

# Students with Disabilities

## General Guidelines

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## FOREWORD

This handbook is one in a series of handbooks entitled *Students with Disabilities* created as part of the TEMPUS project Education for Equal Opportunities at Croatian Universities – EduQuality (Nr: 158757-TEMPUS-1-2009-1-HR-TEMPUS-JPGR) led by the University of Zagreb.

The series aims at equalizing the opportunities of students with disabilities to access higher education by informing, training and raising awareness of the academic and non-academic staff at Croatian universities and their constituents with regard to the specific needs of such students within Croatia's higher education system.

We consider students with disabilities to include students with vision and hearing impairments, motor impairment, chronic disease and learning difficulties such as dyslexia and ADHD, as well as students with mental disturbances and disorders. By categorizing these students as students with disabilities our intention is by no means to stigmatize or brand them, but rather to emphasize the need for accommodation of academic content to such students, as well as to present some examples of good practice.

The handbooks were written by members of all partner institutions in the project: the academic and non-academic staff of the University of Zagreb, Josip Juraj Strossmayer University in Osijek and the Universities of Rijeka, Zadar, Split and Dubrovnik; students with and without disabilities; and a representative of Croatia's Institute for the Development of Education. Particularly invaluable was the help we received from our colleagues from partner institutions abroad (the University of Århus, Masaryk University, the University of Strathclyde and the University of Gothenburg), who offered concrete advice and guidelines based on their vast experience in supporting students with disabilities.

Each handbook covers an important aspect of students' academic life, defining it and explaining its importance with regard to the acquisition of necessary professional competences. At the same time, the handbooks point to some obstacles that can exist with regard to accessibility, in an attempt to identify the preconditions for overcoming such obstacles without compromising the defined academic standards. By emphasizing the rights of all students to equal access to higher education and by proposing measures that can equalize opportunities, often in a simple way and at no additional cost, these handbooks aim at contributing to the definition of clear accessibility standards for students with disabilities at the national level.

I would like to use this opportunity to thank all the contributors who took part, either directly or indirectly, in the creation of these handbooks. I am particularly grateful to former, current and future students with disabilities who have used and will continue to use their perseverance, courage, patience and great motivation to build the much-needed support system for students with disabilities in Croatia's higher education by pointing out their specific needs and simple ways in which these needs can be met. However, their efforts would continue to be in vain if it had not been for a large number of academic and non-academic staff members who have provided support to students with disabilities in practice, often without the existence of clear guidelines and relying only on their empathy and wish to improve the situation. I believe that these handbooks will provide them with clear and systematic guidelines that will facilitate their future work.

Dr. Lelia Kiš-Glavaš, Project Leader

## INTRODUCTION

*General Guidelines*, the only handbook that endeavors to lay down guidelines concerning the support system for students with disabilities in higher education in the Republic of Croatia, specifically mentions groups of disabled students defined according to the criterion of their impairment or illness. We specifically sought to avoid such an approach, following the principle of universal, (i.e., inclusive) design, by means of which accommodations are created in all areas of life that enable all people, regardless of their attributes, to have maximal access to goods and services as well as equal access to social activities.

Nevertheless, in order to participate in the creation of such accommodations, it is necessary for us to “put ourselves in the shoes” of those who need permanent or temporary accommodation. In order to understand what types of accommodation need to be made for students with disabilities, it is important to have as complete an understanding as possible of the characteristics and unique features of their functioning, as well as the limits presented by their impairments and illnesses, on the one hand, and the obstacles that contemporary society presents them, on the other, which encumber their access to higher education.

The articles you will find in this handbook were thus written with the aim of introducing you to equal opportunities at the global level, but also to a contemporary approach to the phenomenon of disability and to the students with disabilities themselves: students with vision and hearing impairments, deaf-and-blind students, students with physical disabilities (such as motoric disturbances and chronic illnesses), students with dyslexia, students with ADHD, and students with psychological illnesses and disturbances.

I believe that, when you have some knowledge about the difficulties that they encounter on a daily basis in their academic life, you will see how motivated, courageous, and persevering they are in their endeavors to get a college or university education.

Lelia Kiš-Glavaš, Handbook Editor

### NOTE:

This handbook was translated from Croatian into English by the following students of translation in the English Department of the University of Zagreb: Mišo Grundler, Neda Batinić, Mirna Blažević, Kornelija Čakarun, Katarina Cerovečki, Martina Jurić, Eva Cukor, Ana Đukić, Andrea Karamatić, Jelena Katić, Tanja Kovač. The translation was revised by their teacher, Dr. Alexander D. Hoyt.



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## **EQUAL OPPORTUNITIES IN EDUCATION IN GLOBAL PERSPECTIVE**

### **Introduction**

The principle of equal opportunities in education is becoming a priority for states and education institutions at the global level. Concepts such as the right to education, inclusive education, the social dimension of education, Education for All, and the like have become common in international education debates as well as in debates concerning human rights, social inclusion, and economic development. Today, there are also global initiatives that endorse the right to education and equal opportunities in education, two such major initiatives being UNESCO's Education for All (EFA) movement and the measures implemented as part of the United Nations' Millennium Development Goals (MDGs).

The principle of equal opportunities in education includes people with disabilities, one of the most vulnerable social groups faced with serious obstacles at all levels of education. At the global level, one-third of all the children who are not in school are children with disabilities or children with developmental delays (UNESCO 2009). Moreover, the principle of equal opportunities includes many other groups who are excluded from the education system or who are not sufficiently represented in the system based upon their share in the overall population. Among others, this includes people of lower socio-economic status; people from rural areas; racial, ethnic, and other minorities; and in many countries, women, as well. The concept of equal opportunities can also be applied to people or groups who are being discriminated against on account of their age, religion, sexuality, or other characteristics.

Those who want to know and understand how and why the equality of access to higher education and quality education should be provided for students with disabilities in Croatia ought to understand the principle of equal opportunities in a much wider context – which means equality for all vulnerable groups at all levels of education and from a global perspective. That is why this introductory text will provide answers to the following questions:

- **Why is access to education important not only from the human rights perspective, but also for the development of society as a whole?**
- **What exactly do concepts such as the “right to education” and “equal opportunities” mean?**
- **What initiatives have been undertaken, and what are the recommendations with respect to equal opportunities in education at the global level?**

### **Education as the basis of social inclusion**

“Education is a fundamental human right and essential for the exercise of all other human rights” (UNESCO 2010). Education provides the basis for the “permanent combining of knowledge, skills and abilities in order to create a complex set of competences that are needed for successful participation in the social, economic, cultural, and political life of a given community” (Spajić-Vrkaš, Kukoč & Bašić 2001). In other words, education is a powerful tool that allows economically and socially marginalized individuals and groups to break away from poverty and social exclusion and become fully active members of society.

However, the reality of the situation is that children from poor families and other vulnerable groups get caught in a vicious circle of being much more likely to leave education early, which in effect limits their opportunities for employment and makes them more liable to remain socially excluded (UNDP Croatia 2006). Today, millions of individuals the world over are deprived of the opportunity to receive an education; in many cases, this is due to poverty (UNESCO 2010).

Regarding higher levels of education, