tool for equalizing life chances and the most important link in social and vocational rehabilitation (Szczipal, 2007). With the ratification of the Convention on the Rights of Persons with Disabilities (2008), the European Union recognized the right of this group of people to education and pledged to ensure an inclusive education system that enables integration at all levels of education. The European Union also ensured that these people would have access to universal higher education without discrimination and on the basis of equality. As David (2004)

states, (...) slogans of equity and/or equality in higher education are making international headway, however, the question of how exactly we should understand them is already a highly complex matter (...).

The policy of social and, in particular, educational inclusion of people with disabilities is a response to the growing needs and aspirations of this group of people and, at the same time, the result of changing views, social attitudes, striving to improve the quality of life and increase opportunities for people with disabilities to function effectively in the modern world. One of the conditions for full participation in social and professional life of people with disabilities is their preparation for professional work, and one of the possible stages of this preparation is higher education (Crane, 2008).

1.2 Assumptions of inclusive education

The source of norms and regulations concerning people with disabilities are human rights - natural, inalienable and inherent, to which all people are entitled, regardless of their differences (Jankowska 2012, after Sztobryn-Giercuskiewicz, 2018), expressed first in 1945 in the UN Charter, an international treaty committing UN member states to respect human rights regardless of race, gender, language or religion (Article 1.3 of the Charter). Modern standards for understanding human rights are set by the Universal Declaration of Human Rights, introduced by the UN on December 10, 1948. It speaks of "the inherent dignity and the equal and inalienable rights of all members of the human community, which are the foundation of freedom, justice and peace in the world" (UN 1948, preamble). An important provision from the point of view of academic education for people with disabilities is expressed in Article 26, para. 1 of the Declaration: "Everyone has the right to education. (...) Higher education shall be available to all on a basis of equality, according to personal merit." The Declaration of Human Rights, like other such UN documents, is not legally binding and does not impose any obligations or sanctions on states for violations of its provisions. However, it is a resolution passed by almost the entire international community and can be considered a universal system of rights that is part of natural law and as such - universally applicable (Holda, Holda, Ostrowska, Rybczynska 2011, after Sztobryn-Giercuskiewicz, 2018).

Modern education is one that is designed to prepare students for the challenges of the modern and future world. It can be implemented in a variety of ways and one of them is inclusive education. The goal of inclusive education is to create an atmosphere in teaching-learning in which each person, regardless of their background, appearance, health condition, disability, age, will feel respected, valued and accepted in the institution, so that he or she can

realize his or her full potential (Szumski, 2006). This approach, however, requires a fundamental change in the thinking of those working in the education system. First of all, it is necessary to adopt an attitude characterized by openness, trust, understanding, acceptance and respect for the different personalities of individuals.

According to the Convention on the Rights of Persons with Disabilities, inclusive education pays special attention to removing barriers and creating the best possible learning conditions for all, and at the same time obliges teachers not to give preferential treatment to students with special educational needs, the great responsibility for spreading knowledge of human rights and protecting them lies with the directors of schools or educational institutions. It is also the task of every teacher-educator of children and young people. "Anti-discrimination education must become an important, conscious activity that raises knowledge, skills and influences attitudes to counter discrimination and violence and promote equality and diversity" (Branka, Cieslikowska, 2010). Educational reality has become fluid, and diversity, variability, blurring of boundaries and patterns define its everyday life. The literature on special education often uses the terms inclusive education and inclusion education interchangeably. Thus, the term "inclusion" is sometimes used as a synonym for inclusive education. However, authors using it in this sense do not recognize the existence of different concepts of non-segregated education or try to mask the existing differences. Some theorists even emphasize "that the idea of inclusive education grew out of criticism of the theory and practice of inclusive education, its shortcomings and limitations, and is a proposal for a more perfect organization of joint teaching of the healthy and the disabled" (Szumski, 2006).

From a methodological point of view, inclusive education can be defined as a way of organizing the educational process (teaching and learning) that takes into account the different needs of a group of students learning together. The diversity of needs can be manifested, among other things, in the pace of work, interests, talents, personality traits, cognitive competence, physical fitness, worldview, values. Inclusive education does not presuppose the preparation of a separate educational path, but seeks to meet individual needs through standard group activities that integrate the classroom and school. In inclusive education, self-development and self-realization are given priority. However, the educational process is implemented primarily in a collaborative learning model. With this approach, the natural diversity of students is treated as an asset, rather than an obstacle to achieving common educational goals. The basis of inclusive education is therefore the flexibility of educational forms and methods. It ensures that each student is supported while feeling part of a larger community. Inclusive education wants to reach everyone, but in cooperation with other learners. A school, including a university, should

therefore take greater account of the multiplicity of learning opportunities and strategies that lead to the same results, but take into account individual student preferences. Instead of one method, the teacher uses several for the same content. In this way, each pupil/student can find the optimal way to learn and participate fully in class (Dwojakowska, 2022).

Inclusive education is also a model of cooperation between all those involved in the education and upbringing process. It is about both the efficient exchange of information, the integration of support activities, and mutual learning. Inclusive education is education that makes the most of the resources at its disposal, in which solidarity of action and shared responsibility are key values. Its implementation is not only a social challenge, but also a good training for cooperation between institutions, facilities, schools and kindergartens (<https://www.gov.pl/web/edukacja-i-nauka/edukacja-wlaczajaca>).

1.2. Characteristics of selected disabilities

The idea of inclusive education is based on the social model of disability. This model assumes that the causes of disability include the barriers created by society in contact with a disabled person: social, economic, legal, organizational. Thus, it is society that is responsible for reducing the effects of disability and including this group of people in society.

The decision to enter higher education represents a turning point in a young person's life. It entails a number of consequences, both physical and psychological, in a special way conditioning his further fate. It becomes, so to speak, the cause of "developmental, educational, social, worldview changes" (Byra, Parchomiuk, 2009, p.7). The time of studying intensifies the production among academic youth of certain predispositions to "moral reflection and self-reliance understood as the ability for self-education" and "reliable" fulfillment of tasks arising from the role of a student (Sowa, 2004, p.58). Since this is a period of fuller maturation, entering adulthood, a young person, entering the academic world, is obliged to take responsibility for his or her own actions, to realize the goals chosen earlier, to make a number of decisions about the future (Sowa, p.35). Depending on the quality and pace of the changes implemented, the process of adjustment of individuals to the newly found reality will take place. "The dynamics of the aforementioned transformations is marked in a special way during the first year of study, due to the novelty of most situations and accompanying experiences" (Byra, M. Parchomiuk, 2009, p.7). At this point, it is worthwhile to characterize students with the statistically most common types of disabilities.

1.2.3. Students with mobility disabilities

Mobility disability is one of the most common causes of disability, both legal and biological. It refers to limitations and deficits in the motor (skeletal and articular) system. When classifying the causes of motor disability, it is necessary to analyze the problem on several levels. First, motor disability can be caused by congenital or acquired abnormalities. In order to create optimal rehabilitation programs, it is most important to know the basic clinical issues, which allows us to assess the facts as a result of the examination and predict the development and consequences of the condition with a possible degree of disability (Konieczny, Wrzosek, 2011, p.52). The causes of motor disability lie in the genetic determinants of development and are caused by intrinsic factors. Already in fetal life there can be many factors that interfere with the normal development of the embryo and fetus. These may include gene mutations and chromosomal aberrations, occurring under the forms of Turner Syndrome or Klinefelter Syndrome, among others (Bartel, 1999, p. 45). Disorders of embryonic leaf differentiation and primary and secondary organogenesis (arthrogryposis, congenital bone fracture, meningeal hernia, meningo-spinal hernia) are also important factors (Bartel, 1999, p. 46). Damage to musculoskeletal organs is also caused by mechanical factors acting on the fetus in the womb, that is, extrinsic factors such as abnormal fetal positioning or scanty fetal waters, as well as maternal malnutrition, especially vitamin A, D, and B vitamin deficiency. Ionizing rays, toxic agents (so-called teratogens, such as drugs), and hypoxia during pregnancy are also harmful factors. These factors can cause infantile cerebral palsy or congenital absence of limbs. After the child is born, the locomotor organs can be negatively affected by an improperly conducted delivery (such as a forceps or buttock delivery), improper child hygiene, mechanical trauma when learning to walk. The musculoskeletal system is also often damaged by viral and bacterial infections, tumors, and improper injections (Arusztowicz, Bąkowski, 2001, p.11). Other important causes of locomotor disability are trauma, the consequence of which are amputations of limbs, spinal cord injuries, complications after fractures, as well as overloading the locomotor system with, for example, work, sports, carrying a heavy school file.

In summary, the causes of musculoskeletal dysfunction can be summarized as follows:

- 1) congenital or developmental defects of the musculoskeletal organs,
- 2) Systemic connective tissue diseases depending on the period of the disease and the degree of functional capacity,
- 3) Arthritis with functional spondylitis depending on the degree of functional capacity,
- 4) Osteoarthritis, depending on the degree of damage

- 5) Bone and cartilage diseases with impaired functional capacity,
- 6) musculoskeletal cancers,
- 7) post-traumatic changes, depending on the degree of damage and compensatory capacity.
(za:Wozniak, 2007, p. 42).

All of the above-mentioned factors cause musculoskeletal dysfunction and make it difficult for a person with a disability to live independently (Arusztowicz, Bąkowski, 2001, p. 12)

1.2.4. Students with sensory disabilities

Disabilities associated with visual impairments are called sensory disabilities. Not every visual impairment qualifies one to see oneself as a person with a disability, as well as to receive a disability certificate. However, severe visual impairment that causes problems in daily functioning is already a reason why a disability certificate should be issued. Thus, this type of disability includes visually impaired and blind people. Blind people are those who are completely or partially deprived of sight. Their vision does not work or works to such a limited extent that visual stimuli coming from the environment (e.g., shadows, light) do not enable them to function independently, move, cognition and orientation (Ossowski, 2005). A visually impaired person, on the other hand, is a person who, despite correction and adjustment of the environment, has limitations in visual cognition of the outside world. According to the WHO, a visually impaired person is one with a visual acuity equal to or greater than 3/60 (0.05) and less than 6/18 (0.3) (full visual acuity corresponds to a value of 1.0) or with a visual field limited to an area of 20 degrees (while the full visual field is about 180 degrees). Causes of visual disability include: genetic factors, congenital defects, perinatal damage, eye diseases, systemic diseases, lack of vitamins. The types of visual disability are manifold: cataracts, glaucoma, retinopathy of prematurity, high myopia, optic nerve atrophy, reduced visual acuity, visual field loss, impaired light sensitivity, reduced contrast sensitivity, nystagmus (Ossowski, 2005).

People who are deaf and hard of hearing are counted among those with sensory disabilities. In this disability, the sense of hearing is damaged. Causes of hearing impairment can include, among others, various injuries acquired during a person's life, such as damage to the eardrum (this is a mechanical type of damage that can occur, for example, when cleaning the inner parts of the ear), as well as past bacterial infections (as well as fungal or viral infections), which can be the result of severe childhood illnesses such as chicken pox, rubella or mumps, for example. Hearing impairment can also be caused by otitis, which, if untreated, can seriously impair hearing or sometimes lead to partial hearing loss. Often, however, hearing

impairment is congenital (passed on, for example, through the mother's illness or induced by drugs taken by her) or genetic (e.g. deaf parents). In such cases, the child is born already with a hearing disorder. In the previously mentioned, they are acquired cases (Eckert, 2005).

Deafness can be classified on a criterion according to the time of onset of the damage:

- Prelingual deafness - developed before the child masters speech (2-3 years of age),
- Perilingual deafness - developed during the mastery of language (3-5 years of age),
- Postlingual deafness - when the person has already mastered the language (after age 5).

In addition, classification can be made based on the criterion of the type of hearing damage:

deafness

- sensorineural deafness
- mixed deafness

With regard to the criterion concerning the source of damage, deafness is divided into:

- central hearing loss
- unilateral deafness
- mental deafness.

Technical devices such as hearing aids, cochlear implants, truncanal implants can help to a very high degree in the rehabilitation of hearing impaired people (Eckert, 2005)

1.2.3. Students with psychological disabilities

Mental diseases and disorders are a very common cause of disability adjudication. The current diagnostic classification of diseases and disorders is ICD - 10 (International Classification of Diseases, Injuries and Causes of Death, ICD), and as early as 2022. World Health Organization WHO intends to officially start using ICD- 11. The classification covers disorders and diseases from the somatic and mental spheres. In addition to the above, there is the DSM - V Classification (Diagnostic and Statistical Manual of Mental Disorders, DSM) issued by the American Psychiatric Association. Both one and the other classification describe various mental problems very precisely.

The most common mental illnesses and disorders are:

- 1. Schizophrenia, schizophrenic and delusional type disorders.** In these diseases, one encounters positive disorders (i.e.: hallucinations, delusional thinking) and negative disorders (i.e.: withdrawal from social contacts, lowered mood and motivation, depletion of the course and content of thinking, emotional blunting,

apathy, lack of insight and awareness of the disease) (Rybakowski, Pużyński, Wciórka, 2010).

Describing the possible causes of schizophrenia, it should be noted at the outset that they are not known, but given the accumulated quite considerable knowledge about the condition, observation of various clinical cases and scientific studies, it is possible to think about the potential possibilities, regarding the etiology. Schizophrenia can be caused by genetic, infectious or immune, neuronal and in brain structure and environmental factors (Rybakowski, Pużyński, Wciórka, 2010).

2. Mood (affective) disorders. Among the most characteristic are depression and affective-bipolar disorder. In psychiatry, full-blown forms of depression are increasingly noted, which can be noticed by the environment, the patient himself or the doctor, or overlooked at first glance, i.e. masked depression. It is also common to notice subdepressive states, abortive depressions, where only some features of the depressive syndrome are present. Such states are often difficult to observe even by an experienced diagnostician. Endogenous depression depends on internal factors or changes at the brain level or insufficient neurotransmitters in the nervous system. Abortive depression refers to disorders on many levels, which can appear for various reasons, one of which is the consumption of psychoactive substances. Here especially alcohol or drug addiction. It is difficult to diagnose and most often patients do not see a doctor at all, or do so rarely. Symptoms can also be the cause of various other mental illnesses. This form can lead to sleep disorders and subsequent depressive disorders.

Masked depression is an illness marked by nonspecific symptoms that, to those around them, do not immediately indicate the true cause of the condition. The symptoms the patient suffers from are most often masked by other ailments. These may include psychoactive substance abuse, sleep disorders or headaches. Patients with this type of depression usually have high and increasing anxiety (Rybakowski, Pużyński, Wciórka, 2010).

Mania is a disorder where exceptional euphoricity dominates the mood. In addition, patients reveal a tendency to engage in risky behavior. In the cognitive sphere, a flurry and chase of thoughts is observed, and in behavior there is disorganization. The patient starts many activities or initiatives simultaneously and does not finish them. There are difficulties on the level of circadian rhythm and appetite. The patient may be unable to fall asleep or does not feel the need to satisfy hunger for long periods of time. Exaggerated activity is pronounced, during

which there may be moments of irritability and acts of aggression (Rybakowski, Pużyński, Wciórka, 2010).

Bipolar affective disorder (ChAD) is a disease in which there are periods of depression and mania or mixed periods. Patients suffering from this disorder are often treated only for depression, as one of the symptoms of the disease is episodes that occur with depression. Patients who suffer go from a state of depression to either mania or hypomania (Rybakowski, Pużyński, Wciórka, 2010).

3. Neurotic, stress-related and somatoform disorders are a wide variety of disorders such as obsessive-compulsive, anxiety, adaptive, dissociative, disorders occurring under the somatic form. They are manifested by anxiety, which can be paroxysmal, generalized or panic, disorders in the form of phobias, vegetative symptoms and many other possible complaints. The main cause of these disorders is increased, often chronic stress, which, affecting the central nervous system, exceeds the ability to cope with it, which in turn can cause various types of symptoms. Difficult experiences in early life, can be one of the reasons for the onset of this disorder. Anxiety disorders in the form of phobias can be various like fear of spiders, fear at the sight of blood, fear of heights and many other specific phobias. Social phobias like fear of people, crowds, eating in public places are also noted. Panic attacks and agoraphobia are very inconvenient for the patient because of the anxiety, which prevents the patient from being in places where there are many people. This causes the patient to be very afraid to leave the house and can lead to withdrawal from social life (Rybakowski, Pużyński, Wciórka, 2010)

4. Psychosomatic disorders are otherwise known as psychophysiological disorders. These are somatic ailments that have a psychological basis. Both biological and psychological factors, as well as social factors, are involved in the formation of all ailments. They are characterized by the patient's excessive concentration on his somatic problems. The organs affected by psychosomatic disorders are associated with various systems (i.e. the digestive or respiratory systems). With regard to somatization disorders, skin problems or from the digestive system (e.g., abdominal pain or vomiting) may appear here. With regard to disorders under somatization, we note non-specific symptoms that do not meet the clinical criteria for somatic disease. In hypochondriacal disorders, the anxiety of patients is indicated, in the face of their suspicion of illness. (Rybakowski, Pużyński, Wciórka, 2010).

Causes of these disorders include biological factors associated with pathological changes in the central nervous system. Somatization disorders are usually associated with malfunctioning relationships at some stage in life. In addition, an above-average level of stress is an inherent element.

5. Personality and behavioral disorders are mental disorders that are not quite simple to diagnose. Each person behaves differently and reacts differently to different situations. The most common distinctions are:

- Paranoid personality - people who suffer from this type of personality disorder are very suspicious of others. They believe that other people have ill intentions towards them or are plotting against them. They generally behave quite bizarrely and often inappropriately. Such individuals are sometimes distrustful and tend to accuse others. They are generally very introverted individuals
- Schizoid personality - is a personality disorder in that such people prefer a personal way of life, exhibit antisocial behavior. They do not like to be emotionally attached, and like to spend their time whether at work or at home alone. The environment is not a source of interest.
- Avoidant personality - patients have a high sense of anxiety. They avoid contact with people for fear of rejection or criticism. They have a low self-esteem. They betray a constant fear of being spurned. For this reason, they prefer not to enter into deeper relationships with other people.
- Dependent personality - is a personality disorder in that these people cannot make decisions on their own, they always need the support, help and care of another person. They are convinced that they cannot make decisions on their own and are usually very helpless and passive in their actions.
- Borderline (borderline) personality - patients notice isolation and frequent sudden mood changes. People with this diagnosis tend to engage in various risky and impulsive activities (i.e.: gambling, reaching for psychoactive drugs, acting-out behavior).
- Anankastic personality - these people strive to be perfect in every area of their lives. They want to have every activity performed flawlessly. There is no spontaneity in them, they set rigid norms for themselves, they do not like change. Often, out of fear precisely of novelty in their lives, they run away from social contacts.
- Dyssocial (antisocial) personality - people with this disorder do not follow social rules, cannot adapt to norms.

- Histrionic personality - such people take actions to always focus the eyes of those around them. They have a varied imagination and often create various fictional stories just to be noticed (Pużyński, Wciórka, 2000).

The onset of personality disorders may have been influenced by various life stressors or traumatic experiences (e.g., the death of a parent, growing up in a home with conditions of social pathology, isolation from family or environment, difficult relationships in the family, authoritarian parenting style, indifference on the part of parents, as well as acts of aggression and violence). Usually the first symptoms appear at a young age. Biological factors and neurotransmitter abnormalities are also taken into account in the diagnosis of these disorders. Psychoactive substances, too, can have a bearing on the manifestation of these disorders in the personality structure (Yakima, Mosiolek, 2022).

1.2.4. Students on the autism spectrum

Autism, a condition involving a range of symptoms, is classified as a pervasive developmental disorder (PDD), which is characterized by delayed or abnormal development of social relationships, behavior, communication and cognitive functions. It is now recognized that the disorder is multifactorial (e.g., genetic, environmental, prenatal, neurological factors). In recent years, diagnosing autism in adults has become more common, thanks to the greater availability of knowledge and the growing number of specialists dealing with autism in adults. Therefore, the public is increasingly seeking information about what causes autism, and the scientific community is diligently trying to find answers. However, scientists have not identified a homogeneous etiology of autism. We can talk about many of the risk factors mentioned above (Popielarska, 2000). According to K. Gerc (2017), the manifestation of autism symptoms changes with age. Many adults with ASD, having completed secondary education, reveal a relatively wide repertoire of diverse competencies. Not only are they able to communicate effectively with other people, but they also reveal numerous interests and have a very broad knowledge of the world and the relationships within it. These people are also quite well prepared emotionally and socially for the so-called "life of adulthood." It is worth noting, however, that during the period of high school education, however, daily life proceeded differently than during college. It was generally more orderly, characterized by a certain routine, which helped realize the basic need for security. Undertaking studies for many people means stepping out of their comfort zone, and what makes the beginning of the study process for people with ASD a serious challenge (including the need to face the unpredictability of tasks, functioning in an unfamiliar and sometimes poorly understood environment). People with

autism spectrum disorders, including those with Asperger's Syndrome, are a growing group among students in Poland. At the same time, even one in ten people with Asperger's Syndrome manifests special abilities and can be outstanding graduates or scientists (Gerc, 2017). For some people with ASD, starting and continuing higher education is a new and not easy challenge. For the university to adequately support them, it must be prepared for this and have the right tools. The symptoms of autism, in both children and adults, revolve around two main areas, known as the autism diad. Symptoms are seen in the area of difficulties in social interaction and communication, and in the area of restricted, repetitive and inflexible patterns of behavior, activity and interest. Asperger's syndrome is classified as a neurodevelopmental disorder with a complex and multifactorial etiology (Pisula, 2018). Morgan (2004, p. 61) believes that there are four key problem areas for people with ASD. The most important of these relates to difficulties in non-verbal communication and recognizing and responding to constantly changing social situations. In this context, routine, plan and order are extremely important for autistic people. Such people take longer to learn professional procedures, but they have an excellent memory for details. The problem arises when the procedure changes and the person is expected to react with common sense to unforeseen events or circumstances. Such a sudden change takes the person out of balance and is a source of intense anxiety. This constant state of anxiety is the third characteristic factor that docks the functioning of people with autism. This constant tension lowers self-esteem, self-confidence, and is also the reason for underperformance at work. Autistic people sometimes seem to escape into their own inner world, in which they re-enact events, talking and laughing to themselves. Such a situation becomes disturbing for participants and observers of the event (Morgan, 2004, after:Gerc, 2017)

So in summary, typical symptoms of ASD in adults may include:

- clumsiness,
- difficulties in establishing a conversation,
- difficulties in making or maintaining close friendships,
- discomfort during eye contact,
- problem with regulating emotions,
- extreme interest in one particular topic, such as a specific period of history,
- frequent monologues on the same topic,
- hypersensitivity to sounds or smells that do not disturb others.

A diagnosis of ASD in adulthood can be difficult, but has several advantages. A diagnosis can provide relief and clarify many of the difficulties and problems a person has faced throughout life. It can give family members, friends and colleagues a better understanding of

life with ASD, open access to useful services and benefits, including in the workplace or university, and replace an incorrect diagnosis such as ADHD (Pisula, 2018).

1.3. Barriers to education for students with disabilities

The decision to enter higher education represents a turning point in a young person's life. It entails a number of consequences, both physical and psychological, in a special way conditioning his further fate. It becomes, so to speak, the cause of developmental, educational, social and worldview changes (Byra, Parchomiuk, 2009). The time of studying requires the formation among academic youth of certain predispositions to moral reflection and self-reliance understood as the ability to self-educate and reliably fulfill the tasks arising from the role of a student (Sowa, 2005). Since this is a period of fuller maturation, entering adulthood, a young person, entering the academic world, is obliged to take responsibility for his own actions, realize the goals he has previously chosen, and make a number of decisions about the future. Depending on the quality and pace of the changes implemented, the process of adjustment of individuals to the newly found reality will take place. This dynamic of the aforementioned transformations is particularly marked in the first year of study, due to the novelty of most situations and accompanying experiences (Byra, Parchomiuk, 2009).

The problems faced by disabled students are often of a very individual nature, and their complexity can vary greatly. The characteristics of these difficulties include the following (Byra, 2009).

- functional problems - architectural, urban, communication and information barriers. The most visible, architectural barriers, make it difficult or even impossible to function effectively in the academic space. They cause difficulties in moving around, using specific halls or administrative units. Their impact on student functioning applies to those with mobility limitations, but also to those with visual impairments and the blind. Communication and information barriers, on the other hand, apply to people who are hard of hearing, deaf and those with verbal communication problems (paralysis of the speech apparatus, stuttering). The effect of the functioning of these barriers can be limitations on social contacts, difficulties in oral credits, limitations on independent handling of matters related to studying in university administrative units;
- Educational problems - which can consist of problems with acquiring, understanding, mastering and applying knowledge and skills acquired during the educational process.

The impact of educational problems significantly affects an individual's self-esteem and self-worth;

- Psychosocial problems - resulting from negative environmental attitudes and stereotypes about people with disabilities. There are situations of avoidance of people with disabilities by fully able-bodied people. This can be caused by fear of contact with a person with a disability (not knowing what to say, how to react to physical appearance). Sometimes a physical defect provokes negative comments and laughter. Physical appearance can also prompt negative judgments about the character traits of people with disabilities. The social functioning of such students can be combined with labeling and stigmatization. Obtaining the label "disabled" can trigger social stigmatization, rejection or negative valuation;
- Economic problems - the economic functioning of people with disabilities is usually limited by the specifics of the disease. As a result, the expenses incurred monthly for medical treatment significantly deplete the budget. This may be the reason for dropping out of college or not wanting to pursue higher education at all. The pursuit of higher education is a manifestation of the individual's need for self-realization, recognition, security. Obtaining a college degree often increases self-esteem and self-worth. A person feels more secure, and has more opportunities to find a satisfying job. People with physical disabilities also dream of fulfillment in certain fields. That's why graduation is often a priority in their lives. They prove to their surroundings that they can achieve their goals, that they too can work and make a decent living for themselves. Higher education allows them to satisfy their intellectual needs and many social needs (Szempruch, 2006).

Many people with disabilities experience temporary or permanent difficulties in their relationships with the academic community. A problem cited repeatedly by researchers working on this issue is mental barriers. Many issues in the social environment of people with disabilities are changing (such as the removal of architectural barriers). Unfortunately, it is the mental barriers associated with negative attitudes toward people with disabilities that are often considered the basis of all other limitations and difficulties. However, this stereotypical attitude towards people with disabilities is difficult to eliminate, as it requires a change in the perception of them by society as a whole (Struck-Peregończyk, 2014). After all, no idea can change people's mentality, their fears of otherness and their irrational attitudes within even a few decades, even in an environment as progressive as academia. Here it is worth citing the results of a study conducted by Struck-Peregończyk (2014), which

shows that people with longer tenure at the university (i.e., older people) have less positive attitudes toward students with disabilities. It remains the responsibility of universities to provide most of the instruments to help people with disabilities enter and continue their education.

1.4. Needs of students with disabilities

The network of broad support for students with disabilities is increasingly well structured, thoughtfully designed and strengthened by various experiences, resulting in their increasingly better educational results. The conditions for studying, the availability of specialized equipment and software are systematically improving. Architectural and communication barriers are slowly disappearing. This is reflected in the number of students with disabilities, which has been steadily increasing for several years. The growing aspirations of young people are accompanied by university policies aimed at improving the educational process for students with various disabilities. In order to strengthen the guarantee of education without discrimination and on the basis of equal opportunities, it is necessary to create optimal conditions for people with disabilities to participate fully in the educational process. This is one of the most important challenges facing European universities.

A natural consequence of the increase in the population of students with disabilities is an increase in the number of graduates with disabilities who leave the walls of universities. Based on the results of research conducted in Poland by E. Giermanowska et al. (2015) formulated a thesis about the emergence of a "new social problem" as a result of an increase in the educational aspirations of people with disabilities with simultaneous difficulties in entering the labor market. These results indicate that college graduates with disabilities are a group of potentially very valuable employees, extremely highly motivated to work, mobile and taught to overcome adversity. However, the acquisition of a college degree is not accompanied by an adequate offer of employment on the open labor market in accordance with their capabilities. There is also a lack of professionally prepared institutions supporting young people with disabilities in their search for employment and activities promoting employment of the disabled among employers.

The result of this state of affairs is "low employment effectiveness", which has persisted for many years, despite the introduction and intensification of many measures to improve the situation of people with disabilities in the labor market. H. Zuraw's (2008) research on the lifestyles of people with physical disabilities shows that higher education increases the chances of employment, but does not guarantee it. People with disabilities after college usually take any

job offered to them. They rarely manage to get a job that is compatible with their field of study and level of education. It is worth noting that the education held differentiates the labor force participation of people with disabilities, as the higher the level of education held, the higher the labor force participation rate of these people. The highest labor force participation rate is characteristic of people with higher and medium levels of education (Crane, 2008).

It is worth noting the specific, detailed needs of students with specific disabilities:

1. Mobility disability is related to the restriction or complete lack of ability to perform activities in the movement of the human body. This condition results from various limb disorders, accidents, diseases or developmental changes. In the case of mobility disabilities, support for students and others in the educational process should include:

- architectural adaptation of universities, including elimination of architectural barriers;
- organization of classes in accessible and architecturally adapted classrooms;
- close proximity to buildings and classrooms for free movement;
- the ability to record classes;
- providing class materials in advance, as well as materials after the class;
- - The opportunity to choose a written or oral form of examinations and credits;
- provide adequate time for exams and credits, and in the case of the written form, the possibility of assistance from specialized equipment;
- learning the basic rules of behavior in relation to people with mobility impairments (including, when communicating with a person in a wheelchair, adopt a position that allows eye contact, avoid talking from a standing position so as not to look down on the interlocutor (Nowak-Adamczyk, Perdus-Białek, Szczocarz, 2011, p.12).

2. The needs of people with mental disorders and their progressive development determine a significant increase in the need to implement strategic solutions to protect the mental health of students and other participants in the educational process. This need is related to the growing mental problems of modern societies, especially the younger generation. The last two decades have seen a significant increase in the number of people with mental disorders manifested during education. Despite this, referring to students and other people benefiting from the educational process, a significant number of people with mental disorders do not benefit from the support of this disability. This is due, among other things, to the fact that students and other participants in the educational process with mental disorders do not want to reveal themselves, among other things, for fear of negative reactions from those around them and stigmatization. They try to deal with their issues in person or through their relatives.

Reluctance to use the help of a psychologist at the university may also be due to a lack of trust, among other reasons. This is because there is often a person employed as a psychologist who also works with students and staff on other levels, which can raise some concerns about confidentiality. Undoubtedly, support for mental disabilities at universities should consist of access to classes according to the following standards:

- accounting for knowledge rather than attendance, meaning the possibility of increased absenteeism;
- the ability to record classes, with materials made available in advance;
- adapted forms of examinations and credits;
- extended time to prepare credit papers, depending on the mood;
- the possibility of examination and credit in written or oral form with possible interruptions, as well as individually;
- taking into account situations when the drugs taken may cause side effects, such as drowsiness, slowed reaction time, impaired memory or difficulty concentrating. It should also be taken into account that the behavior of a person with a mental disorder can often be surprising and unpredictable (Cohen, after Sitkowska-Wójcik).

3. Visual impairment refers to blind people who have no sense of light, i.e. they were born blind or lost their sight as a result of an illness or injury. On the other hand, visually impaired people are those with a sense of light, who distinguish between day and night, among other things (Nowak-Adamczyk, Perdus-Bialek, Szczocarz, 2011, p. 6). Hence, the idea is that meeting the needs of visually impaired people in the educational process should be based on access to activities as follows:

- classes should be held in rooms with adequate lighting, providing favorable acoustic conditions;
- information regarding the change of the date and location of the classes should be communicated by e-mail well in advance to allow the class to arrive on time;
- the opportunity to record classes on a dictaphone and use specialized equipment (i.e.: laptop, magnifier, enlarger or Braille notepad);
- the text during the class should be written on the board and read aloud;
- the possibility of sharing materials in the form of electronic files;
- presentation of drawings, charts, diagrams should be accompanied by their verbal description;
- when presenting exhibits, mock-ups, models, it should be possible to get acquainted with the object by touch or to see it up close;

- text in written materials should be enlarged and arranged without embellishments;
- maintain the contrast between the information and the background on which it is written;
- do not justify the text, clear punctuation is required;
- tables should be as simple as possible, and mathematical formulas presented in text form;
- do not use pdf documents that are inaccessible to the blind and only partially usable by the visually impaired;
- information about literature and issues for exams and credits should be provided well in advance;
- taking written exams should be possible using a computer with speech synthesis or text augmentation software; in special cases, exams should be conducted orally, with extended time or the possibility of using an assistant.
- in dealing with visually impaired people, the basis is communication. It is on it that a blind and visually impaired person focuses and thanks to it is able to find his way in a given situation. That is why it is very important to provide basic information, such as descriptions of buildings, which will facilitate orientation in the area, descriptions of rooms, which allow a more accurate visualization of the space and facilitate movement or presentation of people in a group, in order to allow free conversation.

4. Hearing disabilities affect the deaf and hard of hearing. In the context of their difficulties, it is necessary, first of all, to pay attention to the fact, adaptation of requirements in the area of information, communication and digital accessibility, because the main difficulty that students and other hearing-impaired participants face in the educational process is information and communication in the university itself. Hence, in the case of hearing impaired participants, the basis of communication and information exchange is sign language (Sitkowska-Wójcik, 2024). In the case of the hearing impaired, support for students and others in the educational process includes good practices, such as:

- the opportunity to participate in additional sign language courses;
- the use of tools and methods in the course of classes that enable communication and reception of information through the visual channel with the use of new technologies;
- organizing classes in halls with favorable acoustics, where class participants should be seated so that everyone can see each other,
- recording messages in a prominent place;
- introducing the "raised hand" rule to facilitate the reception of messages;
- formulate statements using clear phrases, emphasizing key words;
- the possibility of the presence of a teaching assistant in the class;

- tailored forms of credits and exams to individual needs (Sitkowska-Wójcik, 2024).

5. Needs of students on the autism spectrum:

- provide students with adequate space to study and relax. Quiet rooms with appropriate furniture and sensory equipment can help them recuperate and focus on their studies;
- eliminating architectural barriers;
- ensure adequate availability of information in visual form. People on the autism spectrum often better absorb and understand content presented in pictorial form;
- appropriate signage of rooms, placement of information boards or use of graphics and illustrations in educational materials;
- adapting curricula that accommodate different learning styles;
- enabling the creation and implementation of individual education plans;
- provide additional time for exams;
- allow access to additional educational materials or lecture recordings (Prokopiak, 2012).

As can be seen from the above-discussed needs of groups of people with disabilities who take up the challenge of acquiring higher education, they are extremely diverse. Undoubtedly, full access to higher education for people with disabilities is closely linked to the creation of full opportunities for them to participate in society and, consequently, the implementation of the principles of equal treatment. It is also necessary to emphasize the fact that effective education of people with disabilities increases their chances in the labor market and improves the process of their independence. In addition, it enhances their social competence and self-esteem.

1.5 Help and support for people with disabilities in academic spaces

Higher education plays a key role in shaping the future of individuals and society as a whole. The European Union, which is one of the most important blocks of economic and political bloc in the world, attaches great importance to the development of the system of education of the member states. The growing process of European unification has brought about the need to adapt European systems to the new reality. In response to these challenges, the European Higher Education Area (EHEA) and the Bologna Process were born. These two initiatives have changed the face of higher education in Europe. Born in the late 1990s early 2000sthe EHEA is an endeavor and, that aims to create a unified educational space based on values, standards and an understanding of a common educational framework across European universities. It is an ambitious project that aims to facilitate the mobility of students

and academics, as well as increase the quality of education on the continent. The Bologna Process, on the other hand, referring to the 1999 Bologna Declaration, is the main foundation of the EHEA. This declaration, signed by 29 European countries, set the goal of creating a unified higher education area in Europe by harmonizing educational structures, standardizing degrees and promoting quality and competitiveness. The introduction of common determinants of educational quality assurance allows for the unification of student rights and responsibilities. Through the work of bodies such as the European Students Union, universal guidelines and expectations of students have been developed in 2020 that address the following areas:

1. Social Dimensions of Higher Education
2. Public Accountability
3. Institutional Autonomy and Academic Freedom.
3. Internationalization and Mobility
4. Quality of Education
5. Student Engagement.

The areas indicated above contain 78 guidelines and requirements that countries' educational systems should meet. Among them are provisions on the "Right to Equal Treatment." According to the principle of equality and non-discrimination, all students have the right to equal treatment regardless of gender, sexual orientation, ethnicity or religion. It is worth noting that the European Union and its member states are making every effort to support students in realizing their rights and obligations. Scholarship programs, exchange programs and various initiatives are aimed at facilitating everyone's access to education and improving the quality of education (www.ehea.info/pid34248/history.html).

Most of the instruments to help people with disabilities enter and continue their education remain within the competence of universities. Many of them have developed a comprehensive and sustainable model of support directed exclusively to their students with disabilities. The academic community recognizes people with special educational needs, their capabilities and expectations. This is evidenced by the use of various facilities in the study process (including individualization of teaching). Teaching offerings are concerned with taking into account both special technical needs and meeting special psychosocial needs. Higher education institutions honor the general principles related to equalizing the chances of students with disabilities to complete a given level of study, while maintaining the principle of not reducing substantive requirements

While there are no specific and explicit EU regulations directly addressing support for students with disabilities, there are a number of documents and strategies promoting their integration and equality in access to higher education:

Among the most frequently mentioned forms of support that universities can offer are primarily

1. **Eliminate architectural barriers:** ensure full accessibility of university buildings by removing architectural obstacles
2. **Adaptation of teaching materials:** provide educational materials in formats adapted to the needs of people with disabilities, such as Braille or electronic versions.
3. **Support educational assistants:** enable students with disabilities to benefit from the assistance of educational assistants in the educational process.
4. **Training for academic staff:** organizing training for university staff in working with students with disabilities.
5. **Promote assistive technologies:** support the implementation of technologies that facilitate learning and communication for students with disabilities.
6. **Adaptation of teaching methods:** introduce flexible teaching methods (i.e.: e-learning).
7. **Individualized educational support plans:** develop personalized educational plans that take into account the needs and abilities of each student with a disability.
8. **Support in the transition to the labor market:** provide career counseling and internship programs for students with disabilities to facilitate their entry into the job market after graduation.
9. **Monitoring and evaluation of activities:** regular monitoring of the effectiveness of the implemented forms of support and their evaluation in order to continuously improve the assistance offered.
10. **Cooperation with NGOs:** establish partnerships with organizations working for people with disabilities to share experiences and good practices.
11. **Promoting public awareness:** conduct outreach and education campaigns to raise awareness in the academic community about disability and inclusion.
12. **Ensure digital accessibility:** adapt the university's websites and e-learning platforms to accessibility standards to make them user-friendly for all users.
13. **Support in international mobility:** enable students with disabilities to participate in international exchange programs, such as Erasmus+, by providing additional financial and organizational support.

14. Inclusive education: promote inclusive education that provides the best educational opportunities for students with disabilities (european-agency.org, disabled.gov.pl).

The implementation of the above forms of support contributes to the creation of a more inclusive and accessible academic environment, in line with the values and policies promoted by the European Union.

The realization of the needs of students with disabilities in an increasingly broader area, taking into account all spheres of bio- and psychosocial functioning, is a paradigm of all activities that brings closer to the construction of a coherent system of support for students with disabilities. However, it is also worth noting that one of the problems associated with providing assistance to people with disabilities is the phenomenon of nascent passivity of the supported person. Sometimes too comprehensive or prolonged assistance breeds passivity in the person receiving support. The problem lies in the quality and type of support provided. However, capturing the right dimension and type of support is not an easy thing. Sometimes a small dose of support brings surprisingly good results, while a larger amount of support does not have the expected effect of improving the situation of the supported person, and in the most extreme cases even leads to a worsening of his situation, giving birth to the aforementioned passivity or even a certain form of dependence on the assistance center. Due to the difficulty of adjusting the type and scope of support each time, it was thought to standardize assistance activities. However, standardization, which has emerged as a tool to eliminate the difficulties associated with the appropriate adjustment of the form of assistance, carries both good and bad consequences. The good ones include: the speed of action, the ease of reaching for a ready-made (established or even written in the organizational system) form of support, the ease of equality (the same help, with the same difficulties). However, the weaknesses of the system of standardized forms of support include: inadequacy of the established form of support for the needs of a particular person, bureaucracy and, consequently, waste of resources. In addition to the difficulties of matching the form of support to the student's needs, there is also the aforementioned problem of passivity and dependency. Sometimes support from the very beginning has the character of making the student dependent on further assistance, instead of increasing his own responsibility for his life. Such assistance can even turn into a permanent claim on a particular institution or into institutional violence. The paradox consists in creating instead of a student who is independent and creatively solving his problems, "giving" something to society, a student who is dependent on further forms of assistance, i.e. exclusively "taking" from society, which in extreme cases can lead to the creation of a claimant student. Providing support to a person with a claim, incapable of dialogue, in turn leads to difficulties on the part

of the helper (i.e., a disability office staff member or university teacher), arouses opposition and reluctance to provide rational support, and can lead to unconscious abandonment, which in turn only reinforces the claiming attitude and the tendency to criticize those whose job it is at the university to provide support. This paradox could be described from the perspective of the helper (i.e., an office worker or administrative staff member or university teacher) as an internal dissonance between the imperative (ethical or institutional) to provide assistance and the risk of making the student dependent, and from the perspective of the recipient of assistance as a dissonance between the internal need to be free and to decide for oneself and the need to accept assistance, however, limiting the freedom of future decisions (Filek, 2011, pp. 7-20).

Support for students and doctoral students with disabilities should be provided in a thoughtful manner and tailored to the individual needs of the student with a disability with maximum recognition of his or her situation. In addition, it should be dependent on the effects of support provided at earlier stages of education. The relevant university staff, especially the staff of the offices for people with disabilities, should have a good background both in knowledge of the needs of people with a particular disability and at least a general psychological background.

1.6 Assistive technologies in the education of students with disabilities

The term *assistive technologies* (AT for short) is an umbrella term used for any solution, piece of equipment or product that is used to enhance, maintain or improve the functional capabilities of a person with a disability (Duplaga, 2011). The International Classification of Functioning, Disability and Health (ICF) proposes the term to refer to "adapted and specially designed equipment, products, processes, methods and technologies used to acquire knowledge, competence or skills, such as specialized computer technology" (https://iris.who.int/bitstream/handle/10665/42407/9241545429_pol.pdf)

New technologies play an important role in integrating people with disabilities into society. Among the primary functions of new technologies are:

- information function (observation of the environment),
- interpretive (correlation of responses to the environment),
- socialization (transmission of heritage),
- entertainment.

In special pedagogy, new technologies are used not only for diagnosis, but also for rehabilitation. In addition, they can be used to detect, support and correct developmental disorders and to develop intellectual skills (Walter, 2017). Among the significant achievements of the

civilized world is the inclusion of people with disabilities in the educational system. Educational opportunities are among the most important in a person's life. This is because education has an impact on an individual's independence, his active participation in social and professional life (Gorayevskaya, 2006).

New technologies can be used to improve the functioning of people with speech dysfunctions. They also often play their role during speech therapy and diagnosis, or are used for alternative communication. People with disabilities have access to "educational programs that are used to introduce new signs or symbols into the child's active vocabulary, as well as games and activities based on a given communication system (Dońska-Olszko, Smyczek, 2016). People with disabilities can communicate not only with the help of appropriate devices, such as special switches, trackballs, markers, but also with the help of speech generators, i.e. an application installed on a portable device (phone or tablet).

In the field of education of students with special educational needs, three main areas of influence of modern multimedia means can be mentioned.

1. ICT as a compensatory tool - provides technical support that enables a student with a disability to actively participate in interaction and communication with the environment, and thus can to some extent compensate or replace the absence or loss of biological functions.
2. ICT as a teaching tool introduces a new dimension into didactics, as it generates new insights into the specifics of the educational process primarily by enabling heterogeneity in the forms of teaching and assessment of students with diverse learning needs and, at the same time, is a very important means in pursuit of the goal of enhancing individual student development.
3. ICT as a communication tool - serves as an important intermediary in communication, the participants of which have different types of disabilities: for each type of special educational needs, digital media offer assistive devices and software that meet the needs of students with a specific communication problem (Zielinski, 2017).

Computer programs can be successfully used in the process of diagnosing and compensating for students' deficits, pointing to five interlocking areas of computer-based pedagogical therapy, such as:

- perceptual-motor area, which includes developing abilities and improving perceptual-motor integration functions, eliminating disorders of elementary perceptual-motor functions, enabling people with motor disabilities to work with computers;

- the auditory area, which includes: formation and consolidation of correct pronunciation, removal of voice disorders, teaching speech in the absence of speech, removal of reading difficulties;
- visual area, including therapy for specific reading and writing difficulties, support for reading improvement, formation of grammar skills, improvement of screen reading, psychotherapeutic influence to calm and activate the child to learn, support for teaching reading to blind children;
- intellectual area, including the development of various types of talents, for example, creative talents, the elimination of disorders in intellectual development, communication with people affected by aphasia, autism, stroke;
- the psychotherapeutic area, which includes encouraging learning, developing the right attitudes toward oneself and countering learning difficulties (Siemieniecki, 1999).

1. Technologies to support blind and visually impaired students

Supporting a blind and visually impaired student in the educational process should include appropriate adaptation of teaching methods and conditions to his or her individual visual needs and abilities (Sliwinska, 2008; Kuczynska-Kwapisz, 2004). This implies the use of appropriate assistive devices and systems. In addition to the devices used by students to write Braille on paper (mechanical or electronic machines), they can be helpful:

1. screen reader, i.e. software that allows interpreting the information displayed on the screen of a selected device (e.g. smartphone, computer).

It also allows the user to adjust the volume, tone of voice and reading speed accordingly (e.g. Hal, JAWS, Window-Eyes, NVDA programs).

2. speech synthesizer - a computer program that converts text into speech. Depending on the synthesizer, it is possible to obtain very accurate pronunciation also of uncommon words, spelling of various abbreviations, reading of numbers, including fractions, and reading of dates (e.g. Rehabilitation Voice Package CD-IVONA, Speech2Go, Nuance Vocalizer Expressive, Loquendo).

3. reader devices - these are devices that allow reading of any printed text (textbooks, readings, magazines) and, when connected to the Internet, provide e-mail service and web browsing. They also allow reading texts from DVDs or USB drives (e.g. Auto-Lektor Braille).

4. braille monitor (also known as a braille ruler). Connected to a computer, the monitor converts the text displayed on the screen into Braille form. Information is transferred from the computer

via USB or Bluetooth. This device is recommended for spelling and language learning (e.g. Focus 40 Blue, ESYtime, Dot View 1).

5. braille printer - is used for convenient preparation of braille printouts. With this device and specialized software, it is possible to convert text files into Braille form and print them. Some models allow color image printing against a braille tactile graphic, creating printouts that are also friendly to the visually impaired (e.g. Index Everest braille printer, Braille Box V4, View-Plus Emprint SpotDot, ViewPlus Tiger).

6. braille notepad - allows taking notes with the possibility of reading or listening to them. Extensive communication features allow fast data transfer from the computer (via USB, Bluetooth) and exchange of documents between student and teacher. It also gives the opportunity to use the Internet, has a scheduler, calculator, supports audio files and can also be used as a tape recorder (e.g. Braille Sense Plus, ElBraille, PAC Mate Omni).

7. magnification devices and programs - these are optical instruments (magnifiers) and electronic devices (electronic magnifiers, TV magnifiers) that enable visually impaired students to read, write, draw, view charts, photos, maps or diagrams (e.g. Lunar, Lunar Plus, Magic, ZoomTextMagnifier, iZoom, Magic Plus, ZoomText, MagReader).

8. digital book players - these are devices that allow the playback of digital books, friendly to people with a variety of visual impairments (e.g., Victor Reader Trek, Reader 4, Plextalk PTN1, Telex Scholar).

9. talking books - books recorded on CDs, saved in DAISY or mp3 electronic formats. The DAISY format allows for easy navigation of the book's content between pages, chapters and paragraphs, provides the ability to search for text, place bookmarks and personal notes in the book, and adjust the presentation of the book's content to the needs of a visually impaired reader (contrast, text size and playback speed of the voiceover recording).

10. smartphones with IOS and Android operating systems - allowing you to play digital books, audio books, GPS navigation, recording through the voice recorder function and note taking.

2. Assistive technologies for hard-of-hearing and deaf students

Improving the area of the educational space in which a hearing-impaired student functions, through the appropriate use of assistive technologies, can influence a better, more optimal preparation of the student for success in school and, in the future, for mature independence and social adaptation. This is because assistive devices for deaf and hard-of-hearing students reduce

communication barriers, allowing them to use the curriculum more effectively, as well as integrate with their hearing peers (Szczeplankowski, 1999, 2009). Huge opportunities in this area are offered to deaf people by the Internet, especially e-mail, and by the cell phone, which allows communication via SMS. Students with hearing loss, even very severe hearing loss, can enhance their hearing with a hearing aid. In an environment as diverse as is a mainstream classroom, this solution seems to be insufficient. Extremely important for achieving better educational results for students with this type of dysfunction are devices that allow the transmission of human speech from the microphone directly to the hearing aid. These include individual (FM systems) and collective (induction loops) solutions. An FM system is a device that aids better hearing in difficult acoustic conditions, such as those observed in a school classroom or during class breaks, also due to large distances between the speaker and the person with hearing loss. The system allows the speech signal to be separated from interference, so that a student with hearing loss can better understand words. The Induction Loop is a hearing aid system for people wearing hearing aids equipped with an inductive reception function. It transmits an amplified signal directly to the student's hearing aid. An invaluable tool for assisting the education of deaf students is a computer with appropriate software that facilitates the learning of reading, writing and mathematics, as well as can be used in hearing and speech therapy, speech therapy classes to enrich vocabulary and perception, visual memory and concentration exercises. Examples include:

- *laryngograph or Nosality* - devices used for voice rehabilitation and interactive teaching of oral speech,
- *decface* - a program that supports oral reading skills,
- *logo - games* and *Talking pictures* - multimedia speech therapy programs that enable speech therapy training and auditory education,

Some students who are hard of hearing, or even completely deaf, may in certain situations use a speech synthesizer that converts typed text into speech. It can be helpful especially when direct contact with a hearing person is necessary and the typed text on a portable computer can be read aloud.

3. Assistive technologies for students with communication disorders

This group of students is extremely diverse. It may include students who can hear and understand speech, but are unable to use it due to difficulties arising from intellectual disabili-

ties, cerebral palsy, autism, complete motor aphasia, brain damage from an accident, brain tumor, etc. Also, those students with speech comprehension problems and who have difficulties with verbal language expression. These are children and adolescents with autism, sensory aphasia, deeper intellectual disabilities or auditory processing disorders (Skorek, 2000, 2014; Galkowski, Szelağ, Jastrzębowska, 2005; Błeszynski, 2009; Lechta, 2011; Krasowicz-Kupis, 2012). Students "who do not have access to any form of language are unable to fully participate in the teaching process, and their active participation is severely or completely limited. In lessons, they are generally passive listeners and observers" (*Effective Education ...*, 2010, p. 43). Therefore, it is extremely important to adequately support them in communication also with appropriate tools and technical means. So-called communicators and a computer equipped with specialized peripherals, software that allows to operate an alternative language, integrated with a speech synthesizer, can be extremely helpful. Such software, installed on a computer, tablet or phone of a non-speaking student, becomes a substitute tool for communication. A number of commercially available communication aids based on graphical systems, such as pictograms, the PCS system, Bliss symbols, photographs or pictures, allow non-speaking and non-reading and writing learners to express their needs, opinions, emotions or will. Examples of such software include: Symbol for Windows - PCS symbol base, Symbol for - Bliss symbol base, Symbol for Windows - Pictogram symbol base, Symbol for Windows - Beta symbol base and Symbol for Windows - Picture This symbol base (photographs), MÓWik, MÓWik PRO or Grid for iPad (harpo. com.pl).

The multiple possibilities for accessing communication assistance programs (e.g., using a specialized enlarged mouse operated by mouth, head or eye movement, specialized joysticks replacing the computer mouse, an appropriately adapted keyboard, screen or touch screen monitor, a single button or providing eye control) mean that they can be operated by people with various, even the most severe motor limitations. Communication-enhancing programs also make it possible to prepare individual educational, task-based or literacy-enhancing boards for students with communication difficulties, thus becoming an extremely important tool for any teacher or therapist. SymPrint, SymWriter, Clicker 6, Sym Word or Boardmaker, among others, can serve these purposes.

An invaluable aid in the daily communication of non-verbal students, not only with the teacher, but also with their peers, are portable computer-independent devices, or so-called communicators. They provide the opportunity to record messages (words or sentences), which can then be played as many times as desired by pressing the appropriate button on the device.

They can be extremely helpful in arranging situations that foster contact with peers and encourage the initiation of conversation. Examples of such devices include: Go Talk 20+, GoTalk NOW + iPad, Indi™, QuickTalker, Smart/Scan or SmartTalker.

4. Assistive technologies for students with physical disabilities

Students with musculoskeletal dysfunctions are a very diverse group, which implies the need for different assistive technologies. For these students, educational support with the use of assistive technologies will involve the need to adapt and appropriately equip the workstation to enable their own activity, as well as a much greater use of information and media than for other students, also taking into account the need to support the communication of a non-speaking student through non-verbal communication methods.

The workstation of a student with a mobility disability should be adapted to his individual needs. When organizing this student's workspace, keep in mind that:

- taking care of the appropriate size, height and angle of the tabletop to suit the needs of the student (specialized tables designed for students in wheelchairs are now available on the market);
- in the case of a student with involuntary movements, equip the bench top with special stops to prevent school supplies from falling to the floor, and if necessary - a handle for stabilization;
- the student's seat (when he or she is not using a wheelchair) should be equipped with an adjustable height, width and depth;
- for students with severe physical and mental tension, it is worth using therapeutic chairs that allow dynamic and active sitting, further stimulating muscles and improving posture;
- for students (e.g., who suffer from quadriplegia, meningo-spinal hernia, cerebral palsy) it is possible to equip their workspace with an upright (dynamic or static parapodium), depending on the recommendations of the rehabilitator (Loska, Myślińska, 2005; www.reha-ort.pl; www.mobilex.pl).

Most students with physical disabilities, in order to meet the requirements of the mainstream school program and engage more fully in the educational process, also require support in the form of specialized instrumentation for their workplace. At present, an invaluable and at the same time indispensable support is a computer with appropriate specialized software and

peripheral devices that are fully adapted to the scope of the student's disability. Difficulties in the use of a computer by a student with this type of dysfunction may involve operating a mouse or keyboard. Available assistive technologies address these difficulties.

Indeed, students with limited mobility can use a computer:

- without the help of a mouse and a traditional keyboard, thanks to, among other things, the use of speech recognition tools, enabling the use of voice commands to work with the system, the use of the so-called virtual (e.g. Windows On-screen Keyboard, WiVik On-screen Keyboard) or systems using the movements of the eyeballs, head, mouth, foot, arm (e.g. Tracker Pro, Head Mouse Extreme, SmartNav, Integra Mouse);
- with the help of an appropriately designed keyboard, such as those with enlarged keys (e.g., Big Keys LX), keyboards with interchangeable overlays that you can create yourself (e.g., IntelliKeys), keyboards for one-handed people (e.g., Frogpad, Maltron), or keyboards with protective overlays to prevent accidental pressing of adjacent keys;
- using a specialized mouse, such as an enlarged mouse (Big Track), a trackball mouse (e.g. KidTrack) or a mouse that is placed on the head and controlled by appropriate head movements (e.g. Headpointer);
- using specialized joysticks (Rock Joystick, Bjoy Stick, Optima Joystick).

Artificial intelligence is playing an increasingly important role in various areas of life, including education. Its application in higher education creates new opportunities to support students with disabilities, enabling them to participate more fully in the educational process. Among the most frequently identified areas for its implementation are:

- 1. Personalizing the learning process.** Artificial intelligence makes it possible to create adaptive learning systems that tailor educational content to the individual needs and abilities of students with disabilities. By analyzing data on the progress and preferences of learners, these systems can modify teaching materials, the pace of instruction and forms of information delivery, which increases the efficiency of the educational process. An example of such a solution is an educational platform that uses AI to analyze the results of exams and written papers, providing teachers with objective feedback and predicting areas where a student may need additional support.
- 2. AI-based assistive technologies.** The development of assistive technologies using artificial intelligence is significantly improving the accessibility of education for students with sensory and motor disabilities. For example, speech recognition systems convert lecturers' utterances into text, which is particularly useful for those who are deaf or hard

of hearing. Speech synthesizer technologies, in turn, support visually impaired students by enabling them to listen to textual content.

- 3. Automating grading processes.** Artificial intelligence can support teachers in automating grading processes, allowing faster and more objective checking of student work. AI-based systems are able to analyze exam results, written papers and other forms of grading, providing teachers with accurate and objective feedback. Automating these processes allows faster identification of areas where a student requires additional support, which is especially important for those with disabilities.
- 4. Communication and collaboration support.** AI systems can support students with disabilities to communicate and collaborate with peers and lecturers. At present, AI-based chatbots can act as assistants, answering students' questions about course content or class deadlines. In addition, these tools can support students in organizing teamwork by reminding them of assignments or deadlines, which is particularly helpful for those with planning and organizational difficulties.
- 5. Educational data analysis.** Artificial intelligence makes it possible to analyze large sets of educational data to identify trends and patterns in the teaching and learning process. This allows universities to better adapt their programs and teaching methods to the needs of students with disabilities. Data analysis can also help detect potential problems at an early stage, enabling quick intervention and support for students.
- 6. Adaptive learning.** Artificial intelligence systems can use an adaptive learning approach that adjusts the pace and difficulty level of material according to the student's progress. This allows students to learn effectively while taking into account their own abilities and limitations.
- 7. Simulations and virtual realities.** The use of artificial intelligence in simulations and virtual realities can provide students with a variety of difficulties with unique and interactive learning experiences that are difficult to achieve in a traditional educational environment.
- 8. Collaboration and communication.** Artificial intelligence can support students in developing social skills by simulating human interactions, encouraging collaboration in project groups, and developing communication skills (Koziej, 2023).

There are a variety of AI-based tools and systems that support the education of students with disabilities. Among the most commonly used are:

1. Systems for speech recognition and conversion to text

- Otter.ai, Microsoft Azure Speech to Text - enable automatic transcription of lectures for students who are deaf or hard of hearing.
- Live Transcribe (Google) - a real-time speech-to-text conversion application to facilitate communication in class.
- **Speech synthesizers and assistive reading technologies**
- NaturalReader, Microsoft Immersive Reader - tools that convert text to speech, supporting students with dyslexia and visual problems.
- JAWS (Job Access With Speech), a screen reader for the blind to access digital content.

2. Adaptive e-learning platforms

- Coursera and edX with AI-driven recommendations - platforms that customize materials for individual users, such as changing the level of difficulty or offering alternative forms of presentation.
- SensusAccess - a tool that converts text materials into accessible formats, such as Braille or audiobooks.

3. Personalized educational assistants

- ChatGPT and Claude AI - can serve as virtual assistants to help understand lecture content and create notes.
- Seeing AI (Microsoft) - an application that supports blind people in recognizing text, people, objects and scenes.

4. AI in text analysis and automatic translation

- DeepL Translator, Google Translate AI - support translation of texts into various languages, including sign language (e.g., in combination with avatar technologies).
- Speech-to-Sign AI - research on automatic speech-to-sign language translation systems.

5. AI to support work organization and concentration

- Grammarly, Hemingway App - tools for correcting and improving writing style, useful for people with dyslexia.
- Brain.fm, AI Focus Apps - apps that help with concentration by intelligently generating customized music.

6. Mobility support systems

- Be My Eyes AI (Microsoft Copilot Vision), an application that helps blind people navigate college.

- Wayfindr - AI that assists with orientation in university buildings through audio navigation cues.

The examples of tools presented above show how AI is revolutionizing education for people with disabilities, making it more accessible and tailored to individual needs. The use of AI in the education of students with disabilities is not only an expression of technological progress, but also the realization of the idea of inclusiveness and equal access to knowledge. Appropriate implementation of these solutions can contribute to the elimination of many of the limitations faced by people with disabilities, and thus to their fuller integration into the academic environment.

Chapter II. Methodological assumptions of the research

Contemporary higher education plays a fundamental role in the development of individuals and society as a whole, and the idea of inclusive higher education is recognized as a key element in building modern societies, promoting values such as equality, tolerance, and respect. The choice of research topic—focused on creating an inclusive academic space for students with disabilities—is justified by its extraordinary significance and multidimensionality, which stem both from existing legal frameworks, shifting social paradigms, and the complexity of students' individual needs.

In the European Union, more than 80 million people live with various forms of disability, making disability an integral part of our social, economic, cultural, professional, and educational life. The right to education is one of the fundamental human rights, enabling personal development, independence, and full participation in all areas of life. The Universal Declaration of Human Rights, in Article 26, explicitly states that the right to education, including higher education, applies to all individuals regardless of race, religion, or disability. The ratification of the Convention on the Rights of Persons with Disabilities by the European Union in 2010 further obliged Member States to ensure an inclusive education system that enables integration at all levels of education and guarantees access to mainstream higher education without discrimination and on the basis of equality. In addition, European legislation, such as Directive (EU) 2019/882 of the European Parliament and of the Council, requires all public institutions, including universities, to ensure accessibility in architecture, digital resources, and social communication. These solid legal foundations emphasize the urgent need for action in the field of inclusive education.

The idea of inclusive education is based on the social model of disability, which assumes that barriers for persons with disabilities are created primarily by society—at the social, economic, legal, and organizational levels. The responsibility for eliminating these barriers and ensuring the inclusion of people with disabilities into social life therefore rests on society as a whole. Inclusive education seeks to create an environment in which every person—regardless of origin, appearance, health condition, or disability—feels respected, valued, and accepted, enabling them to fully realize their potential. Such an approach, however, requires a fundamental shift in the mindset of those working within the educational system, and the adoption of an attitude characterized by openness, trust, understanding, acceptance, and respect for diverse personalities. Unfortunately, research indicates that despite progress in eliminating architectural barriers, mental barriers and stereotypical attitudes remain difficult to overcome and continue to form the basis for many other limitations. Interestingly, it has also been observed that staff with longer years of academic service may display less positive attitudes toward students with disabilities.

Students with disabilities, entering the academic environment, face challenges of a highly individual and complex nature. These most often include functional problems, educational difficulties, psychosocial challenges, and economic barriers. Understanding these barriers and the specific, detailed needs of students with different types of disabilities is crucial for creating an optimal support system. At the same time, in the search for innovative solutions, the use of modern AI-based tools emerges as a key instrument for enhancing the accessibility of education.

The main objective of the INEDU project, which provides the context for this research, is to increase the level of accessibility in higher education for students with disabilities and to foster a culture of inclusive higher education through the use of modern AI-based solutions. This goal will be achieved through a set of coordinated actions, namely:

1. Enhancing the knowledge and awareness of academic staff, administrative employees, disability support offices, students, and prospective students, both regarding innovative solutions and the specific problems and needs of students with different types of disabilities;
2. Building an inclusive academic environment, including the creation of a digitalized educational and informational platform for all stakeholders;

3. Increasing the competences and skills of academic staff in fostering an inclusive culture, including the application of AI-based tools in working with students with disabilities.

To achieve the above objectives, a survey-based study was conducted, aiming to analyze and describe the opinions of respondents on the situation of students with disabilities within the academic environment.

The empirical research focused on the central research question:

What are the opinions of respondents regarding the situation of students with disabilities in the academic environment?

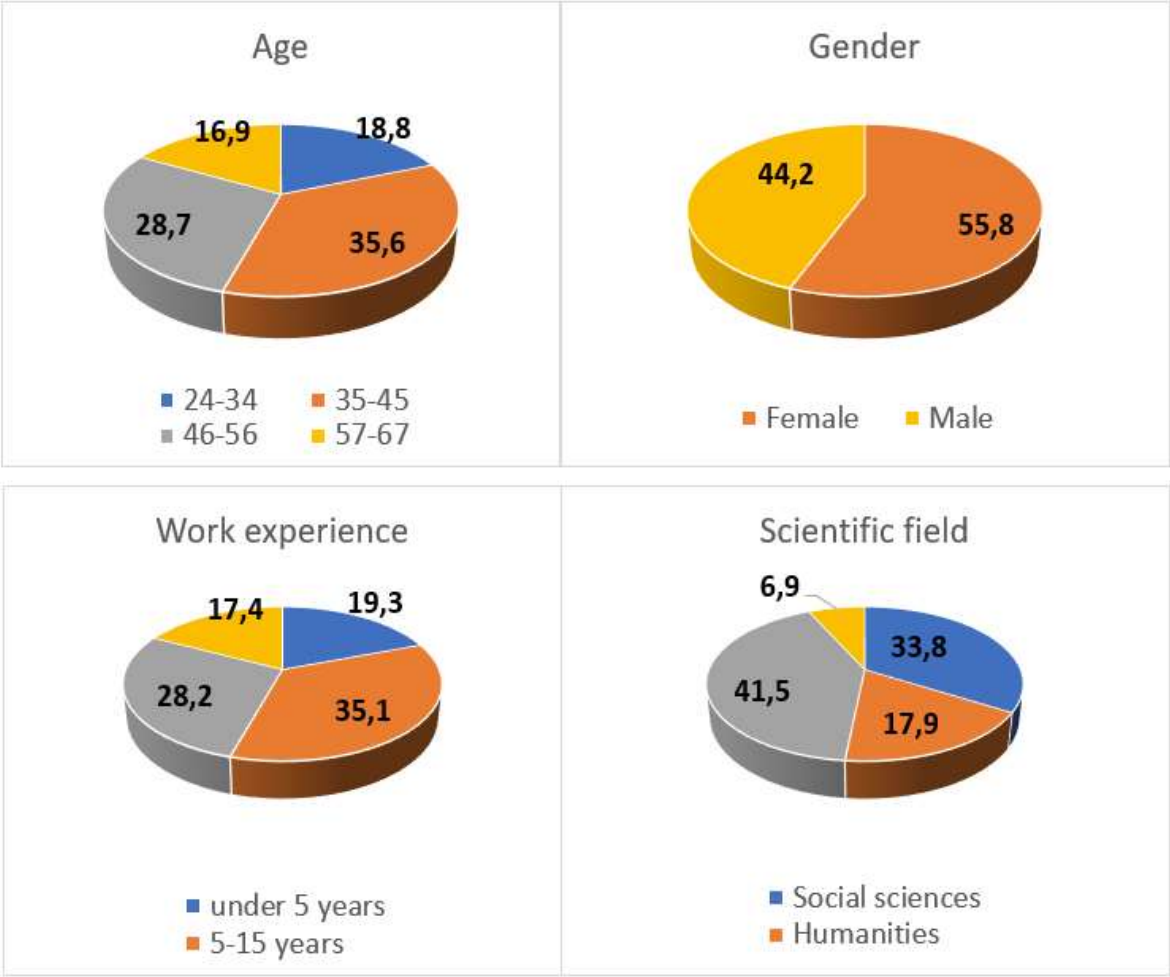
This main problem was further specified by the following research questions:

1. What knowledge do respondents have about the educational needs of students with disabilities?
2. What are respondents' opinions on the support available at universities for persons with disabilities?
3. What is the level of knowledge among respondents concerning the use of AI-based tools in working with students with disabilities?
4. What are examples of good practices implemented at universities to professionally support students with disabilities?

To address these questions, empirical research was carried out using the diagnostic survey method and case study analysis. Techniques included questionnaires and interviews. Proprietary research tools were employed. The questionnaire, directed at academic teachers, contained 16 tabular questions, including alternative (exclusive) questions and questions with a four-point rating scale. The interview questionnaire, in turn, was used during conversations with specialists in student support centers for students with disabilities at the surveyed universities. This tool consisted of 15 open-ended questions concerning applied procedures, knowledge of academic staff and administrators regarding barriers and educational needs of students with disabilities, recommended institutional support, examples of good practices, and the use of AI-based tools to support students with special educational needs.

The study was conducted between February and May 2025 in Poland, Lithuania, Germany, and Spain. A total of 202 academic teachers participated in the diversified in terms of gender (women N=110, men N=87, unspecified=5), age (24-34 = 38, 35-45 = 72, 46-56 = 58, 57-67 = 34), and length of service (under 5 years = 39, 5-15 years = 71, 16-26 years = 57,

over 27 years = 35), and 8 specialists from university support centers for students with special educational needs were interviewed.



Chapter III. Research issues in light of the results of the study

This section of the report presents the results of research on the educational environment of students with motor, sensory, psychological disabilities, and autism spectrum disorder. The first subsection analyzes the level of knowledge among the surveyed academic teachers regarding specific educational needs. The second focuses on the ways of supporting students who experience difficulties due to their disabilities, while the third presents the level of teachers' skills in using AI tools in their work with students with disabilities. The final subsection provides a description of good practices implemented in the studied institutions.

3.1 Knowledge of the educational needs of students with disabilities

The knowledge of academic teachers regarding the needs of students with motor, sensory, psychological disabilities, and autism spectrum disorder constitutes the foundation for designing appropriate support measures within the educational process. The following section presents the results collected during the conducted survey research.

Fig. 1. Level of knowledge regarding the educational needs of students with the following disabilities

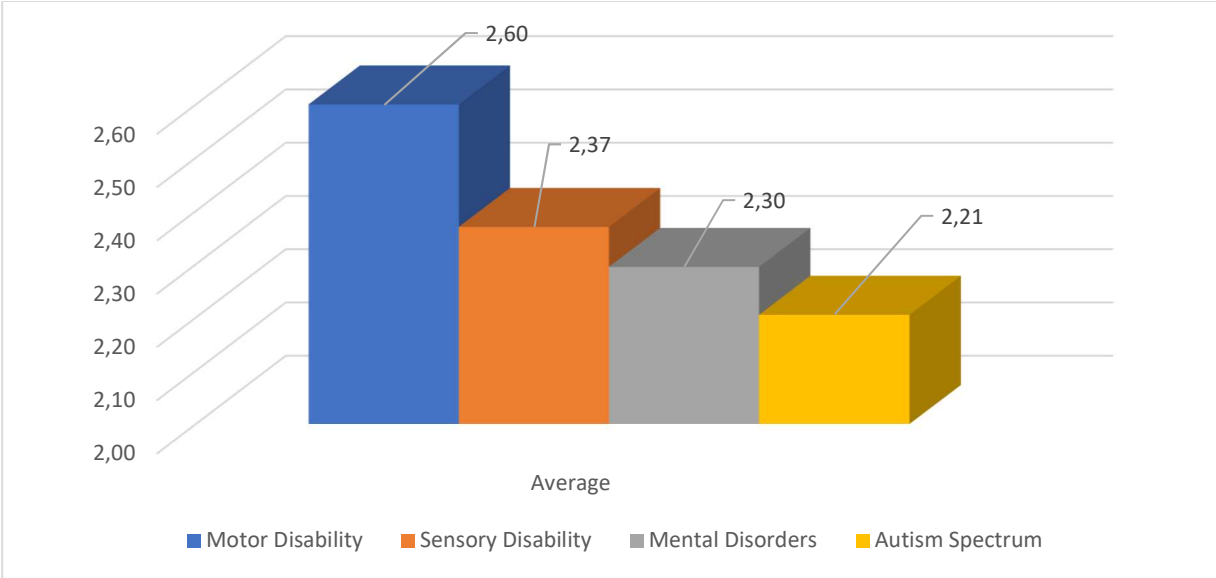


Figure 1 illustrates the average level of knowledge regarding the educational needs of students with various disabilities, categorized into Motor Disabilities, Sensory Disabilities, Mental Disorders, and Autism Spectrum Disorders. Among these categories, educators reported the highest knowledge level for students with Motor Disabilities (2.60), followed by Sensory

Disabilities (2.37) and Mental Disorders (2.30). The lowest reported knowledge level was associated with Autism Spectrum Disorders (2.21). These results indicate that educators feel more confident and informed when addressing the needs of students with physical impairments, such as motor and sensory disabilities. In contrast, the lower scores for mental disorders and, particularly, autism spectrum disorders suggest a significant gap in professional knowledge and preparedness in these areas. This highlights the need for targeted training and professional development programs aimed at improving educators' competencies in supporting students with neurodevelopmental and mental health-related challenges.

Tab. 1. Level of knowledge regarding the educational needs of students with the following disabilities disaggregated by country

No.	Type of Disability	POLAND Me	LITHUANIA Me	GERMANY Me	SPAIN Me
1.	Motor Disability	3,1	2,1	3,0	2,2
2.	Sensory Disability	2,8	1,9	2,6	2,2
3.	Mental Disorders	3,0	1,4	2,7	2,1
4.	Autism Spectrum	2,9	1,6	2,0	2,3

Table 1 presents the level of knowledge regarding the educational needs of students with four types of disabilities—Motor Disabilities, Sensory Disabilities, Mental Disorders, and Autism Spectrum Disorders—disaggregated by country (Poland, Lithuania, Germany, and Spain). Across all categories, Poland consistently reports the highest knowledge levels, ranging from 2.8 (Sensory Disabilities) to 3.1 (Motor Disabilities). Germany follows closely, particularly in Motor Disabilities (3.0) and Mental Disorders (2.7). Spain shows moderate values, with scores between 2.1 and 2.3 across all categories. In contrast, Lithuania consistently reports the lowest levels, with values ranging from 1.4 (Mental Disorders) to 2.1 (Motor Disabilities). These results indicate significant differences between countries in educators' perceived knowledge about supporting students with various disabilities. While Poland and Germany appear relatively well-prepared, the notably lower figures for Lithuania highlight a potential need for enhanced training and professional development. The data also suggests that across all countries, Motor Disabilities receive the highest attention, whereas Mental Disorders

and Autism Spectrum Disorders generally reflect lower educator preparedness, especially in Lithuania and Spain.

Tab. 2. Level of knowledge regarding the educational needs of students with the following disabilities disaggregated by country

N o.	Type of Disability	POLAND				LITHUANIA				GERMANY				SPAIN			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	Motor Disability	4,0	16,0	44,0	36,0	25,5	37,3	35,3	2,0	6,0	18	46	30	27,5	31,4	33,3	7,8
2.	Sensory Disability	6,0	36,0	32,0	26,0	35,3	35,3	29,4	0,0	14	32	36	18	23,5	39,2	27,5	9,8
3.	Mental Disorders	12,0	18,0	32,0	38,0	68,6	23,5	7,8	0,0	20	32	8	40	31,4	27,5	33,3	5,9
4.	Autism Spectrum	8,0	22,0	38,0	32,0	56,9	31,4	9,8	2,0	28	44	26	2	25,5	31,4	29,4	13,7

Table 2 presents a comparative analysis of the self-assessed levels of knowledge regarding the educational needs of students with various types of disabilities across four countries: Poland, Lithuania, Germany, and Spain. The data is categorized by four levels of knowledge (from 1 – very low to 4 – high) and disaggregated by type of disability: motor disability, sensory disability, mental disorders, and autism spectrum disorders.

Poland displays a generally moderate level of awareness across all disability categories. The majority of respondents indicated moderate knowledge (Level 3) regarding motor disabilities (44%) and autism spectrum disorders (38%), while the highest level of knowledge (Level 4) was reported most frequently in relation to mental disorders (38%). Sensory disabilities were predominantly associated with low knowledge (Level 2 – 36%), suggesting this may be an area requiring targeted educational support.

In Lithuania, the data indicates a notably low level of knowledge across all disability categories. For both mental disorders and autism spectrum disorders, the majority of respondents reported very low levels of knowledge (Level 1 – 68.6% and 56.9%, respectively). Motor and sensory disabilities showed a more balanced distribution, with respondents most frequently reporting low to moderate knowledge (Levels 2 and 3). However, the absence of responses at the highest knowledge level (Level 4) across all categories points to a significant gap in specialized training or awareness among educators.

Germany demonstrates a more variable pattern. The highest level of knowledge (Level 4 – 40%) was reported in relation to mental disorders, indicating strong familiarity with this category. Motor disabilities were predominantly rated at a moderate level (Level 3 – 46%),

suggesting a fair degree of understanding. Conversely, autism spectrum disorders and sensory disabilities were more frequently associated with low to moderate knowledge, with only 2% reporting high knowledge of autism-related educational needs. This disparity highlights the need for enhanced professional development, particularly in the area of neurodevelopmental disorders.

In Spain, knowledge levels tended to cluster around the moderate range, particularly for mental disorders (Level 3 – 33.3%) and motor disabilities (Level 3 – 33.3%). Sensory and autism spectrum disabilities were largely associated with low knowledge levels (Level 2 – 39.2% and 31.4%, respectively). Despite this relatively balanced distribution, the proportion of respondents indicating high knowledge (Level 4) remained comparatively low across all categories, indicating room for improvement in specialist training.

In summary, while some countries—most notably Germany and Poland—report comparatively higher levels of knowledge regarding specific types of disabilities, the overall findings suggest a need for increased professional training and awareness in all four countries, particularly in the areas of sensory and autism spectrum disorders. Lithuania, in particular, emerges as a country where knowledge gaps are most pronounced, with a substantial proportion of respondents indicating very low awareness, especially in relation to mental health and autism.

Table 3 presents a comparative analysis of the average frequency with which students with disabilities encounter various difficulties in higher education institutions across four countries: Poland, Lithuania, Germany, and Spain. The difficulties are categorized into four thematic groups: Technological Difficulties, Organizational Difficulties, Social and Psychological Difficulties, and Difficulties in Accessing Support. Respondents rated each issue on a Likert-type scale, with higher scores indicating greater frequency.

Tab. 3. Frequency of difficulties experienced by students with disabilities disaggregated by country

No.	Difficulties	POLAND	LITHUANIA	GERMANY	SPAIN	Average	
		Me	Me	Me	Me	Me	
1.	Technological Difficulties	Lack of specialized software.	2,8	2,7	2,8	2,5	2,7
		Lack of access to specialized equipment.	2,6	3,0	2,6	2,7	2,7
		Lack of access to modern technologies.	2,6	3,1	2,5	2,3	2,6
2.	Organizational	Inadequate adaptation of educational materials to the needs and abilities of students with disabilities.	2,1	2,5	2,5	2,5	2,4

		Lack of flexibility in assessment methods.	2,2	2,5	2,2	2,1	2,3
		Lack of individualization in the learning process.	2,3	2,8	2,3	2,2	2,4
3.	Social and Psychological Difficulties	Stereotypes and prejudices from peers and lecturers.	2,3	2,5	2,4	2,3	2,4
		Social isolation.	2,3	2,8	2,2	2,4	2,4
		Lack of adequate emotional and psychological support.	2,9	2,7	2,4	2,2	2,5
		Anxiety about public evaluation/feedback.	2,9	2,8	2,8	2,9	2,9
		Difficulty coping with sudden and unexpected events and changes.	2,6	3,2	2,7	2,7	2,8
		Difficulty establishing and maintaining peer relationships.	2,0	3,1	2,6	2,8	2,6
4.	Difficulties in Accessing Support	Insufficient psychological support at the university.	2,1	2,2	2,3	2,2	2,2
		Lack of mentors, advisors, and assistants.	2,1	2,3	2,3	2,4	2,3
		Insufficient information on available support options.	2,1	2,3	2,3	2,4	2,3
		Lack of clear procedures regarding support for students with disabilities.	2,2	2,8	2,8	2,5	2,5
		Failure of lecturers to follow guidelines on working with students with disabilities.	2,0	2,0	2,1	1,9	2,0

The difficulties are categorized into four following groups:

1. Technological Difficulties: this category includes limited access to specialized software, equipment, and modern technologies. Across all countries, these issues are reported with moderate frequency, with average ratings ranging from 2.3 to 3.1. Lithuania records the highest frequency of technological challenges, particularly in terms of access to equipment (3.0) and modern technologies (3.1), suggesting potential infrastructure gaps or resource limitations. The overall average for technological issues hovers around 2.7, indicating that while not the most critical concern, technological barriers persist as a notable challenge.

2. Organizational Difficulties. Organizational challenges relate to the adaptation of educational materials, assessment flexibility, and individualization of the learning process. These issues received slightly lower average scores, ranging from 2.1 to 2.8. The highest concern was noted in Lithuania for lack of individualization (2.8), while the lowest concern appeared in Spain regarding assessment flexibility (2.1). These findings point to moderate systemic challenges in adapting teaching practices to meet the diverse needs of students with disabilities.

3. Social and Psychological Difficulties. This group emerges as the most critical across all countries. The most frequently reported difficulty is anxiety about public evaluation and feedback, with an overall average of 2.9. Other highly rated issues include difficulty coping with unexpected events (2.8) and challenges in peer relationship formation (2.6). Lithuania

stands out with notably high scores in several subcategories, such as difficulty coping with change (3.2) and difficulty establishing peer relationships (3.1). These figures underscore the heightened emotional and social vulnerability experienced by students with disabilities and signal an urgent need for supportive psychosocial environments.

4. Difficulties in Accessing Support. This category encompasses barriers such as a lack of psychological services, absence of mentorship, insufficient information, and unclear institutional procedures. Among these, the lack of clear procedures regarding support for students with disabilities stands out with an average score of 2.5, especially in Lithuania and Germany (2.8 each). Conversely, the least frequently reported difficulty across the entire dataset is the failure of lecturers to follow guidelines, with an average score of 2.0, suggesting either improved faculty compliance or lower visibility of this issue among students.

Following the cross-country comparison Lithuania consistently reports the highest frequency of difficulties across nearly all domains, suggesting either a heightened awareness of systemic shortcomings or greater unmet needs in the higher education context. Poland and Germany show moderate concern across most categories, with Poland particularly noting emotional and psychological difficulties. Spain generally reports lower frequencies overall, but still highlights anxiety and emotional support as persistent challenges.

The data presented in Table 3 highlight the multifaceted nature of the challenges faced by students with disabilities in higher education. While technological and organizational issues are present, the most significant barriers are social and psychological in nature, with anxiety, coping with change, and relationship-building identified as the most pressing. Additionally, structural barriers related to accessing support services persist, particularly regarding the clarity and availability of institutional support mechanisms. These findings call for targeted policy interventions and inclusive practices to enhance both the academic and emotional well-being of students with disabilities.

Tab. 4. Frequency of difficulties experienced by students with disabilities disaggregated by country (%)

N o.	Difficulties	POLAND				LITHUANIA				GERMANY				SPAIN				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1.	Technologica -	Lack of specialized software.	20,0	14,0	36,0	30,0	0,0	45,1	41,2	13,7	12,0	24,0	36,0	28	15,7	29,4	39,2	15,7
		Lack of access to specialized equipment.	24,0	16,0	36,0	24,0	0,0	7,8	80,4	11,8	14,0	32,0	32,0	22,0	15,7	17,6	47,1	19,6

		Lack of access to modern technologies.	20,0	30,0	22,0	28,0	0,0	29,4	33,3	37,3	18,0	30,0	34,0	18,0	25,5	27,5	33,3	13,7
2.	Organizational Difficulties	Inadequate adaptation of educational materials to the needs and abilities of students.	20,0	28,0	26,0	26,0	0,0	51,0	43,1	5,9	20,0	32,0	24,0	24,0	17,6	27,5	37,3	17,6
		Lack of flexibility in assessment methods.	30,0	36,0	24,0	10,0	2,0	49,0	41,2	7,8	30,0	36,0	18,0	16,0	33,3	29,4	33,3	3,9
		Lack of individualization in the learning process.	32,0	28,0	26,0	14,0	2,0	41,2	35,3	21,6	24,0	34,0	26,0	16,0	31,4	27,5	33,3	7,8
3.	Social and Psychological Difficulties	Stereotypes and prejudices from peers and lecturers.	24,0	34,0	26,0	16,0	37,3	11,8	17,6	33,3	30,0	20,0	28,0	22	25,5	37,3	21,6	15,7
		Social isolation.	22,0	40,0	24,0	14,0	0,0	43,1	37,3	19,6	32,0	28,0	26,0	22,0	19,6	33,3	33,3	13,7
		Lack of adequate emotional and psychological support.	18,0	44,0	28,0	10,0	2,0	45,1	31,4	21,6	28,0	26,0	28,0	14,0	29,4	31,4	31,4	7,8
		Anxiety about public evaluation/feedback.	8,0	28,0	28,0	36,0	0,0	49,0	17,6	33,3	10,0	24,0	38,0	18,0	5,9	25,5	45,1	23,5
		Difficulty coping with sudden and unexpected events and changes.	10,0	26,0	28,0	36,0	0,0	9,8	58,8	31,4	10,0	32,0	32,0	28,0	11,8	23,5	49,0	15,7
		Difficulty establishing and maintaining peer relationships.	10,0	36,0	34,0	20,0	2,0	9,8	66,7	21,6	18,0	28,0	30,0	26,0	7,8	21,6	56,9	13,7
4.	Difficulties in Accessing	Insufficient psychological support at the university.	32,0	46,0	14,0	8,0	23,5	39,2	31,4	5,9	30,0	34,0	16,0	20,0	29,4	33,3	25,5	11,8
		Lack of mentors, advisors, and assistants.	28,0	42,0	20,0	10,0	21,6	33,3	39,2	5,9	22,0	36,0	32,0	10,0	27,5	19,6	39,2	13,7
		Insufficient information on available	24,0	50,0	22,0	4,0	21,6	29,4	45,1	3,9	28,0	36,0	14,0	22,0	17,6	35,3	37,3	9,8

	support options.																	
	Lack of clear procedures regarding support for SwD.	30,0	36,0	22,0	12,0	3,9	35,3	37,3	23,5	20,0	32,0	28,0	20,0	19,6	31,4	31,4	17,6	
	Failure of lecturers to follow guidelines on working with SwD.	30,0	44,0	18,0	8,0	23,5	58,8	13,7	3,9	32,0	34,0	24,0	10,0	35,3	43,1	13,7	7,8	

Table 4 presents the percentage distribution of responses regarding the frequency with which students with disabilities experience specific challenges in higher education across four countries: Poland, Lithuania, Germany, and Spain. The difficulties are categorized into four major domains: Technological Difficulties, Organizational Difficulties, Social and Psychological Difficulties, and Difficulties in Accessing Support:

1. Technological Difficulties. Technological barriers are widely reported across all countries, with particularly acute challenges in Lithuania. The lack of specialized software is most prominent in Lithuania (45.1%), while the lack of access to specialized equipment is alarmingly high at 80.4%. This indicates a severe deficit in adaptive learning technologies. Spain and Germany also report notable limitations in technological access, while Poland shows moderate levels of difficulty. These findings highlight persistent inequalities in digital inclusion for students with disabilities.

2. Organizational Difficulties. Organizational challenges, such as inflexible assessment methods and inadequate adaptation of learning materials, are prevalent in all countries. Lithuania again demonstrates the highest levels of difficulty, with over 40% of students reporting issues in assessment flexibility and individualized learning. Spain and Germany follow closely, while Poland shows comparatively lower—but still considerable—figures. The data suggest that rigid academic structures continue to hinder equitable participation in the learning process.

3. Social and Psychological Difficulties. Social and emotional well-being remains a critical area of concern. High levels of reported social isolation and lack of psychological support are evident across all countries, with Lithuania (43.1% reporting isolation and 45.1% lacking psychological support) and Germany (30.0% reporting peer relationship difficulties) showing particularly high figures. Stereotypes and prejudices remain widespread, especially in Poland and Lithuania. These findings point to a need for comprehensive emotional support systems and anti-discrimination measures in academic settings.

4. Difficulties in Accessing Support. Access to institutional support services reveals systemic shortcomings. A lack of clear procedures, insufficient information about available support, and poor adherence by academic staff to disability guidelines are widespread issues. Lithuania reports the highest frequency of lecturers failing to follow support guidelines (58.8%), along with severe deficits in procedural clarity and mentoring. Similar trends are visible in Poland, Germany, and Spain, although to a slightly lesser extent. These results underscore the necessity of institutional accountability and better communication of support services.

Overall, the data suggest that students with disabilities continue to face multifaceted challenges in higher education environments. Lithuania stands out as the country where difficulties are reported most frequently across all categories, especially in the areas of technology, psychosocial well-being, and access to institutional support. Germany also demonstrates consistently high frequencies, particularly in organizational and support-related issues. Poland and Spain report relatively lower but still substantial frequencies of difficulties, especially in the social and psychological domains. Across all countries, the most frequently encountered challenges are:

- Anxiety related to public evaluation
- Difficulties coping with unexpected changes
- Lack of access to support services and clear procedures
- Limited adaptation and individualization in teaching and assessment.

These findings point to the urgent need for systemic reforms aimed at promoting inclusive education through improved technological infrastructure, adaptive teaching strategies, robust psychosocial support, and accessible institutional guidance for students with disabilities.

Fig. 2. Difficulties experienced by students with motor disabilities

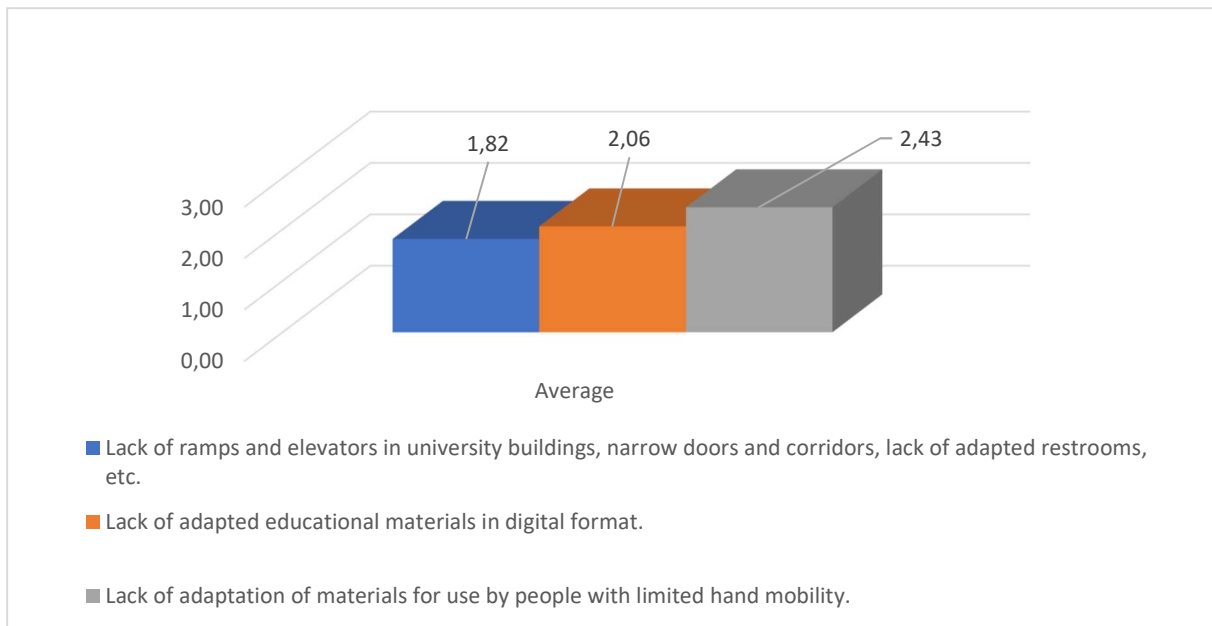


Figure 2 illustrates the average levels of difficulty reported by students with motor disabilities in relation to three key areas of accessibility in higher education environments: physical infrastructure, digital materials, and the usability of learning resources. The findings offer valuable insights into the specific barriers that hinder full participation and inclusion of this student population.

- Lack of Adaptation of Materials for Use by People with Limited Hand Mobility.** The most significant challenge reported by students with motor disabilities is the lack of adapted educational materials suitable for individuals with limited hand mobility, which received the highest average score of 2.43. This category includes difficulties interacting with learning resources that are not compatible with assistive technologies such as speech recognition software, adaptive keyboards, or other tools designed to support individuals with fine motor limitations. The elevated score indicates a pressing need for universities to ensure that course materials are available in accessible formats that support diverse physical abilities.
- Lack of Adapted Educational Materials in Digital Format.** The second most frequently reported difficulty, with an average score of 2.06, relates to the insufficient availability of digitally adapted educational content. Challenges in this area may include inaccessible file formats (e.g., scanned PDFs without text recognition), online learning platforms that are not compatible with assistive devices, and a lack of alternative formats such as audio versions or captioned videos. This finding suggests that, despite increasing digitization of education, accessibility standards are not being consistently applied, creating obstacles for students who rely on digital tools to access course content.

- Lack of Ramps, Elevators, and Other Physical Infrastructure.** Although slightly lower in frequency, the lack of accessible physical infrastructure—including ramps, elevators, wide doorways, and adapted restrooms—remains a notable barrier, with an average score of 1.82. These challenges continue to restrict students’ ability to navigate campus buildings and fully engage in academic life. While some progress may have been made in this area, the persistence of such issues highlights the need for continued investment in the physical accessibility of educational institutions.

The data presented in Figure 2 indicate that, for students with motor disabilities, barriers related to the adaptation of learning materials—both physical and digital—are currently more pressing than those related to the built environment. These findings reflect the evolving nature of educational participation, where access to content, rather than just physical space, increasingly defines inclusion. Higher education institutions must prioritize the development and dissemination of accessible learning materials while continuing to address infrastructural shortcomings. Ensuring that academic environments are universally accessible is essential to promoting equity, autonomy, and academic success for students with motor impairments.

Tab. 5. Difficulties experienced by students with motor disabilities disaggregated by country

No	Difficulties		POLAND	LITHUANIA	GERMANY	SPAIN
			Me	Me	Me	Me
1.	Barriers in the architecture	Lack of ramps and elevators in university buildings, narrow doors and corridors, lack of adapted restrooms, etc.	2,3	1,4	1,76	1,8
2.	Difficulties in accessing educational materials	Lack of adapted educational materials in digital format.	2,1	1,8	2,04	2,3
		Lack of adaptation of materials for use by people with limited hand mobility.	2,4	2,5	2,42	2,4

Table 5 presents mean scores (Me) reflecting the severity of difficulties experienced by students with motor disabilities in four European countries—Poland, Lithuania, Germany, and Spain. The data cover two primary categories of challenges: architectural barriers and difficulties in accessing educational materials. The values indicate the average degree of difficulty perceived by students, where higher scores represent more significant challenges:

1. **Barriers in the Architecture.** This category reflects physical access issues, such as the absence of ramps and elevators, narrow doorways and corridors, and non-adapted restrooms. The highest average is reported in Poland (2.3), indicating that architectural barriers are most pronounced in this context. Germany (1.76) and Spain (1.8) show moderate levels of

difficulty. Lithuania (1.4) reports the lowest average, suggesting comparatively fewer physical access issues in university infrastructure. Despite some variation, architectural accessibility remains an area of concern in all countries. The relatively higher score in Poland points to more widespread infrastructural challenges, while Lithuania's lower average may reflect either improved accessibility or underreporting due to other barriers being more prominent.

2. Difficulties in Accessing Educational Materials. This category is divided into two sub-areas:

- **Lack of Adapted Educational Materials in Digital Format:** Spain (2.3) and Germany (2.04) report the highest levels of difficulty, indicating gaps in digital accessibility infrastructure. Poland (2.1) follows closely, while Lithuania (1.8) shows the lowest score in this subcategory. Digital accessibility remains a widespread concern, particularly in Spain and Germany. The slightly lower average in Lithuania may indicate either better practices in digital content adaptation or a greater emphasis on other accessibility challenges.
- **Lack of Adaptation of Materials for Use by People with Limited Hand Mobility:** The highest average is recorded in Lithuania (2.5), followed by Poland and Spain (2.4), and Germany (2.42). This subcategory shows consistently high difficulty levels across all countries, suggesting that limited hand mobility is a universally underserved area in terms of academic resource adaptation. Lithuania's highest score reinforces this as a particularly urgent concern.

The findings in Table 5 emphasize that students with motor disabilities face significant barriers in both the physical and academic environments of higher education institutions. While architectural difficulties are most severe in Poland and least in Lithuania, the greatest overall concern across all countries is the insufficient adaptation of educational materials, particularly for students with limited hand mobility. This consistent trend indicates a need for a coordinated response across Europe, focusing on the development of inclusive digital learning platforms, the adaptation of materials to support various physical abilities, and ongoing investment in physical infrastructure. Only through such systemic improvements can higher education institutions ensure equitable access and participation for students with motor disabilities.

Tab. 6. Difficulties experienced by students with motor disabilities disaggregated by country (%)

No.	Difficulties	Poland				LITHUANIA				GERMANY				SPAIN			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

1.	Barriers in the architecture	Lack of ramps and elevators in university buildings, narrow doors and corridors, lack of adapted restrooms, etc.	30,0	22,0	38,0	10,0	72,5	19,6	2,0	5,9	48,0	34,0	12,0	6,0	49,0	27,5	15,7	7,8
2.	Difficulties in accessing educational materials	Lack of adapted educational materials in digital format.	40,0	26,0	20,0	14,0	41,2	37,3	17,6	3,9	38,0	34,0	18,0	14,0	21,6	41,2	27,5	9,8
		Lack of adaptation of materials for use by people with limited hand mobility.	26,0	28,0	26,0	20,0	21,6	21,6	47,1	9,8	22,0	36,0	20,0	22,0	17,6	39,2	25,5	17,6

Table 6 presents the percentage distribution of difficulties experienced by students with motor disabilities across four countries (Poland, Lithuania, Germany, and Spain), focusing on two major areas: barriers in the built environment (architecture) and difficulties accessing educational materials.

In terms of architectural barriers, Lithuania shows the most pronounced challenge, with 72.5% of respondents indicating a lack of ramps, elevators, adapted restrooms, and other facilities as the primary obstacle. Germany (48%) and Spain (49%) also report high percentages, while Poland reports a more distributed perception, with 38% of respondents ranking these barriers as their third-most significant issue rather than the first. For difficulties accessing educational materials, the lack of adapted digital materials is most frequently highlighted in Poland (40% rank it as the top challenge), while Lithuania shows a more balanced distribution between digital accessibility (41.2%) and issues related to materials adapted for limited hand mobility (47.1%, mostly rated as a major issue). Germany and Spain report similar concerns, with significant proportions citing both digital and physical accessibility barriers, though the severity appears less concentrated than in Lithuania.

Overall, the data suggests that Lithuania faces the most acute physical accessibility problems, while Poland struggles more with educational material adaptation, particularly digital resources. Germany and Spain show a moderate but consistent presence of both types of challenges, suggesting systemic but less extreme barriers compared to Lithuania.

Fig. 3. Difficulties experienced by students with sensory disabilities

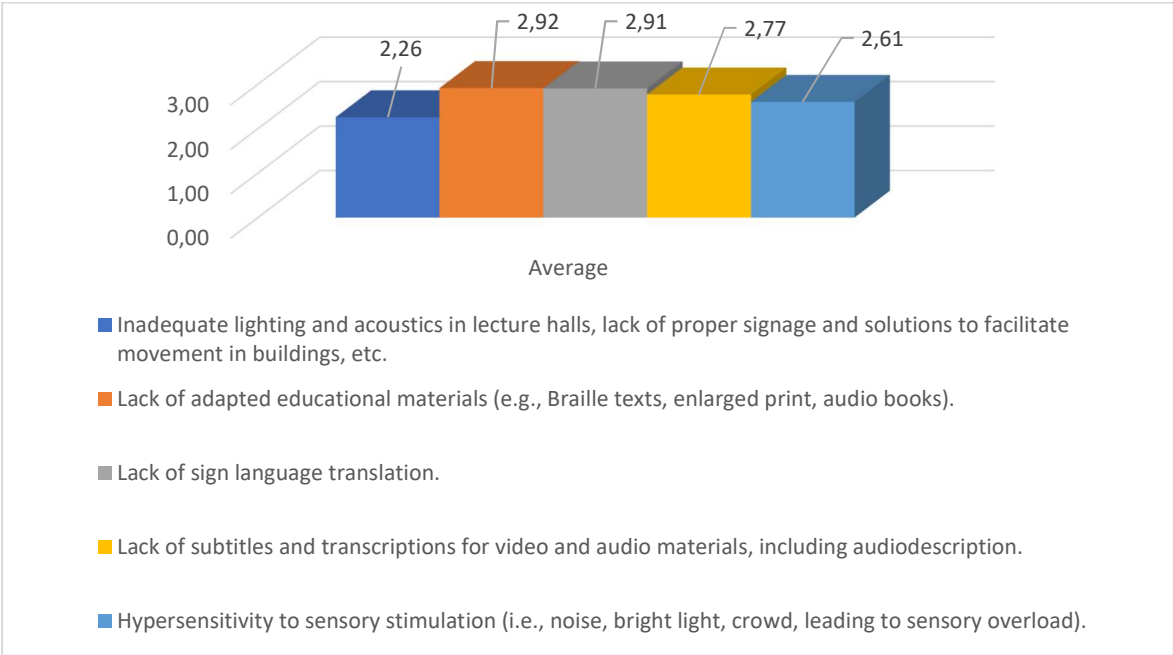


Figure 3 illustrates the average severity of various difficulties experienced by students with sensory disabilities. Five primary areas of challenge are identified. Among them, the lack of adapted educational materials (such as Braille texts, enlarged print, and audiobooks) ranks as the most significant barrier, with an average score of 2.92. Closely following is the lack of sign language translation, averaging 2.91, indicating substantial gaps in communication support for students with hearing impairments.

The lack of subtitles and transcriptions for video and audio materials, including audio description, is the third most pressing issue (2.77), reflecting limited accessibility in multimedia learning environments. Hypersensitivity to sensory stimulation (2.61)—such as noise, bright lights, and crowded spaces—is also notable, though slightly less critical compared to structural and communication barriers. The least severe difficulty reported is inadequate lighting, acoustics, and signage in lecture halls and buildings (2.26), suggesting that while environmental conditions present some challenges, they are perceived as less impactful relative to other barriers.

Overall, the results underscore that the greatest needs for students with sensory disabilities relate to accessible educational resources and effective communication accommodations, while environmental adjustments, though necessary, are viewed as secondary concerns.

Tab. 7. Difficulties experienced by students with sensory disabilities disaggregated by country

No.	Difficulties	POLAND	LITHUANIA	GERMANY	SPAIN	
		Me	Me	Me	Me	
1.	Barriers in the architecture	Inadequate lighting and acoustics in lecture halls, lack of proper signage and solutions to facilitate movement in buildings, etc.	2,6	1,8	2,1	2,5
2.	Difficulties in accessing educational materials	Lack of adapted educational materials (e.g., Braille texts, enlarged print, audio books).	2,7	3,2	2,9	2,9
		Lack of sign language translation.	2,7	3,4	2,5	3,0
		Lack of subtitles and transcriptions for video and audio materials, including audio description.	2,6	3,1	2,7	2,7
3.	Environmental barriers	Hypersensitivity to sensory stimulation (i.e., noise, bright light, crowd, leading to sensory overload).	2,9	2,3	2,7	2,5

Table 7 presents the average severity of difficulties experienced by students with sensory disabilities across four countries (Poland, Lithuania, Germany, and Spain). The difficulties are grouped into three categories: architectural barriers, difficulties in accessing educational materials, and environmental barriers.

Across all countries, difficulties in accessing educational materials emerge as the most significant challenge, particularly in Lithuania, where the lack of adapted materials (3.2), sign language translation (3.4), and subtitles or transcriptions (3.1) receive the highest ratings. Spain also reports elevated concerns regarding sign language translation (3.0) and digital accessibility (2.9). Germany shows moderate but consistent ratings (2.5–2.9) across all material-related challenges, while Poland reports slightly lower figures (2.6–2.7), except for hypersensitivity to sensory stimulation (2.9), which is rated as its most pressing issue.

Architectural barriers, including inadequate lighting, acoustics, and signage, are rated as less severe across all countries, with Lithuania (1.8) reporting the lowest concern and Poland (2.6) the highest. Environmental barriers, specifically hypersensitivity to sensory stimulation (e.g., noise, bright light, or crowds), are of moderate concern overall, most notable in Poland (2.9) and Germany (2.7).

In summary, the findings highlight that access to educational materials, especially sign language services and adapted resources, represents the most critical barrier for students with sensory disabilities, particularly in Lithuania and Spain. Architectural issues, while present, are viewed as secondary, whereas environmental sensitivities remain a notable challenge in Poland and Germany.

Tab. 8. Difficulties experienced by students with sensory disabilities disaggregated by country (%)

N o.	Difficulties		POLAND				LITHUANIA				GERMANY				SPAIN			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	Barriers in the architecture	Inadequate lighting and acoustics in lecture halls, lack of proper signage and solutions to facilitate movement in buildings, etc.	14,0	30,0	34,0	22,0	45,1	39,2	9,8	5,9	30,0	40,0	16,0	14,0	23,5	23,5	31,4	21,6
2.	Difficulties in accessing educational materials	Lack of adapted educational materials (e.g., Braille texts, enlarged print, audio books).	10,0	36,0	28,0	26,0	0,0	9,8	64,7	25,5	14,0	20,0	32,0	34,0	9,8	23,5	37,3	29,4
		Lack of sign language translation.	16,0	22,0	34,0	28,0	0,0	17,6	23,5	58,8	14,0	36,0	32,0	18,0	15,7	13,7	21,6	49,0
		Lack of subtitles and transcriptions for video and audio materials, including audio description.	12,0	34,0	32,0	22,0	0,0	19,6	49,0	31,4	16,0	24,0	36,0	24,0	13,7	25,5	35,3	25,5
3.	Environmental barriers	Hypersensitivity to sensory stimulation (i.e., noise, bright light, crowd, leading to sensory overload).	16,0	16,0	32,0	36,0	2,0	72,5	17,6	7,8	16,0	24,0	32,0	28,0	17,6	31,4	37,3	13,7

Table 8 provides a comparative overview of the difficulties encountered by students with sensory disabilities in four European countries—Poland, Lithuania, Germany, and Spain. The reported difficulties are grouped into three main categories: (1) barriers in the built environment and infrastructure, (2) difficulties in accessing educational materials, and (3) environmental barriers. The data are presented in percentages across four frequency levels: “never,” “rarely,” “often,” and “always.”:

1. Barriers in the Built Environment and Infrastructure. This category refers to issues such as inadequate lighting and acoustics in lecture halls, poor signage, and a lack of physical accessibility features in educational buildings. The highest incidence of these challenges was reported in Lithuania, where 45.1% of respondents indicated experiencing such barriers “often,” and 39.2% “rarely.” In Poland and Spain, the reported frequencies were somewhat lower but still notable, with 34.0% and 31.4% of students, respectively, stating they “often” faced such barriers. Germany reported the lowest intensity of this difficulty, with 40.0% of students selecting “rarely” and only 16.0% indicating “always.”

2. Difficulties Accessing Educational Materials. This section includes three subcategories:

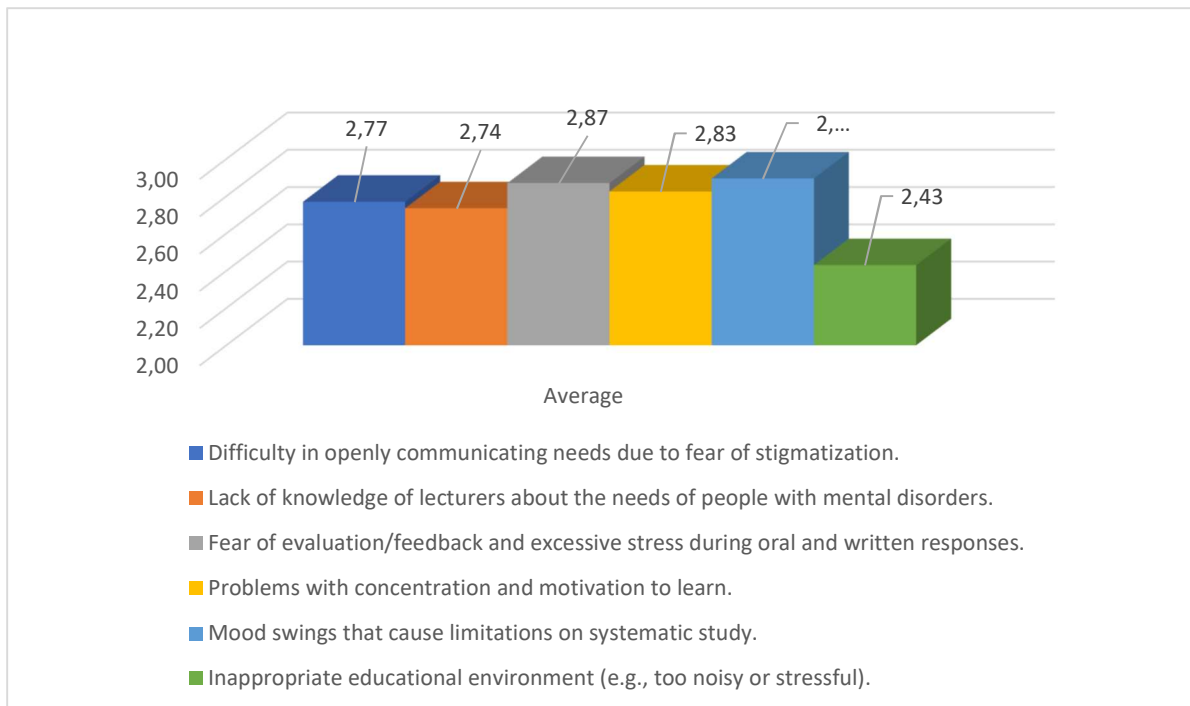
- **Lack of adapted educational materials** (e.g., Braille, enlarged print, audio books): Lithuania again reported the highest frequency, with 64.7% stating they “often” face this issue. Poland and Spain followed with 28.0% and 37.3% of students, respectively, indicating similar difficulties, while Germany showed a more moderate distribution.
- **Lack of sign language translation:** The problem was most prominent in Lithuania (58.8% “always”) and Spain (49.0% “always”). Germany also showed concern, with 32.0% selecting “always,” while responses in Poland were more evenly distributed across the scale.
- **Lack of subtitles, transcriptions, and audio descriptions:** This issue was frequently reported in Lithuania (49.0% “often”), followed by Germany (36.0%) and Spain (35.3%). In Poland, 34.0% of students also reported experiencing this issue “often.”

3. Environmental Barriers. This category refers to hypersensitivity to sensory stimuli such as noise, bright lights, and crowded environments, which can lead to sensory overload. Lithuania again reported the highest frequency, with 72.5% of students stating they “often” experience such barriers. Poland and Spain also indicated notable levels (32.0% and 31.4% “often,” respectively), whereas Germany showed a more balanced distribution, with no responses in the “always” category.

The findings indicate that students with sensory disabilities in Lithuania face the highest rates of persistent difficulties across all categories, particularly regarding access to adapted educational materials and environmental sensitivity. Germany appears to offer a comparatively more accessible environment, with lower frequencies of “always” and “often” responses. Poland and Spain demonstrate moderate levels of difficulty, with specific areas of concern related to educational access and sensory challenges. These disparities highlight the need for targeted policy interventions and inclusive infrastructure improvements, especially in Lithuania and, to a lesser extent, in Poland and Spain.

Figure 4 presents the average ratings of various difficulties faced by students with mental disorders in higher education. The scale likely ranges from 1 (no difficulty) to 4 (severe difficulty), with higher values indicating greater perceived challenges. Six key areas were evaluated.

Fig. 4. Difficulties experienced by students with mental disorders



The most significant difficulty reported is mood swings that limit systematic study, with the highest average score of 2.90. This indicates that fluctuations in emotional state are a major barrier to consistent academic performance among these students. Closely following is the problem of concentration and motivation to learn, with an average of 2.87, suggesting that cognitive and motivational challenges also significantly impact students' ability to engage with their studies effectively. Fear of evaluation and excessive stress during oral and written responses ranks third (average 2.83), highlighting performance anxiety as a notable issue. This is closely linked to broader mental health concerns such as anxiety disorders and low self-confidence. Difficulty in communicating needs due to fear of stigmatization (average 2.77) and lack of knowledge among lecturers about the needs of students with mental disorders (average 2.74) also score relatively high, indicating social and institutional barriers. The fear of being judged or misunderstood may prevent students from seeking help or accommodations. The lowest-rated issue is the inappropriateness of the educational environment (average 2.43), such as overly noisy or stressful settings. While still a concern, it appears to be less impactful than personal or interpersonal difficulties.

The findings suggest that internal emotional regulation and psychological barriers (such as mood instability, stress, and motivation) are the most pressing challenges for students with mental disorders. Social and institutional factors, while somewhat less prominent, also play a critical role and highlight the need for more informed and supportive academic environments.

Tab. 9. Difficulties experienced by students with mental disorders disaggregated by country

No.	Difficulties		POLAN D	LITHUA NIA	GERMA NY	SPAIN
			Me	Me	Me	Me
1.	Communication difficulties	Difficulty in openly communicating needs due to fear of stigmatization.	2,8	2,7	2,8	2,8
		Lack of knowledge of lecturers about the needs of people with mental disorders.	2,6	2,7	2,7	2,9
2.	Emotional and psychological difficulties	Fear of evaluation/feedback and excessive stress during oral and written responses.	2,9	2,9	2,8	2,9
		Problems with concentration and motivation to learn.	2,9	2,7	2,8	2,9
		Mood swings that cause limitations on systematic study.	3,1	2,9	2,8	2,8
3.	Environmental barriers	Inappropriate educational environment (e.g., too noisy or stressful).	2,4	2,6	2,4	2,3

Table 9 presents the average ratings of specific difficulties faced by students with mental disorders in four countries: Poland, Lithuania, Germany, and Spain. The data are categorized into three main groups - communication difficulties, emotional and psychological difficulties, and environmental barriers - and expressed as mean (Me) values on a scale where higher values indicate greater perceived difficulty:

1. Communication Difficulties. Students across all countries reported similar levels of difficulty in openly communicating their needs due to fear of stigmatization, with mean scores ranging from 2.7 (Lithuania) to 2.8 (Poland, Germany, and Spain). However, perceptions of lecturers' lack of knowledge about mental health varied slightly. The highest concern was noted in Spain (Me = 2.9), while Poland reported the lowest (Me = 2.6), suggesting variability in perceived support from academic staff.

2. Emotional and Psychological Difficulties. This category yielded the highest average scores across all countries, highlighting it as the most significant area of concern. Students in Poland, Lithuania, and Spain all reported a high level of stress associated with evaluation and feedback (Me = 2.9), while Germany scored slightly lower (Me = 2.8). Difficulties with concentration and motivation to learn were similarly prevalent, with Poland and Spain again reporting the highest mean scores (2.9), followed by Germany (2.8) and Lithuania (2.7). Notably, Poland recorded the highest average score for mood swings affecting academic consistency (Me = 3.1), suggesting a greater intensity of emotional regulation challenges among its student population.

3. Environmental Barriers. Environmental factors, such as a noisy or stressful educational environment, were rated lowest across all countries. The mean scores ranged from 2.3 in Spain to 2.6 in Lithuania, indicating that, although present, such barriers are perceived as less problematic compared to emotional or communicative challenges.

The findings indicate that emotional and psychological difficulties are the most prominent challenges for students with mental disorders, particularly concerning stress, concentration, and mood regulation. Poland stands out with the highest overall scores in this category, especially regarding mood swings. Communication difficulties remain moderate but consistently reported, underlining the ongoing impact of stigma and limited staff awareness. While environmental barriers are rated lower in severity, they still represent a relevant concern, particularly in Lithuania. These results highlight the need for enhanced psychological support, increased mental health training for academic staff, and more inclusive learning environments across all countries studied. Table 10 presents a cross-national overview of the main challenges experienced by students with mental disorders, categorized into three domains: communication difficulties, emotional and psychological difficulties, and environmental challenges. The data, collected from Poland, Lithuania, Germany, and Spain, are disaggregated by the degree of severity of each difficulty on a 4-point scale, where 1 indicates no difficulty and 4 denotes a serious problem:

1. Communication Difficulties. A substantial proportion of students reported challenges in expressing their needs due to fear of stigmatization. This issue was most acutely observed in Poland (32.0%), followed by Germany (30.0%) and Lithuania (21.6%), where respondents rated this as a serious difficulty (score 4). In contrast, Spain reported lower severity, with only 27.5% identifying it as a major problem and 9.8% stating it was not a problem at all. Lack of lecturers' knowledge regarding the needs of individuals with mental disorders emerged as another significant challenge, especially in Lithuania, where nearly half of the respondents (49.0%) rated it as a level 3 difficulty. Similarly, Poland (34.0%) and Germany (32.0%) reflected high levels of concern in this area, pointing to a potential gap in staff training and institutional awareness.

Tab. 10. Difficulties experienced by students with mental disorders disaggregated by country (%)

No.	Difficulties	POLAND				LITHUANIA				GERMANY				SPAIN				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1.	Communication difficulties	Difficulty in openly communicating needs due to fear of stigmatization.	20	16	32	32	5,	4	3	2	18	16	36	30	9,	25	37	27
		Lack of knowledge of lecturers about the needs of people with mental disorders.	,0	,0	,0	,0	9	1,	1,	1,	,0	,0	,0	,0	8	,5	,3	,5
			14	34	34	18	5,	3	4	1	18	20	32	30	15	11	41	31
			,0	,0	,0	,0	9	1,	9,	3,	,0	,0	,0	,0	,7	,8	,2	,4
							4	0	7									

2.	Emotional and psychological difficulties	Fear of evaluation/feedback and excessive stress during oral and written responses.	20,0	10,0	34,0	36,0	0,0	2,7,5	5,4,9	1,7,6	20,0	16,0	30,0	34,0	7,8	19,6	45,1	27,5
		Problems with concentration and motivation to learn.	16,0	16,0	30,0	38,0	2,1,6	5,9	5,1,0	2,1,6	24,0	8,0	32,0	36,0	5,9	19,6	52,9	21,6
		Mood swings that cause limitations on systematic study.	14,0	8,0	34,0	44,0	1,7,6	7,8	3,7,3	3,7,3	20,0	16,0	30,0	34,0	11,8	21,6	45,1	21,6
3.	Environmental barriers	Inappropriate educational environment (e.g., too noisy or stressful).	20,0	32,0	34,0	14,0	5,9	3,3	5,2,9	7,8	26,0	24,0	32,0	18,0	23,5	31,4	33,3	11,8

2. Emotional and Psychological Difficulties. The fear of assessment and the stress associated with oral and written evaluations were particularly prominent in Lithuania, with over half of the students (54.9%) identifying this as a level 3 difficulty. This was also a notable concern in Germany (34.0%) and Poland (36.0%), indicating the widespread impact of performance anxiety among students with mental health conditions. Problems with concentration and motivation to learn were most frequently reported as severe in Spain (52.9%) and Lithuania (51.0%), suggesting a need for targeted academic support interventions. In Germany and Poland, this issue was rated somewhat less severely but still affected a significant portion of the student population. Mood swings that hinder consistent study patterns were cited as a major difficulty in Poland (44.0%), Germany (34.0%), and Spain (21.6%). In Lithuania, ratings were more evenly distributed, indicating varied experiences among students.

3. Environmental Difficulties. The educational environment itself, particularly in terms of noise or stress, was identified as problematic by more than half of the students in Lithuania (52.9%), who rated it as a level 3 issue. Similar concerns were raised in Germany, where 32.0% gave it the same rating. Poland also showed high percentages in the moderate to high difficulty range, while Spain demonstrated a more dispersed pattern, with 11.8% of respondents considering it a serious issue.

The findings indicate that students with mental disorders encounter significant and often severe challenges in higher education, with notable differences between countries. Lithuania emerges as the country with the highest percentage of students reporting severe emotional and

psychological difficulties. Poland and Germany also demonstrate elevated levels of concern across most categories, particularly regarding stigmatization and mood-related issues. Spain generally presents a more moderate profile, though concentration and motivation remain key issues. These results underscore the urgent need for country-specific policy responses, institutional training, and tailored support systems to ensure inclusive and responsive educational environments for students with mental health conditions.

Fig. 5. Difficulties experienced by students with autism spectrum

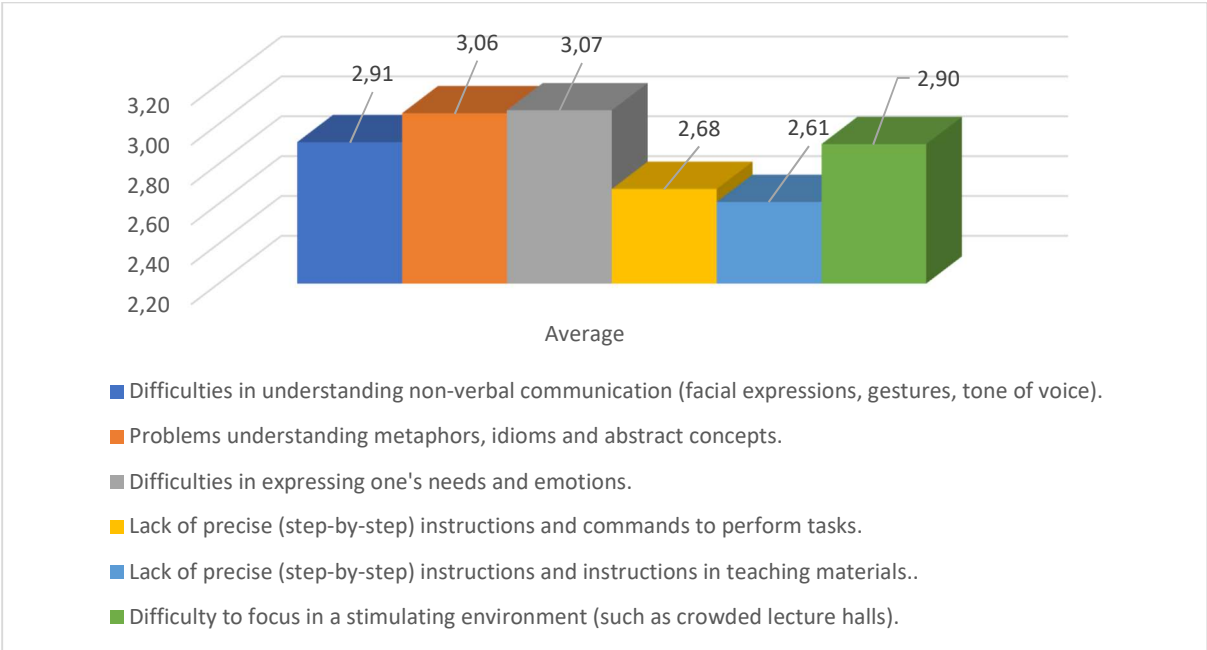


Figure 5 illustrates the average levels of difficulty reported by students with Autism Spectrum Disorders (ASD) across various domains of academic and social functioning. The data reflect challenges commonly encountered by students with ASD, particularly in communication, instructional clarity, and the ability to maintain focus in stimulating environments.

The highest-rated difficulty was Difficulties in expressing one's needs and emotions, with an average score of 3.07, indicating that many students face significant challenges in articulating their internal experiences, which can hinder access to support and affect peer interactions. Close behind, with an average of 3.06, was "Problems understanding metaphors, idioms and abstract concepts", suggesting difficulties in comprehending figurative language and abstract ideas—an area typically affected in individuals on the spectrum.

Difficulties in understanding non-verbal communication, such as interpreting facial expressions, gestures, and tone of voice, were also reported at a high level (2.91), highlighting barriers to effective interpersonal communication and social engagement in educational contexts.

Sensory-related and instructional difficulties were rated slightly lower, though still notable. Difficulty focusing in a stimulating environment (such as crowded lecture halls) received an average rating of 2.90, reflecting the impact of sensory sensitivities on students’ ability to concentrate in typical academic settings. Lower, yet relevant ratings were found for the following:

- Lack of precise (step-by-step) instructions and commands to perform tasks – 2.61
- Lack of precise (step-by-step) instructions and instructions in teaching materials – 2.68.

These results point to the ongoing need for structured, clear, and accessible instruction for students with ASD.

Overall, the data suggest that communication challenges—especially those related to emotional expression, abstract language, and non-verbal cues—are the most prominent difficulties faced by students with autism. While instructional and environmental challenges are slightly less severe, they remain important areas to address through inclusive teaching practices and supportive classroom environments.

Table 11 presents the median (Me) ratings of perceived difficulties encountered by students with Autism Spectrum Disorders (ASD) in four European countries: Poland, Lithuania, Germany, and Spain. The table categorizes challenges into three main domains: communication difficulties, didactic barriers, and environmental barriers:

1.Communication Difficulties. Communication-related challenges appear to be the most pronounced across all countries, with particularly high ratings in Lithuania. The greatest difficulty noted across all countries is Difficulties in expressing one’s needs and emotions, with Lithuania reporting the highest median (3.3), followed by Poland and Spain (both at 3.0), and Germany slightly lower (2.98). Similarly, "Problems understanding metaphors, idioms, and abstract concepts" are also prevalent, with median values ranging from 3.0 in Poland and Spain to 3.2 in Lithuania and 3.02 in Germany. Difficulties in understanding non-verbal communication (e.g., facial expressions, tone of voice) were rated slightly lower but still notably, with medians ranging from 2.8 (Spain) to 3.0 (Lithuania), suggesting that non-verbal cues remain a considerable barrier for students with ASD.

Tab. 11. Difficulties experienced by students with autism spectrum disaggregated by country

No.	Difficulties	POLAND	LITHUANIA	GERMANY	SPAIN
		Me	Me	Me	Me

1.	Communication difficulties	Difficulties in understanding non-verbal communication (facial expressions, gestures, tone of voice).	2,9	3,0	2,94	2,8
		Problems understanding metaphors, idioms and abstract concepts.	3,0	3,2	3,02	3,0
		Difficulties in expressing one's needs and emotions.	3,0	3,3	2,98	3,0
2.	Didactic barriers	Lack of precise (step-by-step) instructions and commands to perform tasks.	2,8	2,8	2,60	2,5
		Lack of precise (step-by-step) instructions and instructions in teaching materials..	2,8	2,7	2,44	2,5
3.	Environmental barriers	Difficulty focusing in a stimulating environment (such as crowded lecture halls).	2,9	2,8	2,90	3,0

2. Didactic Barriers. In terms of instructional or didactic challenges, scores were somewhat lower than those for communication, though still meaningful. The lack of precise, step-by-step instructions for performing tasks was rated at a median of 2.8 in Poland and Lithuania, slightly lower in Germany (2.60), and lowest in Spain (2.5). A similar pattern is observed in the evaluation of instructional materials, with median ratings ranging from 2.44 in Germany to 2.8 in Poland. These findings suggest a moderate level of difficulty related to instructional clarity, with slightly more support perceived in Poland and Lithuania compared to Germany and Spain.

3. Environmental Barriers. Difficulty in focusing in stimulating environments, such as crowded lecture halls, was reported relatively consistently across countries, with median values ranging from 2.8 (Lithuania) to 3.0 (Spain). These results indicate that sensory and environmental challenges are a common concern for students with ASD, regardless of country, and may require targeted adaptations to academic settings.

Overall, students with ASD across all four countries most frequently experience difficulties related to communication, especially in expressing emotions and understanding abstract or non-verbal language. Instructional and environmental barriers, while rated slightly lower, are still relevant and require attention. Lithuania consistently reported the highest median scores in the communication domain, possibly indicating either heightened challenges or greater awareness/reporting of these difficulties. These findings underscore the need for culturally sensitive, inclusive strategies tailored to support communication, instruction, and sensory regulation among students with ASD in diverse educational contexts.

Tab. 12. Difficulties experienced by students with mental disorders disaggregated by country (%)

No	Difficulties	POLAND				LITHUANIA				GERMANY				SPAIN			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	☺ ☹ Difficulties in understanding non-verbal communication	18,0	8,0	44,0	30,0	3,9	7,8	70,6	17,6	1,4	1,6	3,2	3,8	5,9	33,3	37,3	23,5

		(facial expressions, gestures, tone of voice).																
		Problems understanding metaphors, idioms and abstract concepts.	14,0	10,0	38,0	38,0	2,0	11,8	47,1	39,2	6,4	2,2	3,2	3,8	7,8	19,6	37,3	35,3
		Difficulties in expressing one's needs and emotions.	12,0	14,0	38,0	36,0	2,0	7,8	51,0	39,2	1,4	1,2	3,6	3,8	3,9	21,6	47,1	27,5
2.	Didactic barriers	Lack of precise (step-by-step) instructions and commands to perform tasks.	14,0	22,0	36,0	28,0	2,0	29,4	56,9	11,8	2,0	2,4	3,2	2,4	15,7	29,4	41,2	13,7
		Lack of precise (step-by-step) instructions and instructions in teaching materials..	14,0	22,0	34,0	30,0	2,0	33,3	54,9	9,8	2,4	2,8	2,8	2,0	13,7	31,4	41,2	13,7
3.	Environmental	Difficulty focusing in a stimulating environment (such as crowded lecture halls).	18,0	14,0	30,0	38,0	2,0	21,6	68,6	7,8	1,4	1,6	3,6	3,4	2,0	31,4	33,3	33,3

Table 12 presents data on the types and intensity of difficulties faced by students with mental disorders in Poland, Lithuania, Germany, and Spain. The difficulties are grouped into three main categories: communication difficulties, didactic barriers, and environmental mental barriers. The percentages are distributed across four levels of severity, with higher levels indicating greater difficulty:

1. Communication Difficulties. Students in all countries reported experiencing communication challenges, but the intensity varied. In Lithuania, a notably high percentage of students experienced considerable difficulty in all aspects of communication. For instance, 70.6% reported level 3 difficulties in understanding non-verbal cues, and nearly 47.1% experienced the highest level of difficulty in understanding abstract concepts and expressing emotions. Similarly high levels were observed in Poland and Spain, particularly in the subcategories of understanding figurative language and expressing emotions. In contrast, students in Germany reported more moderate difficulties, with percentages more evenly distributed across all levels.

2. Didactic Barriers. Lithuania again shows the highest concentration of difficulties related to instruction, with over half of the students experiencing level 3 difficulties in both receiving verbal instructions and understanding written materials. Poland and Spain report challenges as well, though at slightly lower levels. Germany's results are comparatively balanced, with fewer students experiencing the most severe difficulties.

3. Environmental Mental Barriers. Difficulty concentrating in stimulating environments was most prominent in Lithuania, where nearly 69% of students reported level 3 difficulty. Other countries also indicated challenges in this area, but with less intensity.

Germany and Poland showed more moderate distributions, and Spain presented an even spread across levels 2 to 4.

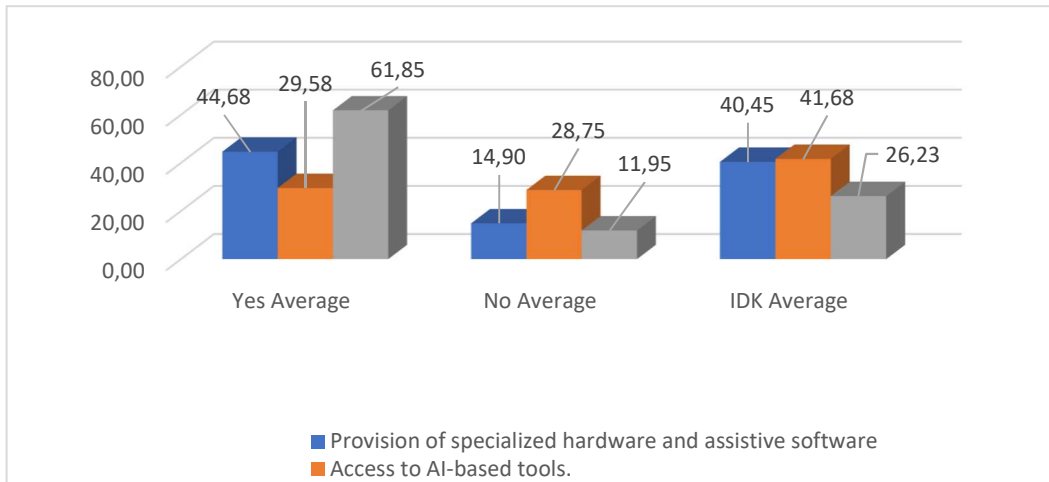
Overall, students with mental disorders in Lithuania appear to experience the most severe and widespread challenges across all three categories. Poland and Spain also show elevated levels of difficulty, especially in communication and didactic areas. Germany's students generally reported lower or more moderate difficulty levels. These findings suggest a need for differentiated support strategies, with particular attention to enhancing communication and instructional clarity, and improving learning environments, especially in Lithuania.

3.2 Support of students with disabilities in academic and administrative fields

Providing diverse forms of support for students with disabilities is fundamental to building an inclusive academic environment that promotes equality and full participation for all its members. It is essential to ensure both technological support (e.g., specialized equipment, access to up-to-date technologies) and adaptations of the teaching process (e.g., online classes, adapted exams), as well as social and psychological support (e.g., advisors, mentors). Equally important is the active promotion of an inclusive university environment through awareness-raising campaigns about the difficulties and barriers faced by students with disabilities, as well as regular training for academic teachers and administrative staff.

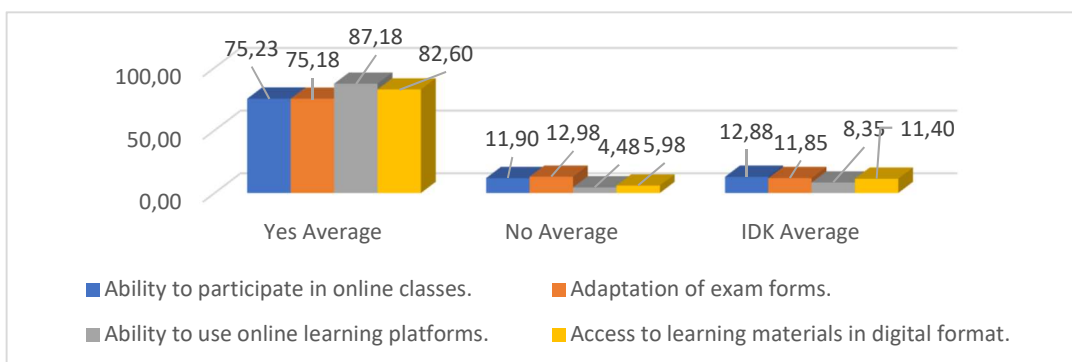
The following four figures present the average/general perception of the availability of different forms of support for students with disabilities, based on data collected from four European countries that participated in the study (Poland, Lithuania, Germany, and Spain). The analysis provides a synthetic overview of general trends in the area of support for students with disabilities. Fig. 6. Technological support in the opinion of respondents presents data on the availability of technological support.

Fig. 6. Technological support in the opinion of respondents



The data presented in the chart above shows that almost 62% of respondents confirm that students with disabilities have access to current technologies. 44.68% indicate that students have access to specialized equipment and assistive software. Unfortunately, as many as 40.45% of respondents indicated that they were unaware of such availability, which indicates that awareness of the availability of this support is low among the academic teachers surveyed. Among these forms of support, access to artificial intelligence (AI) tools shows a particularly low average level of confirmation, reaching only 29.58%. This result is further emphasized by the very high percentage of “I don’t know” responses (41.68%), which clearly indicates that AI in the context of supporting students with disabilities remains an underdeveloped or completely unused area in all the countries analyzed. Another important area of analysis was the possibility of adapting the education process to the needs of students with disabilities.

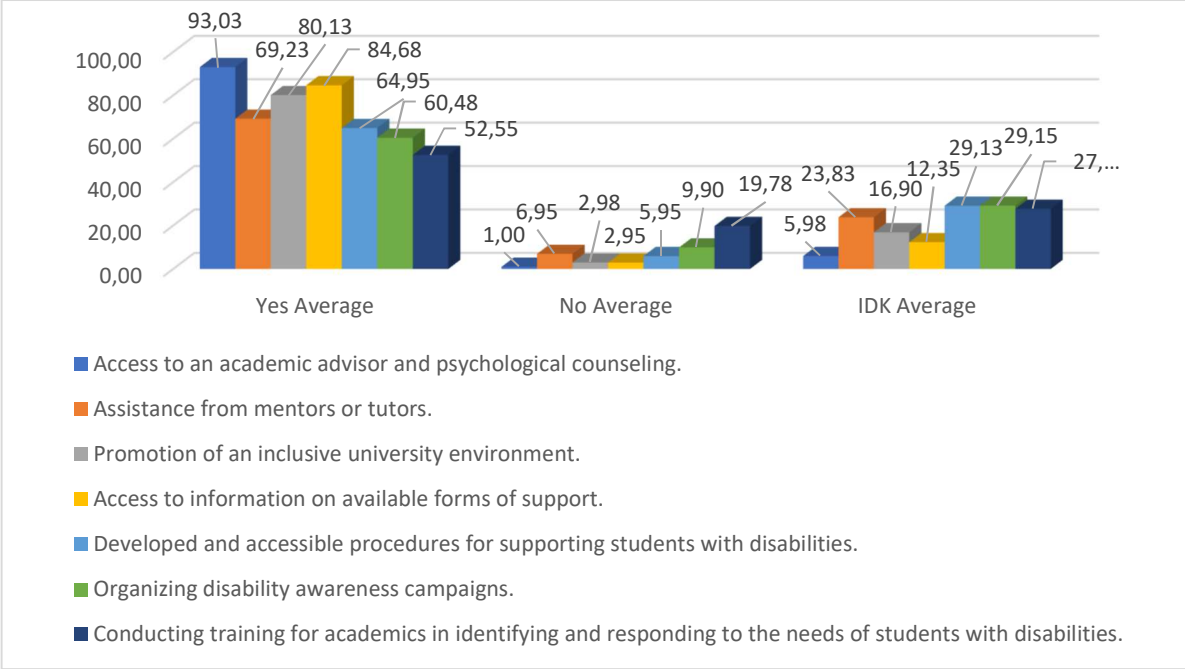
Fig. 7. Adaptation of the teaching process in the opinion of respondents



This category presents itself very positively, with relatively high average response rates confirming measures aimed at individualizing the education process. 75.23% of respondents indicate the possibility of participating in online classes, and as many as 87.18% indicate the

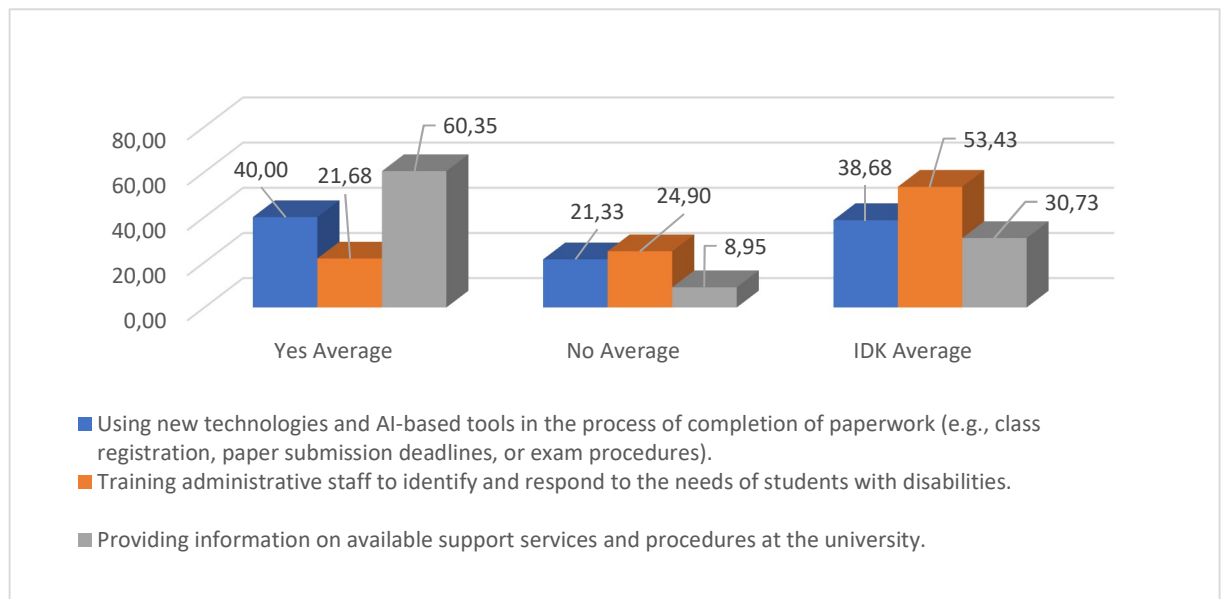
use of e-learning platforms. At the same time, over 80% of respondents confirm the availability of digitized teaching materials for students with disabilities. These results indicate a widespread and very high level of digitization in education. An important area of support for students with special educational needs is the social and psychological assistance they receive and are offered.

Fig. 8. Social and psychological support in the opinion of respondents



The results concerning social and psychological support for students with disabilities indicate a generally high level of services offered, especially in the area of direct counseling, although there are noticeable gaps in the areas of awareness and training. As many as 93.03% of respondents indicated access to an academic advisor and psychological counseling. Therefore, according to the respondents, this is a common and easily accessible form of support. The results concerning the promotion of an inclusive university environment (80.13%) and access to information on possible forms of support (84.68%) also indicate good, though not perfect, awareness and policy. Support from mentors or tutors (69.23%) is at a good level, but the developed and available procedures for supporting students with disabilities have a lower percentage of affirmative responses (64.95%) and a significant percentage of “I don't know” responses (29.13%). The organization of campaigns to raise awareness of disabilities (60.48%) and the provision of training for academic staff (52.55%) are areas that indicate a need for more action in this area. The teachers surveyed were also asked about the possibility of obtaining administrative support.

Fig. 9. Administrative adjustment in the opinion of respondents



The results presented above reveal the greatest challenges and shortcomings in all the countries analyzed. Training administrative staff to identify and respond to the needs of students with disabilities is the weakest point of the overall support system, with an average of only 21.68% of affirmative responses and as many as 53.43% of “I don’t know” responses. This result alarmingly confirms that this is the most pressing challenge for all countries analyzed, pointing to huge gaps in training or ineffective communication. Only 40.0% of respondents indicate the use of new technologies and AI tools in administrative processes, with almost the same number of respondents not knowing whether such measures are being taken (38.68%). Providing information about available support services and procedures at the university has a moderate percentage of affirmative responses (60.35%), but there is still a fairly high percentage of “I don’t know” responses (30.73%), suggesting that this area needs further improvement. Summarizing the analysis of the averaged data from the charts, there are clear differences in the degree of advancement of individual forms of support for students with disabilities.

Adaptation of the teaching process and social and psychological support (especially counseling) are the areas in which education systems show the greatest accessibility. On the other hand, technological support, especially in the area of AI-based tools, and administrative facilitation (especially staff training) pose the greatest challenges. However, the high percentage of “I don’t know” responses consistently points to a key need to raise awareness among academic teachers about possible forms of support for students in terms of available services.

In order to highlight the differences in the perception of the availability of various forms of support for students with disabilities in four European countries (i.e., Poland, Lithuania, Germany, and Spain), an in-depth analysis was conducted to compare general approaches to academic inclusion and identify specific strengths and challenges facing individual higher education systems. The study identified four main forms of support. The first concerned technological support, which mainly referred to the access of students with disabilities to specialized assistive hardware and software, as well as tools based on artificial intelligence (AI). The second area of support focused on the flexibility of education, including the possibility of participating in online classes, the adaptation of examination forms, the availability of e-learning platforms, and access to teaching materials in digital format. Social and psychological support referred to the availability of psychologists, counselors, mentors, and academic tutors, access to information about possible forms of support, and the existence of established procedures for supporting students with disabilities. The last area was related to the efficiency of administrative processes, such as the use of new technologies and AI tools in the document completion process, training of administrative staff in identifying and responding to the needs of students with disabilities, and providing information about available support services and procedures at the university.

Tab. 13. Forms of support available at universities for students with disabilities, according to respondents disaggregated by country

No	Forms of support		POLAND			LITHUANIA			GERMANY			SPAIN		
			Yes	No	Idk	Yes	No	Idk	Yes	No	Idk	Yes	No	Idk
1.	Technological support	Provision of specialized hardware and assistive software.	46,0	18,0	36,0	41,2	5,9	52,9	64,0	20,0	16,0	27,5	15,7	56,9
		Access to AI-based tools.	14,0	38,0	48,0	54,9	33,3	11,8	20,0	28,0	52,0	29,4	15,7	54,9
		Access to up-to-date technologies.	44,0	28,0	28,0	92,2	2,0	5,9	72,0	8,0	20,0	39,2	9,8	51,0
2.	Adaptation of the teaching process	Ability to participate in online classes.	44,0	28,0	28,0	96,1	0,0	3,9	100,0	0,0	0,0	60,8	19,6	19,6
		Adaptation of exam forms.	86,0	8,0	6,0	84,3	2,0	13,7	52,0	36,0	12,0	78,4	5,9	15,7
		Ability to use online learning platforms.	84,0	12,0	4,0	96,1	0,0	3,9	100,0	0,0	0,0	68,6	5,9	25,5

		Access to learning materials in digital format.	70,0	12,0	18,0	98,0	0,0	2,0	84,0	8,0	8,0	78,4	3,9	17,6
3.	Social and psychological support	Access to an academic advisor and psychological counseling.	90,0	-	10,0	98,0	0,0	2,0	88,0	4,0	8,0	96,1	0,0	3,9
		Assistance from mentors or tutors.	64,0	12,0	24,0	88,2	0,0	11,8	60,0	4,0	36,0	64,7	11,8	23,5
		Promotion of an inclusive university environment.	76,0	-	24,0	88,2	0,0	11,8	72,0	8,0	20,0	84,3	3,9	11,8
		Access to information on available forms of support.	90,0	2,0	8,0	88,2	0,0	11,8	88,0	2,0	10,0	72,5	7,8	19,6
		Developed and accessible procedures for supporting students with disabilities.	86,0	2,0	12,0	45,1	0,0	54,9	62,0	10,0	28,0	66,7	11,8	21,6
		Organizing disability awareness campaigns.	72,0	8,0	20,0	66,7	2,0	31,4	64,0	10,0	26,0	39,2	19,6	39,2
		Conducting training for academics in identifying and responding to the needs of students with disabilities.	74,0	18,0	8,0	45,1	17,6	37,3	44,0	16,0	40,0	47,1	27,5	25,5
4.	Administrative adjustment	Using new technologies and AI-based tools in the process of completion of paperwork (e.g., class registration, paper submission deadlines, or exam procedures).	38,0	20,0	42,0	64,7	13,7	21,6	24,0	32,0	44,0	33,3	19,6	47,1
		Training administrative staff to identify and respond to the needs of students with disabilities.	8,0	26,0	66,0	45,1	5,9	49,0	12,0	52,0	36,0	21,6	15,7	62,7
		Providing information on available support services and procedures at the university.	72,0	4,0	24,0	66,7	5,9	27,5	40,0	20,0	40,0	62,7	5,9	31,4

The data in the table above shows that there are significant differences between countries in terms of technological support. As many as 92.2% of respondents in Lithuania confirm its availability. Similarly, 72% of teachers participating in the survey in Germany note the availability of technological support. In Poland (44%) and Spain (39.2%), this percentage is lower, with a high level of “I don't know” responses (28% and 51%, respectively). However, the high percentage of “don't know” responses in Spain (56.9%) and Lithuania (52.9%) is particularly worrying, suggesting low awareness of the availability of this type of support. Access to AI-based tools is an area that is relatively underdeveloped or overlooked in all countries. Lithuania has the highest percentage of affirmative responses (54.9%), but Poland (14%), Germany (20%), and Spain (29.4%) show low results, again with a very high percentage of “I don't know” responses (Poland 48%, Germany 52%, Spain 54.9%) may indicate a lack of implementation or awareness of the use of AI in the context of supporting students with disabilities.

In the category of teaching process adaptation, Germany and Lithuania lead the way in many aspects related to digitization. The possibility of participating in online classes in Germany reaches 100% of affirmative responses, similarly in Lithuania (96.1%). Poland (44%) and Spain (60.8%) lag significantly behind, suggesting gaps in the infrastructure or policies enabling this form of learning. As with online classes, Germany (100%) and Lithuania (96.1%) provide almost universal access to e-learning platforms. Poland (84%) and Spain (68.6%) also perform well, albeit at lower levels. Teachers participating in the survey in Poland (86%), Lithuania (84.3%), Spain (78.4%) and Germany (52%) believe that it is possible to adapt examination formats to the needs of students with disabilities at universities. In all countries surveyed, a high percentage of respondents confirmed that students have access to teaching materials in digital format: Lithuania (98%), Spain (78.4%), Poland (70%), and Germany (84%).

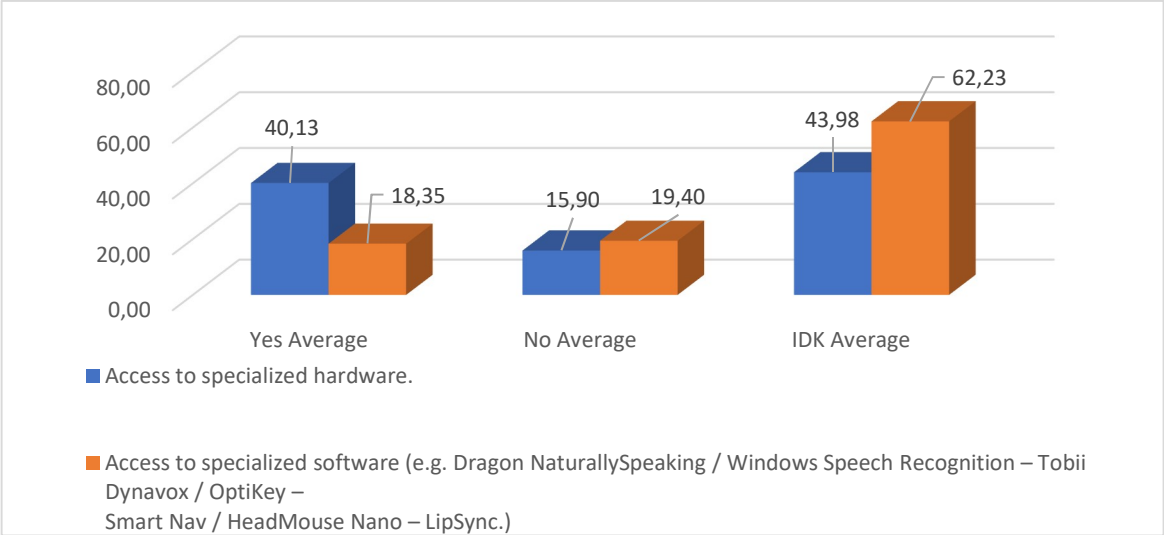
In the area of social and psychological support, the results indicate a relatively high level of services in all countries, with some exceptions. Access to academic advisors and psychological counseling is very high in all countries: Lithuania (98%), Spain (96.1%), Poland (90%), and Germany (88%), indicating the widespread availability of this type of support. In terms of developed and available procedures for supporting students with disabilities, Poland stands out positively with 86% of affirmative responses. In Lithuania, this percentage is surprisingly low (45.1%), and more than half of the respondents (54.9%) are unaware of the existence of such procedures, which represents a significant gap. At the same time, Poland (74%) seems to be a leader in providing training for academic staff in identifying and responding to the needs of students with disabilities, while other countries have lower rates: Spain (47.1%), Lithuania (45.1%), and Germany (44%). Poland (72%) and Lithuania (66.7%) are active in organizing

campaigns to raise awareness about disability. Spain, on the other hand, has the lowest percentage of affirmative responses (39.2%) and a high percentage of “I don't know” responses (39.2%), suggesting that this is an area in need of development. The category of administrative facilities reveals areas where all countries have significant shortcomings. Training administrative staff to identify and respond to the needs of students with disabilities is the weakest point in all countries. Poland has only 8% “yes” responses, Germany 12%, Spain 21.6%, and Lithuania 45.1%. The “I don't know” responses dominate, reaching as much as 66% in Poland, 62.7% in Spain, and 49% in Lithuania, which indicates significant neglect in training or ineffective communication. Lithuania (64.7%) is the leader in the use of new technologies and AI tools in administrative processes, with the other countries lagging far behind: Poland (38%), Spain (33.3%), and Germany (24%). There is also a high percentage of “don't know” responses in this area, especially in Spain (47.1%), Germany (44%), and Poland (42%).

In summary, the data analysis shows that support for students with disabilities varies significantly between Poland, Lithuania, Germany, and Spain. Lithuania and Germany appear to be leaders in terms of technological support (especially access to current technologies and online platforms) and adaptation of the teaching process. Poland stands out positively in areas such as adaptation of examination forms, access to information about support, having support procedures in place, and training for academic Staff. Spain has relatively high levels of exam adaptation and access to counseling, but lower rates of access to current technologies and awareness campaigns. A common and most pressing challenge for all countries analyzed is the training of administrative staff. Similarly, the use of AI tools in administration and, more broadly, access to AI-based tools in general, remains an area with a low level of implementation. The high percentage of “don't know” responses in many categories, especially in the areas of AI, technology, and administrative training, indicates a need to raise awareness of the available forms of support or the need for better implementation and communication at universities. Despite the generally high level of social and psychological support, there are gaps, such as low awareness of the support procedures developed in Lithuania (54.9% “don't know”) or low activity in awareness campaigns in Spain (39.2% “don't know”). Overall, countries show diverse approaches and priorities in supporting students with disabilities, with visible strengths in specific areas and common challenges, especially in administrative procedures and the use of innovative technologies.

Academic teachers participating in the survey were also asked about the available forms of support for students with physical, sensory, mental, and autism spectrum disabilities. The results are presented in the charts and tables below.

Fig. 10. Forms of technological support for people with physical disabilities in the opinion of respondents



The data for this particular group of students confirms and even exacerbates the negative trends observed in general technological support. Access to AI-based tools is even more problematic, as only 18.35% of respondents confirm their availability, while an overwhelming 62.23% do not know whether this form of support is available. This is the lowest awareness rate among all forms of support analyzed and indicates a huge neglect in this area. According to the respondents, access to specialized equipment for students with physical disabilities is also low (40.13%). It is worth noting that over 40% of respondents are unaware of such forms of support (43.98%). Only access to current general-purpose technologies for this group is at a relatively satisfactory level (62.23%), which is close to the overall results and suggests that basic technological infrastructure is available, but specialized solutions and awareness of them are lacking.

The data in Table 14 provided information on the availability of technological forms of support for students with physical disabilities at universities in Poland, Lithuania, Germany, and Spain.

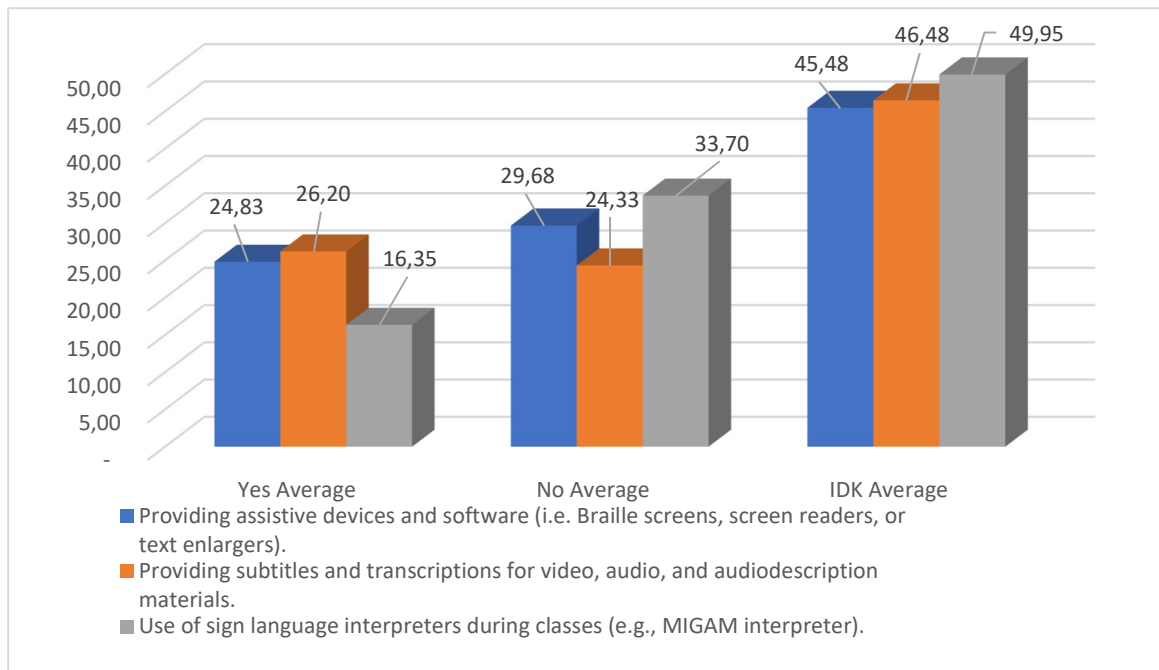
Tab.14. Forms of support available at universities for students with motor disabilities, according to respondents disaggregated by country

No	Type of support/assistance	POLAND			LITHUANIA			GERMANY			SPAIN		
		Yes	No	Idk	Yes	No	Idk	Yes	No	Idk	Yes	No	Idk
1.	Access to specialized hardware.	38,0	14,0	48,0	56,9	0,0	43,1	44,0	32,0	24,0	21,6	17,6	60,8
	Access to specialized software (e.g. Dragon NaturallySpeaking / Windows Speech Recognition – Tobii Dynavox / OptiKey – Smart Nav / HeadMouse Nano –LipSync.)	18,0	16,0	66,0	9,8	11,8	78,4	28,0	40,0	32,0	17,6	9,8	72,5

An analysis of the detailed data presented in Table 14 reveals significant differences in the opinions of respondents regarding access to specialized equipment for students with motor disabilities. Respondents from Lithuania (56.9%) and Germany (44.0%) indicate higher availability than respondents from Poland (38.0%) and Spain (21.6%). It is worth noting that a large number of respondents from Spain (60.8%) and Poland (48.0%) do not know whether such forms of support are available at their universities at all. Data on respondents' knowledge of access to specialized software for students with physical disabilities show that only a small number of respondents confirm such access: in Poland only 18.0%, in Lithuania 9.8%, in Germany 28.0%, and in Spain 17.6%. At the same time, a very large percentage of respondents did not know whether such support was offered to students: Lithuania (78.4%), Spain (72.5%), Poland (66.0%). This result indicates significant gaps in the availability of specialized software or a lack of knowledge among respondents about its existence and possible uses.

During the survey, respondents were asked about the forms of support offered at universities to students with sensory disabilities. The results obtained in this area are presented below.

Fig. 11. Forms of support available at universities for students with sensory disabilities, according to respondents



An analysis of the data presented in Fig. 11 provides valuable insights into the availability and awareness of support measures for students with sensory disabilities. Only 24.83% of academic teachers confirm the availability of assistive devices and software (e.g., Braille displays, screen readers, text enlargement programs) at their university. At the same time, a significant percentage (29.68%) indicate that such devices and software are unavailable. Once again, however, the most alarming result is the percentage of “I don't know” responses, which is as high as 45.48%. This result clearly indicates a serious lack of awareness among academic teachers about the existence and availability of specialized tools to support students with sensory disabilities. As in the previous category, only 26.20% of respondents confirm access to subtitles and transcripts for video and audio materials and audio description, while 24.33% of academic teachers report that such materials are not available. In this case, too, the dominant response is “I don't know” (46.48%), which again indicates a significant gap in the awareness of teaching staff regarding basic accommodations for students with sensory disabilities. This situation can significantly hinder the effective inclusion of these students in the teaching process. Only 16.35% of respondents indicate the possibility of using sign language interpreters during classes. Almost half of the respondents are unaware of such possibilities, which again may indicate a fairly low level of knowledge and awareness among respondents in this area.

In order to learn about the differences between individual countries, an additional analysis was conducted, and the results are presented in the table below.

Tab. 15. Forms of support available at universities for students with sensory disabilities, according to respondents, disaggregated by country

No.	Type of support/assistance	POLAND			LITHUANIA			GERMANY			SPAIN		
		Ye s	No	Id k	Ye s	No	Id k	Ye s	No	Id k	Ye s	No	Id k
1.	Providing assistive devices and software (i.e. Braille screens, screen readers, or text enlargers).	30, 0	12, 0	58, 0	13, 7	45, 1	41, 2	36, 0	44, 0	20, 0	19, 6	17, 6	62, 7
	Providing subtitles and transcriptions for video, audio, and audiodescription materials.	16, 0	16, 0	56, 0	29, 4	15, 7	54, 9	28, 0	48, 0	24, 0	31, 4	17, 6	51, 0
	Use of sign language interpreters during classes (e.g., MIGAM interpreter).	18, 0	22, 0	60, 0	19, 6	21, 6	58, 8	16, 0	52, 0	32, 0	11, 8	39, 2	49, 0

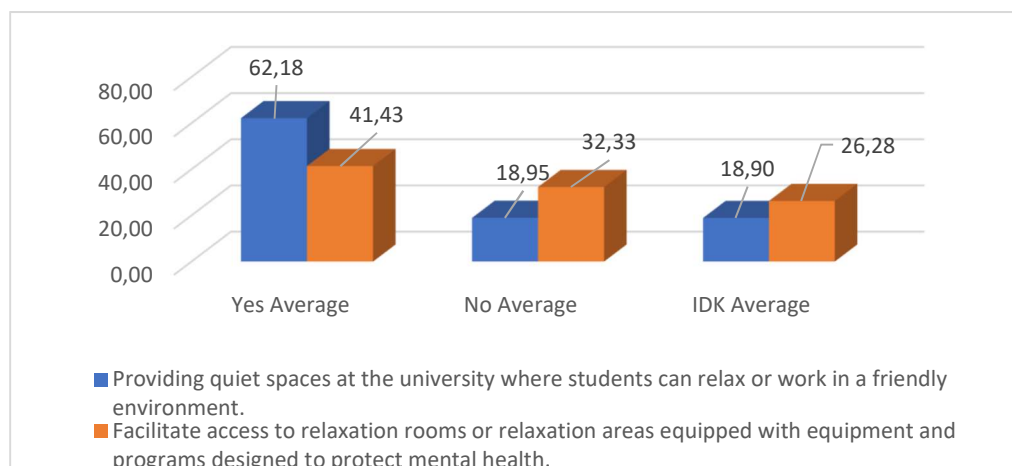
The data analysis provides detailed insight into the perceptions of academic teachers in Poland, Lithuania, Germany, and Spain regarding the availability of support for students with sensory disabilities. The availability of assistive devices and software (e.g., Braille displays, screen readers, text enlargement programs) is indicated by a relatively small group of respondents from each country: Germany 36.0%, Poland 30.0%, Spain 19.6%, Lithuania 13.7%. At the same time, the high percentage of “I don't know” responses (58.0% in Poland, 62.7% in Spain) continues to be a serious problem of lack of awareness among academic staff.

Only 16% of respondents from Poland confirm that subtitles and transcripts are provided for video and audio materials, as well as audio description. In other countries, this percentage is slightly higher: Germany 28%, Lithuania 29.4%, Spain 31.4%. In general, in all countries, more than half of academic teachers (56.0% in Poland, 54.9% in Lithuania, 51.0% in Spain) are still unsure whether this type of support is available, which is a critical shortcoming in the context of including students with sensory disabilities.

The use of sign language interpreters during classes (e.g., MIGAM interpreters) is indicated by the smallest group of respondents from Spain (11.8%), Germany (16.0%), Poland (18.0%), and Lithuania (19.6%). At the same time, this low level of confirmed availability, combined with a very high percentage of “don't know” responses (from 49.0% to 60.0%), indicates that sign language interpreters are either rarely available or that academic teachers are unaware of how to organize such support or even that it is offered.

The forms of support offered to students with mental disabilities are another area of consideration, and the results obtained during the study are presented below.

Fig. 12. Forms of support available at universities for students with mental disabilities, according to respondents



The analysis of the data presented in Fig. 12 provides information on how academic teachers perceive the availability of support for students with mental disabilities at universities. This chart presents the average results for two specific types of support. In the first category, concerning the provision of quiet spaces at the university where students can relax or work in a friendly environment, the vast majority of academic teachers perceive this support as available (62.18%). At the same time, the percentage of “no” (18.95%) and “I don't know” (18.9%) is relatively low, suggesting that academic teachers are relatively aware of the existence and availability of such spaces, and that these spaces are actually present and perceived as accessible at universities.

The second category of support, relating to facilitating access to relaxation rooms or relaxation areas equipped with mental health protection equipment and programs, shows different trends. Although nearly half of academic teachers perceive such rooms as accessible (41.43%), a significant proportion are either unaware of them (26.28%) or consider them inaccessible (32.33%). This is a more specialized form of support than general quiet spaces, which may explain the lower level of awareness and declared accessibility among teaching staff.

A detailed analysis of the data obtained for individual countries allowed us to identify differences in the support offered at universities in the countries participating in the study.

Tab. 16. Forms of support available at universities for students with mental disabilities, according to respondents disaggregated by country

No.	Type of support/assistance	POLAND	LITHUANIA	GERMANY	SPAIN
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		Ye s	No	Id k	Ye s	No	Id k	Ye s	No	Id k	Ye s	No	Id k
1.	Providing quiet spaces at the university where students can relax or work in a friendly environment.	44, 0	28, 0	28, 0	98, 0	0,0	2,0	40, 0	36, 0	24, 0	66, 7	11, 8	21, 6
	Facilitate access to relaxation rooms or relaxation areas equipped with equipment and programs designed to protect mental health.	28, 0	44, 0	28, 0	90, 2	2,0	7,8	20, 0	48, 0	32, 0	27, 5	35, 3	37, 3

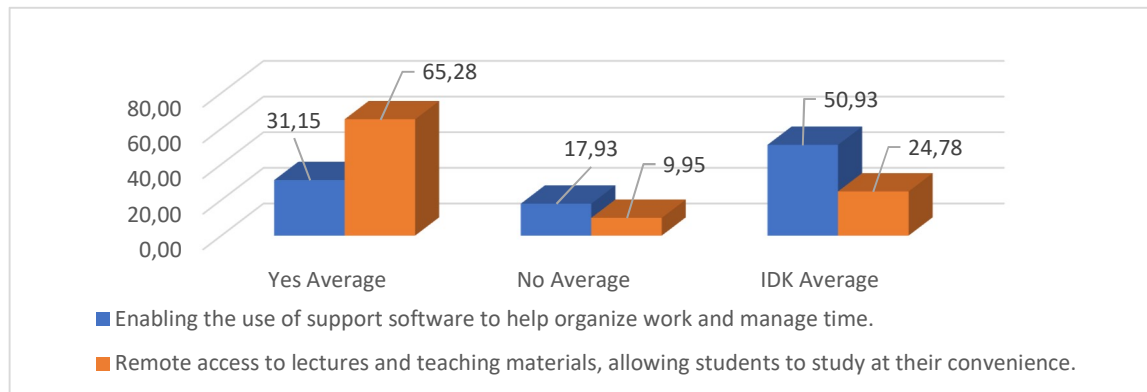
The first category of support analyzed concerns the provision of quiet spaces at the university where students can relax or work in a friendly environment. There are significant differences between countries in this regard. Lithuania stands out with by far the highest percentage of affirmative responses (98.0%), with zero percent of “no” responses and a minimal “I don't know” response (2.0%). This suggests a very high awareness and widespread availability of such spaces in the perception of Lithuanian academic teachers. In Spain, almost two-thirds of teachers (66.7%) also confirm the availability of such places. In contrast, in Poland (44.0%) and Germany (40.0%), the percentage of positive responses is significantly lower. In both countries, the percentage of “no” responses (28.0% in Poland, 36.0% in Germany) and “I don't know” responses (28.0% in Poland, 24.0% in Germany). This indicates that in Poland and Germany, awareness and availability of quiet spaces are significantly lower than in Lithuania and Spain, and teachers more often declare that they do not exist or simply do not know about them.

The second category of support focuses on facilitating access to relaxation rooms or relaxation areas equipped with mental health protection equipment and programs. Here, too, Lithuania again dominates with 90.2% of affirmative responses, with only 2.0% responding “no” and 7.8% “I don't know.” This confirms the generally very high awareness and availability of specialized support at Lithuanian universities in the opinion of local academic teachers. Other countries show significantly lower availability rates and higher rates of lack of availability or awareness. In Poland, only 28.0% of teachers confirm availability, while 44.0% indicate a lack of availability and 28.0% are unaware of such places. A similar situation occurs in Germany, where only 20.0% answered affirmatively, and 48.0% do not see such spaces at the university or are unaware of them (32.0%). In Spain, 27.5% of teachers indicate availability, 35.3% indicate lack of availability, and 37.3% indicate that they are unaware of the existence of such

spaces. It follows that, apart from Lithuania, the availability of more specialized mental health support rooms is perceived as significantly lower, and academic teachers in Poland, Germany, and Spain are often unaware of their existence or declare that they are lacking.

The last question in this area concerned support for students on the autism spectrum. The results obtained are presented below.

Fig. 13. Forms of support for students on the autism spectrum in the opinion of respondents



The data presented in Fig. 13 allow for an assessment of academic teachers' perceptions of the availability of two specific forms of support for students on the autism spectrum at their universities. In the first category, concerning the use of software to support work organization and time management, academic teachers declare that this form of support is not available (50.93%). Only 31.15% of respondents confirm the availability of this type of software. The percentage of “I don't know” responses is also significant, at 17.93%, suggesting that a large proportion of teaching staff are unaware of the availability of this specific support tool. This indicates that technological support aimed at organizing work for students on the autism spectrum is rather poorly available or little known among academic teachers.

The second category of support, relating to remote access to lectures and teaching materials, enabling students to learn at their own pace, shows much more positive trends. In this case, the vast majority of academic teachers (65.28%) confirm the availability of this form of support. At the same time, both the percentage of “no” (9.95%) and “I don't know” (24.78%) responses is quite low. These results suggest that remote access to materials and lectures is a relatively common and well-perceived form of support for students on the autism spectrum, which may be the result of the more widespread use of digital technologies in education. However, the fact that nearly a quarter of teachers are unaware of this possibility indicates potential information gaps.

The forms of support for students on the autism spectrum discussed above were supplemented by an analysis of their prevalence in the individual countries surveyed.

Tab. 17. Forms of support for students on the autism spectrum in the opinion of respondents, disaggregated by country

N o.	Type of support/assistance	POLAND			LITHUANIA			GERMANY			SPAIN		
		Yes	No	Idk	Yes	No	Idk	Yes	No	Idk	Yes	No	Idk
1.	Enabling the use of support software to help organize work and manage time.	24,0	18,0	58,0	35,3	2,0	62,7	32,0	36,0	32,0	33,3	15,7	51,0
	Remote access to lectures and teaching materials, allowing students to study at their convenience.	58,0	12,0	30,0	92,2	0,0	7,8	56,0	20,0	24,0	54,9	7,8	37,3

The data presented in the table allow for the identification of differences in the perception of support availability for students on the autism spectrum across the individual countries. In the first category, a rather limited availability or awareness of this type of support can be observed among respondents. In Poland, only 24.0% of academic teachers confirm the availability of software that supports task organization and time management, while 18.0% indicate it is unavailable, and as many as 58.0% state they are unaware of its existence. Similarly in Spain, 33.3% of teachers confirm its availability, while 51.0% report not knowing about it, which also points to low awareness. Lithuania stands out somewhat more positively, with 35.3% of respondents answering “yes” and only 2.0% responding “no,” yet also showing a high percentage of “don’t know” responses (62.7%). This suggests that despite fewer declarations of lack, the awareness of such software is also low in Lithuania. Overall, the availability of specialized software supporting the work organization of students on the autism spectrum is perceived as low in all analyzed countries, with the dominant share of teachers simply unaware of its existence.

The second category of support is remote access to lectures and educational materials, which allows students to study at their own pace. In this area, the situation is significantly more favorable across all countries. Lithuania again stands out with a clearly highest share of positive responses, as many as 92.2% of teachers confirm the availability of this form of support. This indicates a very high prevalence and awareness of remote teaching in Lithuania. Despite some differences, all participating countries demonstrate a much higher level of availability and awareness of remote access to materials compared to specialized software.

In conclusion, based on the conducted analysis, the following findings can be formulated, which appear fundamental for building an inclusive academic environment. The overall analysis reveals that support for students with disabilities varies between countries and across different areas, yet some common strengths and key challenges can be identified. Special attention should be paid to:

a) The prevailing lack of awareness among respondents – this is the most striking and consistent finding throughout the study. A high percentage of “don’t know” responses in many categories, often exceeding 40% or even 70%, points to a significant knowledge gap among academic teachers regarding available support measures for students with disabilities. This unawareness particularly concerns specialized software and AI tools.

b) The lack of training for administrative staff – this appears to be the weakest point in the overall support system.

c) The absence of well-developed procedures for supporting students with disabilities.

At the same time, it is also important to highlight areas where the availability of support for students with disabilities is high. These clearly include:

a) Adaptation of the teaching process: this category shows a very positive picture, with relatively high average percentages of responses confirming actions aimed at individualizing the learning process. The possibility to attend online classes (75.23%) and the use of e-learning platforms (87.18%) are widespread. Lithuania and Germany lead in education digitalization, with almost 100% availability of online classes and e-learning platforms.

b) Social and psychological support: generally rated as high. Access to academic advisors and psychological counselling is very high across all countries (93.03%). Promoting an inclusive university environment (80.13%) and access to information on available forms of support (84.68%) are also perceived positively.

c) Quiet spaces for students with mental health conditions are generally available. Lithuania stands out in this regard (98.0%).

Based on the analysis of research results, noticeable differences between countries can be identified:

a) Lithuania often emerges as a leader in declared availability and awareness across many areas (e.g., access to up-to-date technology, online classes, e-learning platforms, quiet spaces, remote access to learning materials, and advisory services). However, Lithuania also

reports a surprisingly high percentage of “don’t know” responses regarding the use of specialized software and established support procedures.

b) Poland stands out positively in areas such as adaptation of exam formats, access to information about available support, having formalized support procedures, and offering training for academic staff. Nonetheless, there remains a significant gap in awareness regarding specialized software and AI-based tools.

c) Germany is highly advanced in the digitalization of the teaching process (100% availability of online classes and e-learning platforms) but shows lower scores in the area of exam adaptations. Many respondents also noted the lack of adequate spaces and relaxation rooms for students with mental health conditions. As in Poland and Spain, a lack of awareness and availability of AI tools and training for administrative staff remains a challenge.

d) Spain demonstrates a relatively high level of exam adaptation and access to advisory services. However, it shows lower scores in access to current technologies and participation in awareness campaigns for students with disabilities. There is also a widespread prevalence of “don’t know” responses across many support categories, indicating either a lack of available support or low awareness of existing measures.

Based on the above findings, it is essential to undertake coordinated actions to create truly inclusive academic environments that promote equality and full participation of all students. The following actions are recommended:

a) Raise awareness and improve information flow: Increase knowledge and understanding among all educational stakeholders regarding the available forms of support for students with disabilities. This can be achieved through regular and well-structured information campaigns. Information should be clear, easily accessible, and cover every type of support available, including instructions on how to access it and whom to contact.

b) Establish clear support procedures: In contexts where awareness of support procedures is low, universities should not only develop such procedures but also effectively communicate them to both academic and administrative staff.

c) Training for academic staff: Implement regular, comprehensive training for academic staff on how to identify and respond to the needs of students with various types of disabilities. Special focus should be placed on addressing the lack of awareness regarding assistive software and AI-based tools.

d) Training for administrative staff: This is one of the most pressing challenges. Mandatory and effective training for administrative personnel is necessary to ensure they understand and can adequately respond to the needs of students with disabilities.

e) Investment in specialized technological solutions: Universities should invest in up-to-date assistive technologies to support students with various types of disabilities.

f) Development of AI tools and specialized software: Given the current low availability and awareness of AI-based tools and specialized software (especially for physical and sensory impairments), universities should prioritize their implementation and promotion.

g) Support in work organization: Increase availability and awareness of software tools that support time management and work organization, particularly for students on the autism spectrum.

h) Development of specialized relaxation spaces: Beyond general quiet areas, universities should invest in more specialized relaxation spaces equipped with tools and programs that support mental health, while also promoting awareness of their availability.

i) Maintain high-quality counseling services: Continue and further develop already well-functioning forms of social and psychological support, such as access to academic advisors and psychological counseling.

Taking targeted actions in these key support areas for students with disabilities will undoubtedly contribute to building a more inclusive academic environment. This requires coordinated efforts at both the university and higher education system levels, with a focus on raising awareness, intensifying training programs, and developing and implementing advanced, specialized solutions. In doing so, universities can truly promote equality and ensure full participation of all members of the academic community.

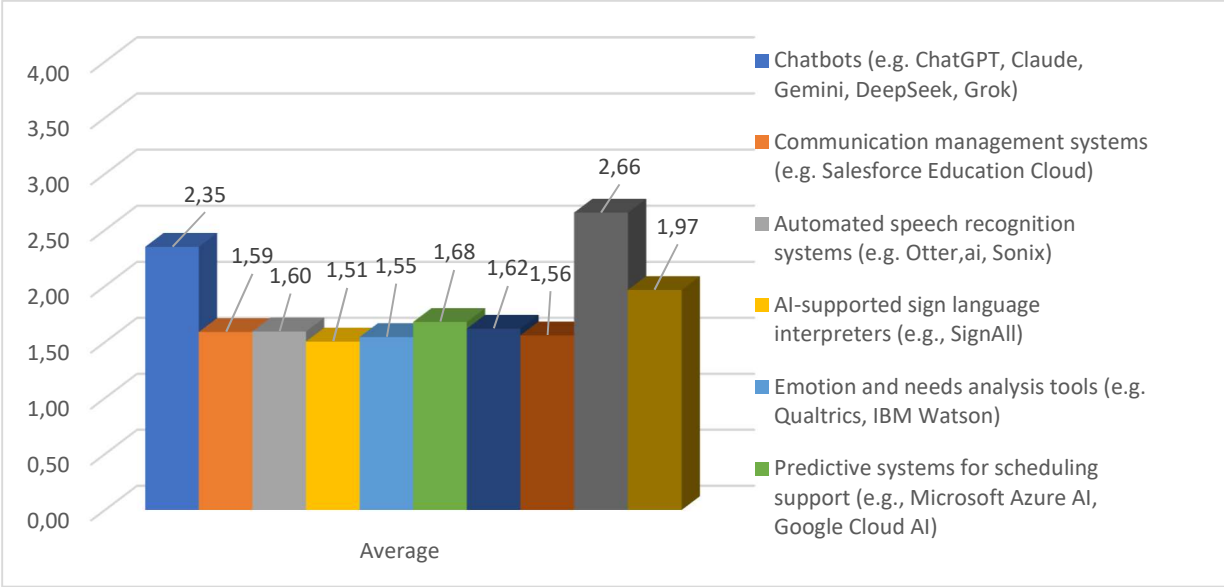
3.3 Skills level in using AI-based tools with students with disabilities

This research proposes conducting a needs analysis to subsequently design a training program. As a starting point, it is essential to identify the participant's prior competency level. A total of 227 higher education teachers from four countries—Poland (N=50), Lithuania (N=48), Germany (N=80), and Spain (N=49/51)—completed a survey. This section analyses two main aspects. First, the general perception of higher education teachers regarding their skill level in using AI-based tools with students with disabilities. Second, their interest in learning AI-based tools to effectively attend students with mobility, sensory, mental, and autistic disabilities. The questions were answered based on a Likert scale, scoring from 1 to 4.

Teachers' perceptions of their skills using AI-based tools with students with disabilities is showed in Fig.14. A Likert scale ranging from 1 to 4 was use, where 1 means “very low” and 4 means “very high”. Eight of the 10 items show scores below 2 points. Based on this

assessment, it is stated that, in general, teachers' competency level in using AI-based tools with students with disabilities is low. The highest-rated item (2.66) refers to the use of remote communication platforms with AI features (e.g., Zoom with live transcription, Microsoft Teams). Secondly, it is the use of chatbots (e.g., ChatGPT, Claude, Gemini, DeepSeek, Grok), with a score of 2.35 out of 4. Third, a notable score is also obtained in the item 10 *Meeting scheduling applications* (1.97). Both the use of remote communication platforms and meeting scheduling applications are connected to the traditional methodology of online training. Also noteworthy is the percentage of teachers who are using Chatbots, which shows openness to the use of AI. Continuing with the data analysis, we found scores below 1.68 in the following items: *Predictive systems for scheduling support* (1.68), *Document management applications with OCR features* (1.62), *Automated speech recognition systems* (1.6), *Communication management systems* (1.59), *Virtual assistants* (1.56) and *Emotion and needs analysis tools* (1.55). The *AI-supported sign language interpreters* item obtained the lowest score (1.51). These data reveal deficiencies in teacher training in these areas and also recognition of these shortcomings.

Fig. 14. Skills level in using AI-based tools with students with disabilities



In Table 18, the previous data are reanalysed, disaggregated by country. We can see that the previous findings regarding the three most prominent items (1, 9, and 10) are confirmed in Poland, Germany, and Spain. However, in the case of Lithuania, there are differences, as the item ranked third by highest score is *Predictive systems for scheduling support* (score 1.7)

instead of *Meeting scheduling applications* (score 1.4). In general, over the four countries, Lithuania has the lowest scores, followed by Spain, Poland, and Germany.

Tab. 18. Skill level in using AI-based tools with students with disabilities, according to respondents disaggregated by country

No.	AI-based tools	POLAND	LITHUANIA	GERMANY	SPAIN
		Me	Me	Me	Me
1.	Chatbots (e.g, ChatGPT, Claude, Gemini, DeepSeek, Grok)	2,3	2,3	2,40	2,4
2.	Communication management systems (e.g, Salesforce Education Cloud)	1,6	1,3	1,76	1,7
3.	Automated speech recognition systems (e.g, Otter,ai, Sonix)	1,6	1,3	1,88	1,6
4.	AI-supported sign language interpreters (e.g, SignAll)	1,6	1,2	1,72	1,5
5.	Emotion and needs analysis tools (e.g, Qualtrics, IBM Watson)	1,6	1,2	1,88	1,5
6.	Predictive systems for scheduling support (e.g, Microsoft Azure AI, Google Cloud AI)	1,7	1,7	1,72	1,6
7.	Document management applications with OCR features (e.g, ABBYY FineReader)	1,7	1,4	1,88	1,5
8.	Virtual assistants (e.g, IBM Watson Assistant)	1,6	1,2	1,94	1,5
9.	Remote communication platforms with AI features (e.g, Zoom with live transcription, Microsoft Teams)	2,8	2,4	2,72	2,7
10	Meeting scheduling applications (e.g, Calendly with AI)	2,0	1,4	2,26	2,2

The data in Table 19 further highlights the shortcomings in higher education faculty training in using AI-based tools with students with disabilities. This Table disaggregates the information by country and cumulative frequency. In general, the highest cumulative frequencies across all countries are concentrated in rating 1. Furthermore, of the items presented, it is confirmed that university teachers perceive positively their skills in using *Chatbots* (item 1) and *Remote communication platforms with AI features* (item 9). In both items one third of the responses were rated with a score 3 “high”. Regarding item 10, *Meeting scheduling applications* (e.g., Calendly with AI), considering the lowest cumulative frequency, the analysis provided in Table 19 indicates higher proficiency among faculty in Germany (22%) and Spain (35.3%) compared to those in Lithuania (72.5%) and Poland (50%).

If we analyse the cumulative frequencies, except for the items highlighted positively (1, 9, 10), the remaining cumulative frequencies are concentrated in the score 1 “very low”, confirming deficiencies among the teaching staff. An example of this is that in the case of Lithuania, six items receive a score of 0 in score 4 “very high”.

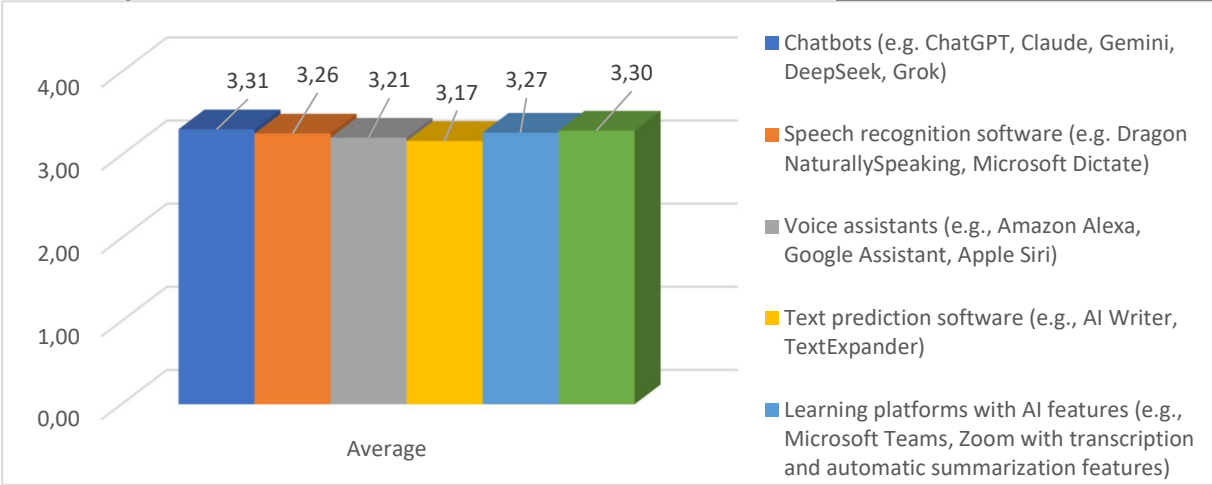
Tab. 19. Skill level in using AI-based tools with students with disabilities, according to respondents disaggregated by country and cumulative frequency

No .	AI-based tools	POLAND				LITHUANIA				GERMANY				SPAIN			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	Chatbots (e.g. ChatGPT, Claude, Gemini, DeepSeek, Grok)	30,0	22,0	34,0	14,0	13,7	45,1	41,2	0,0	14,0	40,0	38,0	8,0	25,5	25,5	35,3	13,7
2.	Communication management systems (e.g. Salesforce Education Cloud)	68,0	14,0	12,0	6,00	76,5	19,6	3,9	0,0	52,0	30,0	8,0	10,0	51,0	29,4	15,7	3,9
3.	Automated speech recognition systems (e.g. Otter.ai, Sonix)	68,0	12,0	14,0	6,0	76,5	19,6	3,9	0,0	36,0	44,0	16,0	4,0	54,9	27,5	15,7	2,0
4.	AI-supported sign language interpreters (e.g., SignAll)	70,0	10,0	14,0	6,0	84,3	11,8	3,9	0,0	50,0	36,0	6,0	8,0	66,7	23,5	7,8	2,0
5.	Emotion and needs analysis tools (e.g. Qualtrics, IBM Watson)	68,0	8,0	18,0	6,0	86,3	9,8	3,9	0,0	42,0	36,0	14,0	8,0	62,7	25,5	11,8	0,0
6.	Predictive systems for scheduling support (e.g., Microsoft Azure AI, Google Cloud AI)	70,0	10,0	12,0	8,0	45,1	43,1	9,8	2,0	46,0	40,0	10,0	4,0	56,9	27,5	11,8	3,9
7.	Document management applications with OCR features (e.g., ABBYY FineReader)	70,0	12,0	10,0	8,0	70,6	19,6	7,8	2,0	38,0	40,0	18,0	4,0	64,7	17,6	15,7	2,0
8.	Virtual assistants (e.g., IBM Watson Assistant)	62,0	22,0	12,0	4,0	86,3	9,8	3,9	0,0	38,0	38,0	16,0	8,0	66,7	19,6	11,8	2,0
9.	Remote communication platforms with AI features (e.g., Zoom with live transcription, Microsoft Teams)	22,0	14,0	30,0	34,0	21,6	33,3	31,4	13,7	10,0	28,0	42,0	20,0	15,7	23,5	35,3	25,5
10.	Meeting scheduling applications (e.g., Calendly with AI)	50,0	12,0	22,0	16,0	72,5	15,7	9,8	2,0	22,0	44,0	20,0	14,0	35,3	25,5	19,6	19,6

The following data refer to teachers' interest in learning AI-based tools based on the type of student's disability. The questionnaire allows for responses on a 1-to-4-point Likert scale, with 1 means "I would not like to know at all" and 4 means "I would very much like to know". Figures and tables are linked to four types of disabilities: motor, sensory, mental, and autism spectrum.

Fig. 15 refers to **mobility disabilities**. In general, teachers express a high level of interest in training in AI-based tools to address this diversity in all the items presented: *Chatbots*, *Speech recognition software*, *Voice assistants*, *Text prediction software*, *Learning platforms with AI features*, *Time and task management applications*. All means are above 3.17 points out of 4, which is the lowest score, referring to *Text prediction software*. The highest score is found for the use of *Chatbots* (3.31). In other words, the most notable interest in relation to mobility disabilities is in learning chatbots (item 1), although the difference is not significant with the rest of the items.

Fig. 15. AI-based tools respondents would you like to learn more about to work more effectively with students with mobility disabilities



If we analyze the data disaggregated by country in Table 20, we find that all scores exceed score 3 “I would like to know”. However, the highest scores are found in Lithuania (min. 3.3; max. 3.5) and Spain (min. 3.2; max. 3.5). In Poland, all scores are around 3 and 3.2 points, and in Germany, between 3 and 3.3 points.

Tab. 20. AI-based tools respondents would you like to learn more about to work more effectively with students with mobility disabilities disaggregated by country

No.	AI-based tools	POLAND	LITHUANIA	GERMANY	SPAIN
		Me	Me	Me	Me
1.	Chatbots (e.g. ChatGPT, Claude, Gemini, DeepSeek, Grok)	3,0	3,5	3,2	3,5

2.	Speech recognition software (e.g. Dragon NaturallySpeaking, Microsoft Dictate)	3,2	3,3	3,2	3,3
3.	Voice assistants (e.g., Amazon Alexa, Google Assistant, Apple Siri)	3,1	3,5	3,0	3,2
4.	Text prediction software (e.g., AI Writer, TextExpander)	3,1	3,2	3,1	3,3
5.	Learning platforms with AI features (e.g., Microsoft Teams, Zoom with transcription and automatic summarization features)	3,1	3,5	3,3	3,2
6.	Time and task management applications (e.g. Notion, Todoist with AI)	3,2	3,3	3,3	3,4

If we look at the cumulative frequencies by country and rating (Table 21), we find that in Poland and Spain, the highest cumulative frequencies for all items are found at the value of 4, "I would very much like to know." While in Lithuania and Germany, the highest percentages range between the values of 3, "I would like to know," and 4, "I would very much like to know." On the other hand, in Poland, a percentage of teachers surveyed indicated a lack of interest in these learning options across all items (ranging from 12% to 16%).

Regarding the highest cumulative frequencies at the value of 4 for each country, the item that most attracts attention for learning related to motor disabilities in Poland is item 2. *Speech recognition software* (e.g., Dragon NaturallySpeaking, Microsoft Dictate), with a cumulative frequency of 58%. In Lithuania, we find the same percentage (58%) for item 1. *Chatbots*. In Germany, the most prominent item is 5. *Learning platforms with AI features* (48%). In Spain, in line with Lithuania, the most prominent item is 1. *Chatbots* (60.8%).

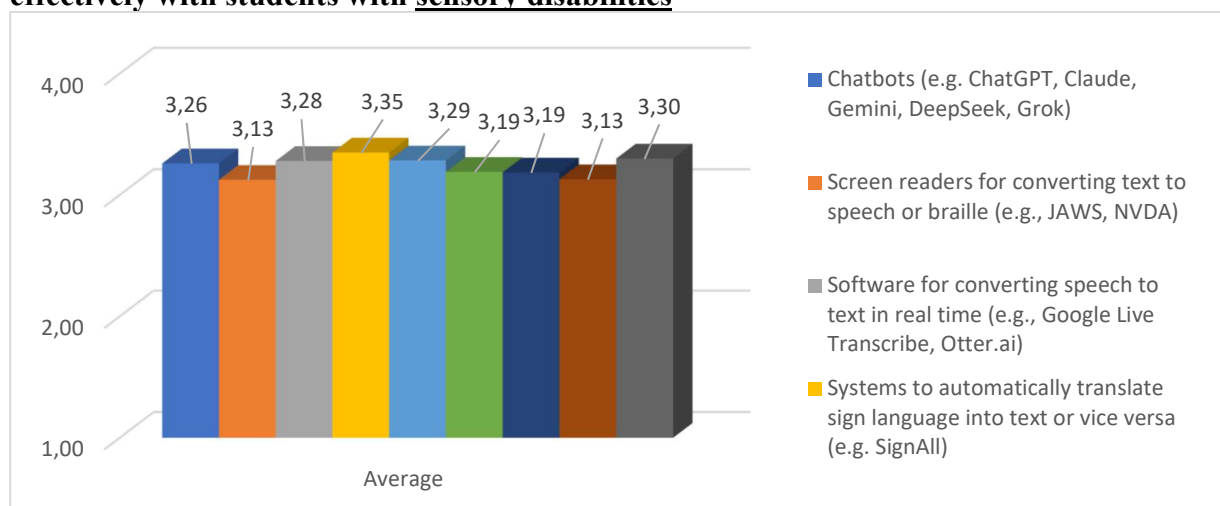
Tab. 21. AI-based tools respondents would you like to learn more about to work more effectively with students with mobility disabilities disaggregated by country and cumulative frequency (%)

No	AI-based tools	POLAND				LITHUANIA				GERMANY				SPAIN			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	Chatbots (e.g. ChatGPT, Claude, Gemini, DeepSeek, Grok)	16,0	18,0	16,0	50,0	0,0	5,9	35,3	58,8	2,0	12,0	46,0	40,0	0,0	11,8	27,5	60,8
2.	Speech recognition software (e.g. Dragon NaturallySpeaking, Microsoft Dictate)	14,0	12,0	16,0	58,0	2,0	9,8	49,0	39,2	6,0	8,0	42,0	44,0	2,0	15,7	33,3	49,0
3.	Voice assistants (e.g., Amazon Alexa, Google Assistant, Apple Siri)	14,0	14,0	18,0	54,0	0,0	2,0	47,1	51,0	6,0	20,0	38,0	36,0	0,0	23,5	35,3	41,2
4.	Text prediction software (e.g., AI Writer, TextExpander)	12,0	18,0	14,0	56,01	0,0	13,7	51,0	35,3	6,0	16,0	42,0	36,0	0,0	15,7	35,3	49,0

5.	Learning platforms with AI features (e.g., Microsoft Teams, Zoom with transcription and automatic summarization features)	14,0	16,0	20,0	50,0	5,9	0,0	37,3	56,9	6,0	8,0	38,0	48,0	3,9	15,7	39,2	41,2
6.	Time and task management applications (e.g. Notion, Todoist with AI)	14,0	12,0	18,0	56,0	0,0	9,8	52,9	37,3	2,0	12,0	42,0	44,0	2,0	7,8	41,2	49,0

Regarding **sensory disabilities**, Fig. 16 shows the average scores for interest in learning AI-based tools related to these kinds of disabilities. Nine items were assessed, and the average score for all of them was higher than 3.13 points out of 4. This indicates that, in general, participating teachers showed a high level of interest in learning AI-based tools related to attending students with sensory disabilities. The item with the highest score was *Systems to automatically translate sign language into text or vice versa*, which obtained an average score of 3.35 points. The remaining items were also noteworthy, since, as indicated, the average scores ranged between 3.13 and 3.35 points. Those items are: Screen readers for converting text to speech or braille, Software for converting speech to text in real time, Platforms with real-time transcription and translation, Zoom software, Audio description applications, AI-powered braille systems and Applications for text-to-speech translation and vice versa.

Fig. 16. AI-based tools respondents would you like to learn more about to work more effectively with students with sensory disabilities



In the analysis of the data disaggregated by country in Table 22, we find that all average scores are above 3 points, except for item 8 (*AI-powered braille systems*), where Germany scores 2.9 out of 4. This more detailed analysis allows us to identify that while item 4 (*Systems*

to automatically translate sign language into text or vice versa) had the highest average overall score, in Lithuania the highest percentage does not correspond to this item but to item 1 (*Chatbots*). In Spain, item 9 scores the same as item 4, indicating that *Learning applications for text-to-speech translation and vice versa* is also notable.

Tab. 22. AI-based tools respondents would you like to learn more about to work more effectively with students with sensory disabilities disaggregated by country

No.	AI-based tools	POLA ND	LITHUAN IA	GERMA NY	SPAIN
		Me	Me	Me	Me
1.	Chatbots (e.g., Intercom, Ada)	3,0	3,5	3,2	3,3
2.	Screen readers for converting text to speech or braille (e.g., JAWS, NVDA)	3,0	3,2	3,0	3,3
3.	Software for converting speech to text in real time (e.g., Google Live Transcribe, Otter.ai)	3,2	3,3	3,3	3,3
4.	Systems to automatically translate sign language into text or vice versa (e.g. SignAll)	3,3	3,3	3,4	3,4
5.	Platforms with real-time transcription and translation (e.g., Microsoft Teams, Zoom)	3,1	3,4	3,3	3,3
6.	Zoom software (e.g., ZoomText)	3,1	3,3	3,2	3,2
7.	Audiodescription applications (e.g., AI-powered Audioboom, VocalEyes)	3,1	3,2	3,2	3,2
8.	AI-powered braille systems (e.g., Orbit Reader, Dot Watch)	3,0	3,3	2,9	3,3
9.	Applications for text-to-speech translation and vice versa (e.g., ReadSpeaker, Text-to-Speech AI)	3,2	3,3	3,3	3,4

Regarding interest in learning AI-based tools for students with sensory disabilities, Table 23 shows the cumulative frequencies (%), organized by country and score. Overall, looking at the scores by country, in Poland, although the highest cumulative frequencies are found in score 4 (ranging between 52% and 60%), it is the country with the highest cumulative frequencies in negative values (between 12% and 16%). That is, although the majority of teachers surveyed expressed interest, a percentage was not at all interested in these learning experiences. Regarding Lithuania, the highest cumulative frequencies were between 3 and 4 points. In this country, looking at the items with the highest cumulative frequencies in 4 points, we find that item 1. *Chatbots*" and item 5. *Platforms with real-time transcription and translation* stand out. Regarding Germany, the highest cumulative frequencies were between 3 and 4 points. Item 4. *Systems to automatically translate sign language into text or vice versa* receives a score of 4 points, with the highest cumulative frequency (52%). It is also noteworthy that in Item 2, 16% of respondents negatively rate learning *Screen readers for converting text to speech or Braille*. In Spain, the highest cumulative frequencies range between scores 3 and 4. The highest cumulative frequencies are found in two items (51%): Item 4 (*Systems to*

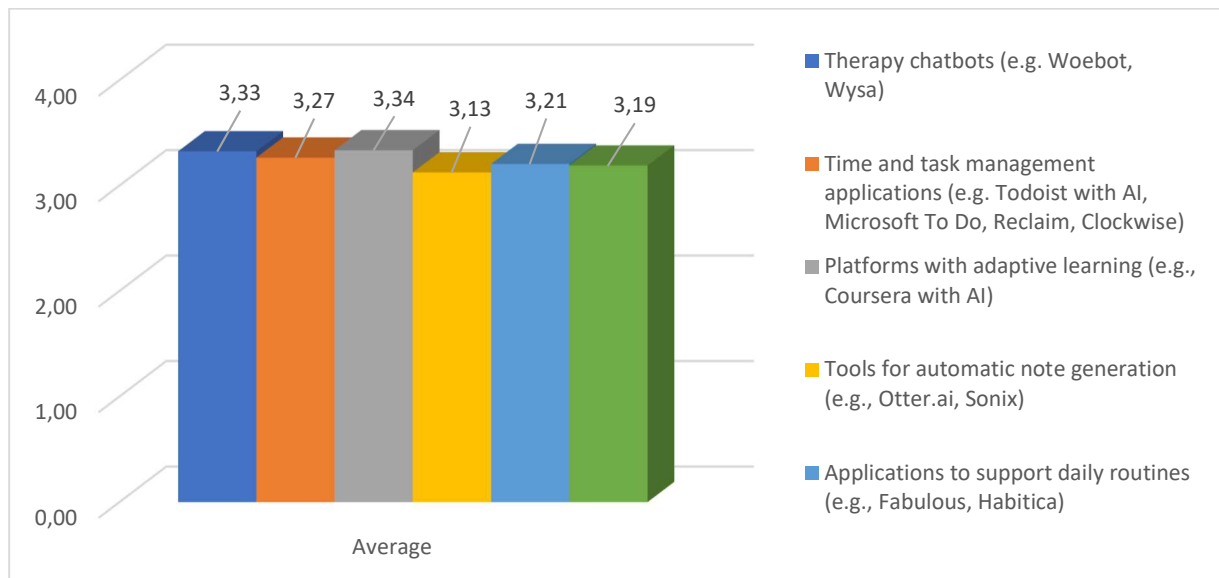
automatically translate sign language into text or vice versa) and Item 9 (Applications for text-to-speech translation and vice versa).

Tab. 23. AI-based tools respondents would you like to learn more about to work more effectively with students with sensory disabilities disaggregated by country and cumulative frequency (%)

No	AI-based tools	POLAND				LITHUANIA				GERMANY				SPAIN			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	Chatbots (e.g., Intercom, Ada)	14,0	6,0	22,0	52,0	0,0	5,9	3,5	5,8	0,0	16,0	44,0	40,0	3,9	7,8	41,2	47,1
2.	Screen readers for converting text to speech or braille (e.g., JAWS, NVDA)	12,0	12,0	18,0	58,0	0,0	1,3	4,9	3,7	16,0	8,0	36,0	40,0	2,0	13,7	37,3	47,1
3.	Software for converting speech to text in real time (e.g., Google Live Transcribe, Otter.ai)	12,0	8,0	22,0	58,0	0,0	7,8	5,1	4,1	6,0	4,0	42,0	48,0	2,0	11,8	43,1	43,1
4.	Systems to automatically translate sign language into text or vice versa (e.g. SignAll)	14,0	12,0	14,0	60,0	0,0	7,8	5,2	3,9	2,0	8,0	38,0	52,0	2,0	9,8	37,3	51,0
5.	Platforms with real-time transcription and translation (e.g., Microsoft Teams, Zoom)	16,0	12,0	20,0	52,0	5,9	3,9	3,1	5,8	4,0	8,0	38,0	50,0	0,0	11,8	47,1	41,2
6.	Zoom software (e.g., ZoomText)	14,0	14,0	16,0	56,0	3,9	1,1	3,5	4,9	6,0	12,0	42,0	40,0	2,0	15,7	45,1	37,3
7.	Audiodescription applications (e.g., AI-powered Audioboom, VocalEyes)	14,0	10,0	20,0	56,0	0,0	1,5	4,7	3,7	2,0	16,0	38,0	44,0	2,0	17,6	35,3	45,1
8.	AI-powered braille systems (e.g., Orbit Reader, Dot Watch)	16,0	12,0	16,0	54,0	0,0	9,8	5,1	3,9	10,0	20,0	38,0	32,0	2,0	13,7	37,3	47,1
9.	Applications for text-to-speech translation and vice versa (e.g., ReadSpeaker, Text-to-Speech AI)	12,0	8,0	20,0	58,0	0,0	1,1	5,1	3,7	4,0	8,0	42,0	46,0	2,0	7,8	39,2	51,0

Regarding the use of AI-based tools for assisting students with **mental disabilities**, Fig. 17 shows the overall averages obtained for the six items assessed by university teachers. All scores range from 3.13 (item 4. *Tools for automatic note generation*) to 3.34 (item 3. *Platforms with adaptive learning*). Therefore, in general we can confirm the interest of teachers in the following AI-based tools: *Therapy chatbots*, *Time and task management applications*, *Platforms with adaptive learning*, *Tools for automatic note generation*, *Applications to support daily routines* and *Online support systems with AI*.

Fig. 17. AI-based tools respondents would you like to learn more about to work more effectively with students with mental disabilities



If we look at the same results but disaggregated by country related to mental disabilities, we find that in Poland there is almost none variation between the scores obtained for each of the items. All items have an average score of 3.2 points except for item 5, which shows a score of 3.1 points. In Lithuania, the most notable item is item 3 (*Platforms with adaptive learning*). Regarding Germany, two notable items have a score of 3.4 points (item 1. *Therapy chatbots* and item 2. *Time and task management applications*). The lowest score is also obtained in this country for item 4. *Tools for automatic note generation* (2.9). Regarding Spain, all items range between 3.3 and 3.5 points. The most notable item is item 3. *Platforms with adaptive learning* (3.5).

Tab. 24. AI-based tools respondents would you like to learn more about to work more effectively with students with mental disabilities disaggregated by country

No	AI-based tools	POLAND	LITHUANIA	GERMANY	SPAIN
		Me	Me	Me	Me
1.	Therapy chatbots (e.g. Woebot, Wysa)	3,2	3,3	3,4	3,4
2.	Time and task management applications (e.g. Todoist with AI, Microsoft To Do)	3,2	3,1	3,4	3,4
3.	Platforms with adaptive learning (e.g., Coursera with AI)	3,2	3,4	3,2	3,5
4.	Tools for automatic note generation (e.g., Otter.ai, Sonix)	3,2	3,1	2,9	3,3
5.	Applications to support daily routines (e.g., Fabulous, Habitica)	3,1	3,1	3,3	3,3
6.	Online support systems with AI (e.g., Big White Wall, Togetherall)	3,2	3,1	3,2	3,3

In Table 25, we analysed the data again, disaggregated by country and cumulative frequency. In the case of Poland, the trend observed in other tables continues. There is a percentage of teachers who are not interested in these learning experiences (between 12% and 18% depending on the item). However, we find the highest cumulative frequencies in the score 4 across the entire sample, with percentages between 56% and 60%. In this regard, teachers' interest stands out in item 1. *Therapy chatbots* (60%) and item 3. *Platforms with adaptive learning* (60%). Regarding Lithuania, the highest cumulative frequencies are found in the score 3 across all items. The score for item 3. *Platforms with adaptive learning* is particularly notable, considering the sum of the frequencies that gave this item a score of 3 (51%) and a score of 4 (45.1%). Regarding Germany, four of the six items show a cumulative frequency above 44% with a value of 4 “I would very much like to know”. If we look only at the cumulative frequency with a value of 4, the most notable is item 1. *Therapy chatbots*. If we take into account the sum of scores 3 (42%) and 4 (48%), we would also highlight item 2. *Time and task management applications*. Regarding Spain, all the highest cumulative frequencies are found in the value of 4, with percentages ranging from 51% to 56.9%. Three items stand out, all with a cumulative frequency of 56.9% at the value of 4: item 1. *Therapy chatbots*; item 3. *Platforms with adaptive learning*; and item 5. *Applications to support daily routines*. If we add up the highest cumulative frequency of the value of 3, the most notable item in Spain is item 3. *Platforms with adaptive learning*.

Tab. 25. AI-based tools respondents would you like to learn more about to work more effectively with students with mental disabilities disaggregated by country and cumulative frequency (%)

N o	AI-based tools	POLAND				LITHUANIA				GERMANY				SPAIN			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	Therapy chatbots (e.g. Woebot, Wysa)	18,0	6,0	16,0	60,0	0,0	5,9	54,9	39,2	2,0	8,0	38,0	52,0	3,9	11,8	27,5	56,9
2.	Time and task management applications (e.g. Todoist with AI, Microsoft To Do)	14,0	14,0	14,0	58,0	2,0	15,7	51,0	31,4	2,0	8,0	42,0	48,0	2,0	11,8	31,4	54,9
3.	Platforms with adaptive learning (e.g., Coursera with AI)	14,0	8,0	18,0	60,0	0,0	3,9	51,0	45,1	2,0	12,0	46,0	40,0	2,0	5,9	35,3	56,9
2	Tools for automatic note generation (e.g., Otter.ai, Sonix)	12,0	12,0	20,0	56,0	0,0	17,6	58,8	23,5	20,0	4,0	42,0	34,0	5,9	9,8	33,3	51,0
5.	Applications to support daily routines (e.g., Fabulous, Habitica)	14,0	14,0	16,0	56,0	0,0	17,6	58,8	23,5	2,0	12,0	38,0	48,0	5,9	11,8	25,5	56,9

6.	Online support systems with AI (e.g., Big White Wall, Togetherall)	12,0	12,0	20,0	56,0	0,0	17,6	54,9	27,5	6,0	16,0	34,0	44,0	5,9	11,8	29,4	52,9
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Regarding interest in learning AI-based tools for students on the **autism spectrum**, Fig. 18 shows the averages obtained from the analysis of six items. All items had high averages, ranging from 3.17 (item 5. *Voice assistants*) to 3.36 points out of 4 (item 6. *Tools for creating visual aids*). In other words, general data showed a teachers' high interest in learning these AI-based tools.

Fig. 18. AI-based tools respondents would you like to learn more about to work more effectively with students with autism spectrum

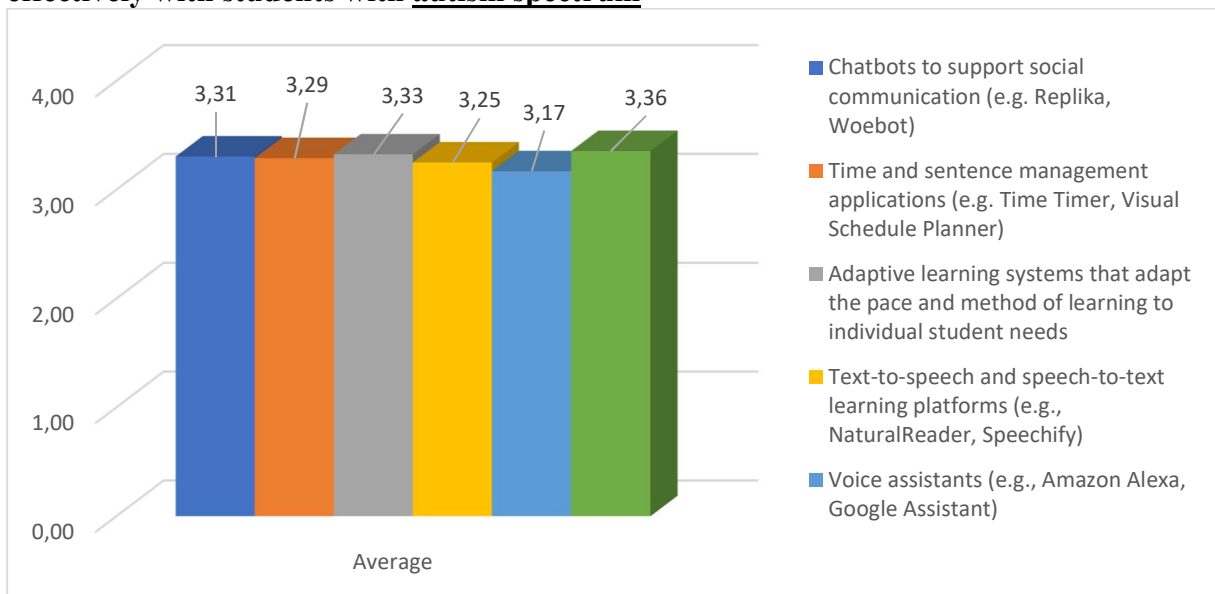


Table 26 shows these data disaggregated by country. The highest averages are found in Spain (all items are between 3.2 and 3.5 points) and the lowest in Poland (between 3.1 and 3.2). Regarding the most notable items, in Poland, item 6. *Tools for creating visual aids* is highlighted (3.2). In Lithuania, the highest score corresponds to the same item, with an average of 3.5 points. In Germany, two items stand out with the same score (3.4): item 3 (*Adaptive learning systems that adapt the pace and method of learning to individual student needs*) and item 4 (*Text-to-speech and speech-to-text learning platforms*). Regarding Spain, the most notable item, with an average of 3.5 points, is item 1. *Chatbots to support social communication*.

Tab. 26. AI-based tools respondents would you like to learn more about to work more effectively with students with autism spectrum disaggregated by country

No.	AI-based tools	POLAND	LITHUANIA	GERMANY	SPAIN
		Me	Me	Me	Me
1.	Chatbots to support social communication (e.g. Replika, Woebot)	3,1	3,3	3,32	3,5

2.	Time and sentence management applications (e.g. Time Timer, Visual Schedule Planner)	3,1	3,3	3,36	3,4
3.	Adaptive learning systems that adapt the pace and method of learning to individual student needs	3,1	3,4	3,40	3,4
4.	Text-to-speech and speech-to-text learning platforms (e.g., NaturalReader, Speechify)	3,1	3,1	3,40	3,4
5.	Voice assistants (e.g., Amazon Alexa, Google Assistant)	3,1	3,3	3,08	3,2
6.	Tools for creating visual aids (e.g., Canva with AI)	3,2	3,5	3,32	3,4

Finally, if we look at the data disaggregated by country and cumulative frequency, Poland still maintains a percentage of teachers not interested in training in this area (12% to 14%). In the same country there is a cumulative frequency with a value of 4 points range between 52% and 56% across all items. Regarding Lithuania, the interest of its teachers in training in AI-based tools to attend students on the autism spectrum is confirmed. Although the highest percentages are found in score 3 (between 45% and 51%), their sum with the cumulative frequencies with a value of 4 highlights this fact. If we consider both cumulative frequencies (cumulative percentage of 92.2%), the highest-rated item is item 5. *Voice assistants*. In Germany, most of the highest-scoring cumulative frequencies are found at 4. The highest-scoring item is 3. *Adaptive learning systems that adapt the pace and method of learning to individual student needs*, and 4. *Text-to-speech and speech-to-text learning platforms*, with the same percentage (52%). Finally, in Spain, we find that all the highest-scoring cumulative frequencies are found at 4. The highest-scoring item is 1. *Chatbots to support social communication*.

Tab. 27. AI-based tools respondents would you like to learn more about to work more effectively with students with autism spectrum disaggregated by country (%) and cumulative frequency

No.	AI-based tools	POLAND				LITHUANIA				GERMANY				SPAIN			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	Chatbots to support social communication (e.g. Replika, Woebot)	14,0	18,0	12,0	56,0	0,0	13,7	45,1	41,2	2,0	12,0	38,0	48,0	3,9	5,9	29,4	60,8
2.	Time and sentence management applications (e.g. Time Timer, Visual Schedule Planner)	14,0	18,0	16,0	52,0	2,0	9,8	49,0	39,2	2,0	8,0	42,0	48,0	3,9	5,9	33,3	56,9
3.	Adaptive learning systems that adapt the pace and method of learning to individual student needs	12,0	16,0	20,0	52,0	0,0	7,8	49,0	43,1	2,0	8,0	38,0	52,0	3,9	5,9	41,2	49,0
4.	Text-to-speech and speech-to-text learning platforms (e.g., NaturalReader, Speechify)	12,0	16,0	20,0	52,0	0,0	21,6	49,0	29,4	2,0	8,0	38,0	52,0	3,9	9,8	33,3	52,9

5.	Voice assistants (e.g., Amazon Alexa, Google Assistant)	12,0	18,0	16,0	54,0	2,0	5,9	51,0	41,2	6,0	16,0	42,0	36,0	3,9	17,6	31,4	47,1
6.	Tools for creating visual aids (e.g., Canva with AI)	12,0	12,0	20,	56,0	0,0	2,0	7,1	51,0	2,0	12,0	38,0	48,0	3,9	7,8	35,3	52,9

The main conclusions drawn from this analysis are the following:

- Regarding the general analysis of teachers' skills in using AI-based tools, a low level of teachers' competence in using AI-based tools with students with disabilities was identified.
- The highest level of teachers' competence relates to skills connected to traditional online teaching methodologies (remote communication platforms with AI features and meeting scheduling applications).
- At least a third part of respondents in all countries rate their skills as high in relation to the use of chatbots.
- If we analyze the data on the level of AI-based tools by country and according to respondents disaggregated by country, Lithuania has the lowest scores, followed by Spain, Poland, and Germany.

The second part of this study focused on teachers' interest in learning AI-based tools to attend students with disabilities. The most relevant data extracted are:

- The overall average for all items is above 3 points that confirmed teachers' interest in learning all AI-based tools related to the four disabilities studied.
- The data extracted from the participating teachers in Poland shows a significant dispersion of answers. Between 12% and 18% are not at all interested in the proposed learning. However, a percentage over 50% indicates a score of 4 points on all items. This balances confirms the interest of Lithuanian teachers in this topic.
- The overall data show that the most notable interest in relation to **mobility disabilities** is in learning Chatbots. Based on the cumulative frequencies by country, the AI-based tools that most attract teachers' attention in connection with mobility disabilities are: *Speech recognition software* (Poland), *Chatbots* (Lithuania and Spain), *Learning platforms with AI features* (Germany).
- Related to **sensorial disabilities**, the item with the highest score in general was *Systems to automatically translate sign language into text or vice versa*. If we analyze the data by country, in Lithuania the highest percentage corresponds to learning *Chatbots*. In

Spain, item 9 also obtained the same score as item 4, indicating that learning *Applications for text-to-speech translation and vice versa* is also notable.

- Regarding **sensorial disabilities**, and based on the data by country and percentage, the most notable AI-based tools are: *Chatbots* (Lithuania), *Systems to automatically translate sign language into text or vice versa* (Poland, Germany, and Spain), *Platforms with real-time transcription and translation* (Lithuania), and *Applications for text-to-speech translation and vice versa* (Spain). These last items are consistent in percentage terms with other items.
- Regarding **mental disabilities**, it is confirmed that, based on the overall average, all AI-based tools are relevant. Looking at the data disaggregated by country, the most relevant AI-based tools are: **Platforms with adaptive learning** (Lithuania and Spain), *Therapy chatbots* (Germany), and *Time and task management applications* (Germany).
- Looking at the data disaggregated by country and cumulative frequencies related to **mental disabilities**, the items most highly regarded by teachers are: *Therapy chatbots* (Poland, Germany, Spain), *Platforms with adaptive learning* (Poland, Lithuania, Spain), *Time and task management applications* (Germany), and *Applications to support daily routines* (Spain).
- Regarding the AI-based tools aimed attend students with **autism spectrum disorder**, all tools were positively rated by teachers. If we look at the data disaggregated by country, the best-rated tools are the following: *Chatbots to support social communication* (Spain), *Adaptive learning systems that adapt the pace and method of learning to individual student needs* (Germany), *Text-to-speech and speech-to-text learning platforms* (Germany) and *Tools for creating visual aids* (Poland and Lithuania).

3.4 Good Practices in the education of students with disabilities

As part of Compendium on inclusive education, the project coordinator (UPJP2) developed also a standardised interview template aimed at studying institutional practices and support mechanisms for students with disabilities at partner universities. Interviews were conducted with two staff members from each of the four participating universities responsible for student support services, particularly those related to inclusive education. The aim of the interviews was not to compare countries or institutions, but to gather diverse experiences and identify common challenges and good practices in supporting students with different types of disabilities. The responses provided by Florida Centre de Formació, Coop. V. (FLORIDA)

differ in format from those of the other project partners. Their input was collected through more conversational, semi-structured interviews. Consequently, their answers do not directly correspond to each question in the template. Rather than integrating their responses into analyses of individual questions, we have provided a thematic synthesis of their contributions, grouped under broader categories. This approach ensures that their insights are meaningfully included while respecting the nature of the data collection process.

This analysis aims to identify ideas that can be used in the development of a collection of good practices, as well as to inform future activities and improvements within the INEDU project.

By combining the responses of our partners, we aim to map existing procedures, understand common obstacles and identify effective solutions. This will enable us to formulate more informed and practical recommendations in the subsequent phases of the project.

3.4.1 Procedures

1. Procedures for handling a student's disability declaration

At all universities, the procedure for handling a student's declaration of a disability is based on a personalised, confidential and supportive approach. Students are encouraged to proactively contact the relevant support office, whether that is BECKS in Bayreuth, BON in Kraków, or the social welfare team at KTU. There, they can receive individual consultations. During these meetings, students can disclose their needs, provide relevant documentation (such as disability certificates or medical/psychological reports) and discuss any challenges they are facing in their studies. Based on this information, a personalised support plan is created which may include adjustments to exams and learning materials, the use of assistive technology or personal assistance.

Although the procedural details differ slightly between institutions, all emphasise discretion, data protection and collaboration with students to ensure their support is meaningful and tailored to their situation. There is also a shared understanding that not all students possess official disability documentation, and alternative forms of proof may be accepted in such cases to enable access to support. These practices demonstrate a student-centred, rights-based approach that enables full participation in academic life.

2. Adaptation of classes and exams to meet the needs of students with disabilities

Participating universities demonstrate a shared understanding that adapting classes and exams to the needs of disabled students is a key element of inclusive education. In all

institutions, adaptations are implemented based on the individual needs of students and formal documentation. Decisions are made through close consultation between students, disability support offices and academic staff.

Common measures include adjustments to exam conditions, such as extra time, alternative formats (e.g. oral instead of written), rest breaks and assistive technology. In some cases, students may access adapted materials or receive academic support, such as assistance with taking notes. Flexibility in attendance and teaching methods is also part of the support toolkit when needed.

The process usually begins with a confidential consultation, during which students provide relevant medical or psychological documentation. Support staff then help them prepare formal requests for adjustments based on this information. Proper communication between disability services and teaching staff is emphasised across institutions to ensure that agreed adaptations are understood and implemented consistently. Some universities provide technological equipment or software through lending services or support lecturers in adapting teaching materials. Others describe accessibility in physical infrastructure and digital content as part of the adaptation process. While implementation details may differ, all universities ultimately strive to create study conditions that reflect the principles of fairness, personalisation, and legal compliance. These practices demonstrate an increasing awareness of students' diverse needs, although further improvements in staff training and procedural clarity are still required.

3. Specific services to assist students with disabilities and their accessibility

All universities prioritise the following:

- providing individualised, confidential consultations and needs assessments;
- legal and administrative support, such as Nachteilsausgleich or bespoke adjustments;
- access to material and infrastructure, including assistive technologies and adaptable learning environments;
- personalised support plans and ongoing monitoring.

Services are usually arranged through a support office or coordinator. Students initiate contact and receive structured follow-up.

At the University of Bayreuth, support is primarily coordinated through the BECKS office, which is a central point of contact offering confidential, impartial and free guidance. Key services include:

- Individual consultations to assess student needs (both on-site and online);
- assistance with Nachteilsausgleich applications (exam and coursework accommodations);
- support for physical and digital accessibility, including building access and assistive technologies.
- help with study planning, time management, and liaising with teaching staff.
- A barrier-reporting tool (the 'Barriere-Melder') for flagging campus accessibility issues.
- Advice on external funding for disability-related expenses.
- Internal coordination with departments such as the Examination Office, IT Services and General Disability Services.
- Referrals to psychological counselling, social support or external agencies when needed.

Students can access these services by emailing or calling BECKS, attending open hours or visiting the BECKS website (<https://www.becks.uni-bayreuth.de/en/index.html>). The Diversity Service Centre (<https://www.diversity.uni-bayreuth.de/en/advice-consulting/index.html>) complements these services with structural initiatives such as the Inclusion Action Plan, which promotes long-term campus accessibility.

The Interdisciplinary Counselling Centre (BON, <https://bon.upjp2.edu.pl/interdyscyplinarne-centrum-poradnictwa/interdyscyplinarne-centrum-poradnictwa-upjpii-1.html>) at the Pontifical University of John Paul II in Kraków (UPJP2) provides support. Students with disabilities or chronic illnesses can receive assistance in the following ways:

- personal assessments;
- guidance on support options.
- help with financial grants or scholarships based on certified disability documentation;
- preparation of individual 'Recommendations for Instructors' to ensure accessible lectures and exams.

Access to assistive technology, such as screen readers or note-taking devices.

- Provision of tutor support, including note-taking services.
- Assistance in reorganising study schedules and adapting materials as needed.

Details are available on their BON support page.

At Kaunas University of Technology (KTU), a holistic support model provides comprehensive assistance in a variety of areas.

- Accessible lecture environments, including building lifts and adapted classrooms
- Distribution of study materials
- Implementation of adapted assessment methods
- Provision of customisable exam formats
- Quiet or specialised learning spaces in libraries

An integrated support framework is in place, covering academic advising, psychological counselling, assistive technology, accessible housing, financial aid and administrative guidance.

All services are provided confidentially and in compliance with data protection standards. The process begins with an adaptation request through the university system, followed by a review of the documentation and a consultation with the welfare coordinator to develop a personalised support plan.

4. Other information and additional procedures

Additional procedures at all universities emphasise a proactive and holistic approach to supporting disabled students. Key offices oversee formal accommodations and play an active role in fostering inclusive environments.

At the University of Bayreuth, the BECKS office collaborates closely with the Diversity Service Centre to strengthen procedural support. This collaboration encompasses structured advisory services, regular consultations, staff training in inclusive education and legal standards, and a systematic process for identifying and addressing barriers. Feedback from these services informs the university's broader Inclusion Action Plan, ensuring that accessibility becomes embedded in institutional practices rather than being treated as isolated interventions. Students are encouraged to seek support early, even before specific challenges arise.

At the Pontifical University of John Paul II, the Support Centre facilitates communication between students and academic staff regarding individual adjustments. The centre also organises training and provides faculty with resources, thereby building capacity for inclusive teaching and helping to implement student-specific recommendations effectively.

Kaunas University of Technology complements its academic accommodations with integrated psychological support. Free counselling services are available to all students, including those with diagnosed mental health conditions, and those experiencing stress, anxiety, or other emotional issues that affect their studies. This commitment to supporting well-being as an integral part of academic success is evident.

Overall, these examples illustrate a shift from reactive to preventive support models, with the aim of addressing individual challenges and promoting systemic inclusivity.

Insights from Florida Centre de Formació, Coop. V. (FLORIDA)- Procedures

FLORIDA takes a flexible and personalised approach to supporting students with disabilities, based on a firm institutional commitment to inclusion. Rather than rigidly formalised procedures for handling disability declarations, the focus is on establishing open, trust-based communication between students and the university's inclusion staff. Students are encouraged to voluntarily disclose their needs, after which an individualised process begins, usually involving collaboration between the inclusion coordinator, academic staff and other relevant departments.

Adaptations for classes and exams are arranged on a case-by-case basis to ensure that students receive the most suitable accommodations for their individual situations. These may include adjustments to assessment formats, flexible deadlines or the provision of assistive technologies and support staff. The inclusion staff play an active role in liaising between students and professors to ensure that needs are understood and met appropriately.

The university offers a range of support services coordinated through its Inclusion Office, which serves as a central point of contact for students with disabilities. Although there is no mention of a formal digital barrier-reporting platform or complex bureaucratic procedures, the strength of the system at FLORIDA lies in its proactive, human-centred approach. Staff regularly engage with students and faculty to raise awareness, solve problems collaboratively and ensure the continuous improvement of inclusive practices. This dynamic, needs-responsive model reflects the university's broader culture of flexibility and student-centredness.

3.4.2. Knowledge of Academic Teachers and Administrative Staff

1. Respondents' perception about the level of academic teachers' knowledge and attitudes toward barriers and educational needs of students with disabilities

Analysis of the participating universities reveals a consistent pattern: while academic staff generally demonstrate openness and a positive attitude towards supporting students with disabilities, their knowledge and practical preparedness remains uneven. While some faculty members are confident in their ability to provide necessary adjustments, many still lack specific training on the challenges students face and how to implement inclusive teaching strategies effectively.

Universities are responding to this disparity by launching various initiatives. For example, some have conducted surveys to assess awareness levels and identify training requirements. Others already offer individual consultations or organise regular training sessions to develop staff competencies. These efforts are often embedded in broader institutional frameworks or action plans aimed at implementing the principles of the UN Convention on the Rights of Persons with Disabilities.

While the intention to provide support is clearly present among teaching staff, there is a shared understanding across institutions that systematic, structured training and clearer procedural guidance are crucial in order to move from goodwill to effective, informed action.

2. Respondents' perception about the level of administrative staff's knowledge and attitudes toward barriers and educational needs of students with disabilities

Across the surveyed universities, administrative staff are generally perceived as open and willing to assist students with disabilities. However, their levels of knowledge and preparedness differ significantly. While some are well-versed in institutional procedures and inclusive practices, others rely primarily on personal experience, which may not suffice for addressing the complex needs of disabled students.

A common issue is the lack of formal training for administrative staff. This results in inconsistencies in the support provided, with some students facing difficulties with processes such as course registration, documentation or accessing services. To mitigate these issues, universities have begun offering individual consultations and training opportunities, although participation, particularly among academic staff, can be limited.

Institutions recognise the need to enhance administrative staff competencies through structured training programmes and clearer internal communication. By addressing these gaps, universities aim to foster a more inclusive and responsive academic environment for all students.

4. Other information about academic teachers and administrative staff's knowledge

There is a shared understanding that academic and administrative staff require more structured, ongoing support in order to fully understand and address the needs of students with disabilities. While many staff members are willing to help, there is still a clear need for greater awareness, practical training and consistent access to inclusive practices.

Some universities have already initiated institutional projects, such as 'University Without Barriers', or broader inclusion strategies which aim to embed accessibility into academic culture. It is widely recognised that inclusive education should not rely solely on individual effort or experience, but must be reinforced through systemic measures such as training programmes, real-life case studies and open communication with students.

There is a consensus that the learning process for educators and staff must be continuous and supported at an institutional level to ensure that everyone has the necessary tools, knowledge and confidence to contribute to an inclusive academic environment.

Insights from Florida Centre de Formació, Coop. V. (FLORIDA) - Knowledge of Academic Teachers and Administrative Staff

Academic staff at FLORIDA are generally perceived as having limited knowledge of the educational barriers and needs of disabled students. This is not due to a lack of interest, but rather to them having less frequent exposure to students with disabilities than educators in earlier stages of education, such as primary education. Nevertheless, the attitudes are notably positive: the staff are described as open, willing to learn and committed to inclusivity. There is a growing curiosity and desire to support students with disabilities more effectively, suggesting a promising trajectory towards deeper engagement and understanding.

Administrative staff, particularly secretaries, are considered competent in handling procedural tasks related to disability documentation and support access. However, they have minimal direct engagement with students and their understanding of educational barriers may be limited. The interviews also highlight the need for more structured coordination between the administration and the guidance department to ensure that no student is overlooked.

Both interviewees emphasise the necessity of training and awareness-raising initiatives to improve practical knowledge across all staff roles. They also suggest the potential for more inclusive communication practices and better internal networking to create a more supportive environment for all students with functional diversity.

3.4.3 Support

1. Forms of support for students with physical disabilities are recommended at respondents' universities

All partner universities provide students with physical disabilities with access to a range of support measures aimed at ensuring their equal participation in academic life. This support usually includes adapting the physical infrastructure, providing individual academic accommodations and giving access to assistive technologies.

Universities provide barrier-free buildings with accessible entrances, lifts, and adapted toilets. At the University of Bayreuth, for example, campus maps are regularly updated to reflect accessible routes, and students can report obstacles using online tools. Similar efforts can be seen at other institutions, where infrastructure adaptations are complemented by personalised mobility planning and support during orientation periods.

Academic adjustments are another key form of support. These include extra time during exams, alternative formats (e.g. oral exams) and the use of assistive devices. Students can access specialised software, workplace adaptations and note-taking services, for example.

In addition, psychological support, academic counselling and communication workshops are provided to address broader issues affecting student well-being. Special support services, such as BECKS in Bayreuth and BON in Krakow, ensure that each student's needs are met comprehensively and confidentially. These services also play an important role in liaising with academic departments to implement the necessary changes effectively.

2. Forms of support for students with sensory disabilities recommended at respondents' universities

Students with sensory disabilities, such as visual or hearing impairments, are supported across partner universities through a combination of technological tools, adapted teaching materials, personalised academic adjustments and communication assistance.

A common and crucial element of this support is the use of assistive technologies. These include screen readers, magnification tools such as SuperNova and Topaz XL, Braille displays and speech-to-text software. Universities often provide access to this software in libraries and designated study areas. Such technologies enable students to access digital content more independently and flexibly.

Teaching materials are regularly adapted to meet sensory needs. This includes providing enlarged print, digital versions of documents, audio formats or Braille, depending on individual needs. Instructors are encouraged to provide course content in accessible formats early on to support student preparation.

Lecture and exam accommodations are also important. Students may receive extra time, alternative exam formats (such as oral or electronic exams) and the option to take exams in a separate, quiet space. Personal support, such as academic assistants, mobility guides or notetakers, is often available.

For students with hearing impairments, sign language interpretation (e.g. German or Polish Sign Language), communication support assistants and access to captioned video content or transcripts are standard practices in several institutions. Written communication with lecturers and extra time for assessments to allow for the processing of alternative formats is also recommended.

These supports are usually coordinated and implemented by dedicated university offices, such as BECKS in Bayreuth and BON in Krakow. These offices ensure that adjustments are tailored and documented, and communicated effectively to teaching staff. Additional psychological support is also available as part of a holistic approach to inclusion.

3. Forms of support for students with mental health disabilities recommended at respondents' universities

Partner universities offer a diverse range of support services for students with mental health conditions, reflecting a growing awareness of the impact of psychological well-being on academic performance. These services aim to foster a low-stress, inclusive academic environment, providing practical, emotional and structural support.

A central component of this support is personalised psychological counselling. Universities such as Kaunas University of Technology provide free one-to-one sessions with professional psychologists to address issues such as stress, anxiety, mood disorders and study-related challenges. These consultations can often be scheduled flexibly, including online appointments, to accommodate students' needs. Similar support systems are present in other institutions and sometimes include referrals to external crisis services.

Academic accommodations are also widely implemented. These include extended exam time, breaks during assessments and the option of alternative exam formats, such as oral or written. More flexible course schedules are also available. At the University of Bayreuth, such arrangements are organised through *Nachteilsausgleich* (compensation for disadvantages) and require supporting documentation. Planning tools, such as personalised study schedules or reduced course loads, are also available to help students manage academic pressure.

Psychosocial and emotional support is enhanced through consultations with disability advisors or coordinators, which are easily accessible. These advisors help students

communicate their needs to lecturers and plan their academic paths. In some cases, spiritual support services or chaplaincies can also contribute to emotional well-being.

Importantly, efforts are being made to raise awareness of mental health issues and reduce the associated stigma. Universities are offering training to academic staff to improve their understanding of, and competence in working with, students affected by mental health conditions. This holistic approach combines therapeutic, administrative and academic measures to promote resilience and inclusion throughout the student experience.

4. Forms of support for students on the autism spectrum recommended at respondent's universities

Universities recognise the unique challenges faced by students on the autism spectrum, and have developed multifaceted support systems to address their academic, sensory and emotional needs. These services aim to create predictable, structured and low-stress learning environments that promote inclusion and academic success.

A key feature across institutions is the development of personalised support plans, which are often initiated through personal consultations with dedicated offices such as BECKS in Bayreuth or disability coordinators in Kaunas and Krakow. These sessions assess students' needs and form the basis for tailored adaptations, such as extended exam time, alternative assessment formats, quiet rooms and modified participation expectations.

Clear and consistent communication is emphasised as a critical support. Staff are encouraged to use clear, structured instructions, both orally and in writing. Some universities provide instructors with training on how to interact effectively with autistic students and accommodate their processing styles. Kaunas University of Technology, for instance, offers psychologist-led guidance on communication techniques and emotional regulation.

Sensory sensitivity is also addressed through physical adaptations, such as providing access to low-stimulation environments for study or exams and assistive technology. Universities such as Bayreuth and Krakow offer flexible scheduling, personalised academic planning and support in developing executive functioning skills, such as time management and task organisation.

Additionally, psychosocial and peer-based support is available. These include counselling, mentoring, social skills training and workshops aimed at improving communication and coping strategies. Support staff often mediate between students and faculty to ensure a smooth transition to academic life and resolve any issues collaboratively.

Overall, these approaches emphasise a collective dedication to supporting and understanding neurodiverse students by providing personalised, respectful and inclusive strategies based on open communication and interdepartmental collaboration.

Insights from Florida Centre de Formació, Coop. V. (FLORIDA) – Support

FLORIDA takes a student-centred approach to providing support for students with disabilities, focusing heavily on individualisation and case-by-case adjustments. For students with physical or sensory disabilities, the institution aims to identify needs as early as possible, often during the pre-enrolment stage or as soon as a disability is declared, and implement logistical, material and infrastructural adaptations accordingly. These can include accessible physical spaces, assistive devices and adapted materials; however, the specific adaptations implemented depend on the individual student's situation.

In cases involving mental health conditions or autism spectrum disorders, the emphasis is placed on emotional well-being, structured routines and communication strategies. The university offers psychological support and flexible academic arrangements, such as extended deadlines or modified exam conditions, as required. Academic staff are encouraged to communicate clearly and directly and to foster a low-stress environment, which is particularly beneficial for neurodivergent students.

The guidance department plays a pivotal role in coordinating these support services, acting as a liaison between students, teachers, and administrative units. While formalised protocols may be less prevalent than in larger institutions, FLORIDA relies on its close-knit academic environment to provide personalised, responsive support.

3.4.4 Best Practices

1. Non-governmental organizations or other institutions does the respondents' universities cooperate with to provide better support for students with disabilities

Partner universities collaborate actively with a variety of non-governmental organisations and public institutions to improve the quality and range of support available to students with disabilities. These partnerships cover areas such as academic inclusion, accessibility, mental health, mobility and legal advocacy, helping to develop comprehensive, integrated support systems.

The University of Bayreuth, for example, collaborates closely with national advisory bodies such as the IBS (Informations- und Beratungsstelle Studium und Behinderung) and the BAG (Bundesarbeitsgemeinschaft Studium und Behinderung), which offer valuable insights

into inclusive education. Specialised organisations such as the BHSA and Deutscher Verein der Blinden- und Sehbehinderten in Studium und Beruf e.V. play a key role in supporting students with sensory impairments by providing them with bespoke resources and advocacy services. The University of Bayreuth also refers students to job platforms such as myhandicap.de and talentplus.de, as well as to international inclusion initiatives like Study Abroad Without Limits (SAWL).

The Pontifical University of John Paul II in Krakow collaborates with national and local NGOs, including the Foundation for the Integration of the Disabled (FIRR), the Bonifraters Charity Foundation, the Br. Albert Foundation and the Polish Association of the Deaf. Additionally, through the Agreement of Disability Support Offices of Krakow Universities, the university benefits from shared regional resources and initiatives, including cooperation with the State Fund for the Rehabilitation of the Disabled (PFRON) and accessibility testing centres.

Kaunas University of Technology highlights its collaboration with the State Studies Foundation, utilising funding and project-based cooperation through Erasmus+ to support students during international mobility. The university also engages with local special-needs institutions in Kaunas to enhance the practical aspects of inclusive education and infrastructure development.

These examples demonstrate how universities are actively establishing robust external networks to support their disability inclusion objectives. By collaborating with national authorities, advocacy groups, health services and international programmes, they can offer students a broader range of specialised, holistic support services.

2.Actions taken to increase awareness among academic staff and administrative personnel regarding the identification and fulfillment of the needs of students with disabilities

Universities are increasingly taking proactive steps to raise awareness among academic and administrative staff of the needs of students with disabilities and how to fulfil them. Key approaches include regular training programmes, practical consultations and integrating inclusive practices into institutional development strategies.

At the University of Bayreuth, for example, the Diversity Service Centre offers a comprehensive range of training and coaching initiatives. These include diversity and anti-bias workshops, mandatory sessions for new professors and personalised coaching focused on leadership and inclusion. These programmes emphasise not only legal and ethical standards, such as the General Equal Treatment Act, but also practical strategies for fostering inclusive academic environments. The BECKS office complements these initiatives by providing

accessible materials, direct consultations, and informal guidance tailored to day-to-day teaching and administrative tasks.

The Pontifical University of John Paul II in Krakow combines structured training with community-focused initiatives, such as the Kraków Integration Days, which aim to promote awareness and solidarity throughout the university. Staff can attend workshops, consult disability experts from the Office for Students with Disabilities (BON) and receive personalised support in adapting their teaching and communication methods. There is also an emphasis on accessible teaching materials and the use of assistive technologies, supported by training and ongoing technical guidance.

Kaunas University of Technology reinforces professional development through in-house seminars, one-to-one consultations with social and psychological support staff, and participation in EU mobility projects and international collaboration weeks. These initiatives expose university personnel to global best practices and expand their capacity to implement inclusive measures locally.

Through a combination of formal training, open dialogue and international collaboration, universities aim to support all students effectively throughout their academic journey, regardless of their abilities.

3. Innovative solutions (e.g., technological, organizational, curricular or methodological) implemented at respondents' universities to improve support for students with disabilities

A diverse set of innovative solutions spanning technological, organisational and pedagogical spheres has been implemented across the participating universities to enhance support for students with disabilities.

In terms of technology, institutions have invested in specialised assistive tools. For example, the Kaunas University of Technology introduced SuperNova screen magnifiers and Topaz XL visual aid stations in its libraries, as well as Bellman audio systems to support hearing. Similarly, the University of Bayreuth supports students with speech-to-text and screen reader technologies and provides inclusive navigation via digital campus accessibility maps. One notable Bayreuth initiative is the 'Barriere-Melder' - a digital barrier reporting platform that allows students to report physical obstacles in real time.

In terms of organisation, universities are increasingly embracing comprehensive support systems. Bayreuth's BECKS office coordinates personalised support and exam adjustments, and the Pontifical University of John Paul II in Krakow has expanded the scope of its disability support office to encompass temporary and psychological conditions. This organisational shift ensures a more holistic approach to academic accessibility.

In terms of methodology and curriculum, innovations include flexible assessment options, such as distraction-free exam rooms and alternative formats, as well as training programmes for staff on inclusive teaching. KTU, for example, is experimenting with virtual reality tools to improve accessibility in technical education.

Essentially, universities are moving beyond standard accommodations towards systemic innovations that embed accessibility into infrastructure, pedagogy and institutional culture. These initiatives remove barriers and foster a more inclusive academic environment for all students.

Insights from Florida Centre de Formació, Coop. V. (FLORIDA) - Best Practices

FLORIDA has active collaborations with local institutions and municipal services, particularly with regard to psychological and therapeutic support. Although there is no formalised network of non-governmental organisations, the university relies on public health and social services to supplement its own efforts when necessary.

In order to foster a more inclusive environment, the university emphasises the importance of raising awareness among academic and administrative staff in an informal but consistent manner. This is facilitated through ongoing dialogue and support from the guidance department rather than formal training programmes. The relatively small size of the institution enables this hands-on, relational approach to function effectively, ensuring that support strategies are tailored to, and integrated into, the day-to-day academic workflow.

In terms of innovation, while FLORIDA has not yet adopted high-tech solutions such as AI-driven tools or advanced assistive technologies, it compensates for this with a strong focus on adaptability and communication. Staff members are encouraged to develop personalised learning strategies for students and to apply inclusive teaching methodologies based on practical needs. This pragmatic, student-centred approach allows for methodological flexibility and a rapid response to emerging challenges.

3.4.5 AI-Based Tools

1. AI-based tools currently used at respondents' universities to support students with disabilities

Although most participating universities are still in the early stages of systematically integrating AI to support students with disabilities, several useful tools and pilot initiatives have already been implemented.

AI-based functionalities embedded in everyday platforms are commonly being leveraged informally. Automatic captioning in Zoom and Microsoft Teams, for example, is frequently cited as a practical tool for supporting students with hearing impairments or attention difficulties. Text-to-speech and speech-to-text applications also benefit students with visual impairments or learning difficulties such as dyslexia. Students can use these tools at their discretion, with guidance from support offices such as BECKS in Bayreuth.

Kaunas University of Technology is actively engaged in AI-focused projects. Through initiatives such as INEDU, WAI and INCAI, the university is exploring how AI can be used to deliver staff training, create adaptive educational modules and develop personal assistants to help manage student well-being and anxiety. These projects demonstrate a forward-thinking approach to integrating AI into inclusive educational practices.

While no institution currently has a fully centralised AI support system for students with disabilities, existing applications and exploratory projects demonstrate a growing interest in, and potential for, future integration.

2. Level of knowledge and skills among academic teachers and administrative staff regarding AI-based tools in the education of students with disabilities

The level of knowledge and practical skills regarding AI-based tools for supporting disabled students is generally low across the participating universities. While there is growing openness and interest in areas such as transcription, assistive communication tools and adaptive learning platforms, most academic and administrative staff still lack the formal training and hands-on experience needed to use these technologies effectively in inclusive education.

Some institutions, such as Kaunas University of Technology, are addressing this issue by participating in EU-funded projects, which are raising awareness and building basic competencies. However, even there, practical implementation is still in its infancy. Internal surveys at other universities confirm that, while staff recognise the potential of AI, they remain unfamiliar with specific tools and how to meaningfully integrate them into support strategies.

Overall, there is a shared recognition of the need for structured, practical training and ongoing professional development to ensure that AI can be used with confidence and effectively to enhance educational inclusion.

3. Using chatbots or virtual assistants to support students with disabilities

Currently, the use of chatbots and virtual assistants to support disabled students is limited across the surveyed universities. While some institutions, such as the University of Bayreuth and the Kaunas University of Technology, are experimenting with these technologies, they are

mostly being deployed for general student services and are not specifically adapted for accessibility or the needs of disabled students.

However, there is a shared recognition of the potential that these tools hold. Staff at several universities, including Bayreuth, have expressed a growing interest in exploring AI-driven solutions such as ChatGPT and IBM Watson Assistant, particularly to improve communication and reduce information barriers. Projects such as ASSISTANT at KTU are early examples of institutional efforts to integrate such technologies, though they are not yet widely used for inclusive purposes.

Overall, although adoption is still in its early stages, many universities are considering these tools as part of their future strategies to enhance accessibility and student support.

4. Universities plans for further development and use of AI in the context of supporting students with disabilities

Although most are currently only at an early stage of implementing such solutions, all participating universities recognise the significant potential of artificial intelligence to improve the inclusiveness and effectiveness of support for students with special educational needs. There is a common challenge in the need for personalised learning, automatic accessibility tools (e.g. transcription and subtitling), and the adaptation of learning materials using AI.

While AI usage remains limited today, universities have clearly expressed their intention to explore and implement AI-based tools responsibly, and INEDU will be instrumental in shaping their future efforts in this area.

The project results are expected to lay the groundwork for the sustainable development of inclusive AI-based practices in higher education.

Insights from Florida Centre de Formació, Coop. V. (FLORIDA) - AI-Based Tools

Currently, FLORIDA does not use any AI-based tools dedicated to supporting students with disabilities, nor does it operate chatbots or virtual assistants for this purpose. Integrating AI technologies into inclusive education remains unexplored within the institution's existing framework.

The level of knowledge and familiarity with AI among academic and administrative staff is low. While there is general curiosity about AI, respondents noted that practical knowledge or skills related to implementing AI in inclusive education are minimal. There is currently no evidence of structured training or strategic planning in this area.

However, participation in the Artificial Intelligence-Based Inclusive Higher Education (INEDU) project represents a new beginning. Through this initiative, the university recognises

a valuable opportunity to begin building internal capacity, exploring relevant tools and raising institutional awareness of how AI can contribute to more accessible and personalised learning environments. The project is expected to play a significant role in future development in this area.

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Annex

Survey Questionnaire on the Functioning of Students with Disabilities in the Academic Environment

We kindly request your participation in completing this questionnaire, which focuses on the functioning of students with disabilities in the academic environment. Your responses will provide valuable insights into this important area.

Thank you for your time and cooperation.

I. Knowledge of the educational needs of students with disabilities

1. What is your level of knowledge regarding the educational needs of students with the following disabilities?

Please rate on a scale from 5 to 1, where 5 means "very high" and 1 means "very low."

No.	Type of Disability	5	4	3	2	1
1.	Motor Disability					
2.	Sensory Disability					
3.	Mental Disorders					
4.	Autism Spectrum					

2. How often do students with disabilities experience the following difficulties?

Please rate on a scale from 5 to 1, where 5 means "very high" and 1 means "very low."

No.	Difficulties	5	4	3	2	1	
1.	Technological difficulties	Lack of specialized software.					
		Lack of access to AI-based tools.					
		Lack of access to specialized equipment.					
		Lack of access to modern technologies.					
2.	Organizational Difficulties	Inadequate adaptation of educational materials to the needs and abilities of students with disabilities.					
		Lack of flexibility in assessment methods.					
		Lack of individualization in the learning process.					
3.	Social and Psychological Difficulties	Stereotypes and prejudices from peers and lecturers.					
		Social isolation.					
		Lack of adequate emotional and psychological support.					
		Anxiety about public evaluation/feedback.					
		Difficulty coping with sudden and unexpected events and changes.					
		Difficulty establishing and maintaining peer relationships.					
4.	Difficulties in Accessing Support	Insufficient psychological support at the university.					
		Lack of mentors, advisors, and assistants.					
		Insufficient information on available support options.					
		Lack of clear procedures regarding support for students with disabilities.					
		Failure of lecturers to follow guidelines on working with students with disabilities.					

3. How often do students with motor disabilities experience the following difficulties?

Please rate on a scale from 5 to 1, where 5 means "very high" and 1 means "very low."

No.	Difficulties		5	4	3	2	1
1.	Barriers in the architecture	Lack of ramps and elevators in university buildings, narrow doors and corridors, lack of adapted restrooms, etc.					
2.	Difficulties in accessing educational materials	Lack of adapted educational materials in digital format.					
		Lack of adaptation of materials for use by people with limited hand mobility.					

4. How often do students with sensory disabilities experience the following difficulties?

Please rate on a scale from 5 to 1, where 5 means "very high" and 1 means "very low."

No.	Difficulties		5	4	3	2	1
1.	Barriers in the architecture	Inadequate lighting and acoustics in lecture halls, lack of proper signage and solutions to facilitate movement in buildings, etc.					
2.	Difficulties in accessing educational materials	Lack of adapted educational materials (e.g., Braille texts, enlarged print, audio books).					
		Lack of sign language translation.					
		Lack of subtitles and transcriptions for video and audio materials, including audiodescription.					
3.	Environmental barriers	Hypersensitivity to sensory stimulation (i.e., noise, bright light, crowd, leading to sensory overload).					

5. How often do students with mental disorders experience the following difficulties.

Please rate on a scale from 5 to 1, where 5 means "very high" and 1 means "very low."

No.	Difficulties		5	4	3	2	1
1.	Communication difficulties	Difficulty in openly communicating needs due to fear of stigmatization.					
		Lack of knowledge of lecturers about the needs of people with mental disorders.					

2.	Emotional and psychological difficulties	Fear of evaluation/feedback and excessive stress during oral and written responses.					
		Problems with concentration and motivation to learn.					
		Mood swings that cause limitations on systematic study.					
3.	Environmental barriers	Inappropriate educational environment (e.g., too noisy or stressful).					

6. How often do students on the autism spectrum experience the difficulties listed below.

Please rate on a scale from 5 to 1, where 5 means "very high" and 1 means "very low."

No.	Difficulties	5	4	3	2	1	
1.	Communication difficulties	Difficulties in understanding non-verbal communication (facial expressions, gestures, tone of voice).					
		Problems understanding metaphors, idioms and abstract concepts.					
		Difficulties in expressing one's needs and emotions.					
2.	Didactic barriers	Lack of precise (step-by-step) instructions and commands to perform tasks.					
		Lack of precise (step-by-step) instructions and instructions in teaching materials..					
3.	Environmental barriers	Difficulty to focus in a stimulating environment (such as crowded lecture halls).					

II. Support of students with disabilities in academic and administrative fields

- 1. Are the following forms of support for people with disabilities available at your university?**

No.	Type of support/assistance		Yes	No	I don't know
1.	Technological support	Provision of specialized hardware and assistive software.			
		Access to AI-based tools.			
		Access to up-to-date technologies.			
2.	Adaptation of the teaching process	Ability to participate in online classes.			
		Adaptation of exam forms.			
		Ability to use online learning platforms.			
		Access to learning materials in digital format.			
3.	Social and psychological support	Access to an academic advisor and psychological counseling.			
		Assistance from mentors or tutors.			
		Promotion of an inclusive university environment.			
		Access to information on available forms of support.			
		Developed and accessible procedures for supporting students with disabilities.			
		Organizing disability awareness campaigns.			
		Conducting training for academics in identifying and responding to the needs of students with disabilities.			
4.	Administrative adjustment	Using new technologies and AI-based tools in the process of completion of paperwork (e.g., class registration, paper submission deadlines, or exam procedures).			
		Training administrative staff to identify and respond to the needs of students with disabilities.			

		Providing information on available support services and procedures at the university.			
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2. Are the following forms of technological support available at your university for people with motor disabilities?

No.	Type of support/assistance	Yes	No	I don't know
1.	Access to specialized hardware.			
	Access to specialized software (e.g. Dragon NaturallySpeaking / Windows Speech Recognition – Tobii Dynavox / OptiKey – Smart Nav / HeadMouse Nano – LipSync.)			

3. Are the following forms of support for people with sensory disabilities available at your university?

No.	Type of support/assistance	Yes	No	I don't know
1.	Providing assistive devices and software (i.e. Braille screens, screen readers, or text enlargers).			
	Providing subtitles and transcriptions for video, audio, and audiodescription materials.			
	Use of sign language interpreters during classes (e.g., MIGAM interpreter).			

4. Are the following forms of support for people with mental disabilities available at your university?

No.	Type of support/assistance	Yes	No	I don't know
1.	Providing quiet spaces at the university where students can relax or work in a friendly environment.			

	Facilitate access to relaxation rooms or relaxation areas equipped with equipment and programs designed to protect mental health.			
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5. Are the following forms of support for students on the autism spectrum available at your university?

No.	Type of support/assistance	Yes	No	I don't know
1.	Enabling the use of support software to help organize work and manage time.			
	Remote access to lectures and teaching materials, allowing students to study at their convenience.			

III. Skills level in using AI-based tools with students with disabilities

1. What is your skill level in using AI-based tools with students with disabilities?

Please rate on a scale from 5 to 1, where 5 means "very high" and 1 means "very low."

No.	AI-based tools	5	4	3	2	1
1.	Chatbots (e.g. Intercom, Ada)					
2.	Communication management systems (e.g. Salesforce Education Cloud)					
3.	Automated speech recognition systems (e.g. Otter,ai, Sonix)					
4.	AI-supported sign language interpreters (e.g., SignAll)					
5.	Emotion and needs analysis tools (e.g. Qualtrics, IBM Watson)					
6.	Predictive systems for scheduling support (e.g., Microsoft Azure AI, Google Cloud AI)					
7.	Document management applications with OCR features (e.g., ABBYY FineReader)					
8.	Virtual assistants (e.g., IBM Watson Assistant)					
9.	Remote communication platforms with AI features (e.g., Zoom with live transcription, Microsoft Teams)					

10.	Meeting scheduling applications (e.g., Calendly with AI)					
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2. What AI-based tools would you like to learn more about to work more effectively with students with mobility disabilities?

Please rate on a scale of 5 to 1, where 5 means “I would very much like to know” and 1 means “I would not like to know at all.”

No.	AI-based tools	5	4	3	2	1
1.	Chatbots (e.g Intercom, Ada)					
2.	Speech recognition software (e.g. Dragon NaturallySpeaking, Microsoft Dictate)					
3.	Voice assistants (e.g., Amazon Alexa, Google Assistant, Apple Siri)					
4.	Text prediction software (e.g., AI Writer, TextExpander)					
5.	Learning platforms with AI features (e.g., Microsoft Teams, Zoom with transcription and automatic summarization features)					
6.	Time and task management applications (e.g. Notion, Todoist with AI)					

3. What AI-based tools would you like to learn more about to work more effectively with students with sensory disabilities?

Please rate on a scale of 5 to 1, where 5 means “I would very much like to know” and 1 means “I would not like to know at all.”

No.	AI-based tools	5	4	3	2	1
1.	Chatbots (e.g., Intercom, Ada)					
2.	Screen readers for converting text to speech or braille (e.g., JAWS, NVDA)					
3.	Software for converting speech to text in real time (e.g., Google Live Transcribe, Otter.ai)					
4.	Systems to automatically translate sign language into text or vice versa (e.g. SignAll)					
5.	Platforms with real-time transcription and translation (e.g., Microsoft Teams, Zoom)					

6.	Zoom software (e.g., ZoomText)					
7.	Audiodescription applications (e.g., AI-powered Audioboom, VocalEyes)					
8.	AI-powered braille systems (e.g., Orbit Reader, Dot Watch)					
9.	Applications for text-to-speech translation and vice versa (e.g., ReadSpeaker, Text-to-Speech AI)					

4. What AI-based tools would you like to learn more about to work more effectively with students with mental disabilities?

Please rate on a scale of 5 to 1, where 5 means “I would very much like to know” and 1 means “I would not like to know at all.”

No.	AI-based tools	5	4	3	2	1
1.	Therapy chatbots (e.g. Woebot, Wysa)					
2.	Time and task management applications (e.g. Todoist with AI, Microsoft To Do)					
3.	Platforms with adaptive learning (e.g., Coursera with AI)					
4.	Tools for automatic note generation (e.g., Otter.ai, Sonix)					
5.	Applications to support daily routines (e.g., Fabulous, Habitica)					
6.	Online support systems with AI (e.g., Big White Wall, Togetherall)					

5. What AI-based tools would you like to learn more about to work more effectively with students on the autism spectrum?

Please rate on a scale of 5 to 1, where 5 means “I would very much like to know” and 1 means “I would not like to know at all.”

No.	AI-based tools	5	4	3	2	1
1.	Chatbots to support social communication (e.g. Replika, Woebot)					
2.	Time and sentence management applications (e.g. Time Timer, Visual Schedule Planner)					
3.	Adaptive learning systems that adapt the pace and method of learning to individual student needs					
4.	Text-to-speech and speech-to-text learning platforms (e.g., NaturalReader, Speechify)					
5.	Voice assistants (e.g., Amazon Alexa, Google Assistant)					
6.	Tools for creating visual aids (e.g., Canva with AI)					

Respondent information:

1. Gender:

Female Male

2. Age:

24-34 35-45 46-56 57-67

3. Work experience:

<5 years 5-15 years 16-26 years >27 years

4. Scientific field:

Social sciences Humanities Technical sciences Other

Interview

Procedures

1. What are the procedures for handling a student's disability declaration?
2. How are classes and exams adapted to meet the needs of students with disabilities?
3. What specific services does your university have to assist students with disabilities?
How do students access these services?
4. Would you like to add other information about procedures?

Knowledge of Academic Teachers and Administrative Staff

1. What is your perception about the level of academic teachers' knowledge and attitudes regarding barriers and educational needs of students with disabilities?
2. What is your perception about the level of administrative staff's knowledge and attitudes regarding barriers and educational needs of students with disabilities?
3. Would you like to add other information about academic teachers and administrative staff's knowledge about this issue?

Support

1. What forms of support for students with physical disabilities are recommended at your university?
2. What forms of support for students with sensory disabilities are recommended at your university?
3. What forms of support for students with mental health disabilities are recommended at your university?
4. What forms of support for students on the autism spectrum are recommended at your university?

Best Practices

1. Which non-governmental organizations or other institutions does the university cooperate with to provide better support for students with disabilities?

2. What actions are taken to increase awareness among academic staff and administrative personnel regarding the identification and fulfillment of the needs of students with disabilities?
3. What innovative solutions (e.g., technological, organizational, curricular or methodological) have been implemented at the university to improve support for students with disabilities?

AI-Based Tools

1. What AI-based tools are currently used at the university to support students with disabilities?
2. What is the level of knowledge and skills among academic teachers and administrative staff regarding AI-based tools in the education of students with disabilities?
3. Does the university use chatbots or virtual assistants to support students with disabilities?
4. What are university's plans for further development and use of AI in the context of supporting students with disabilities?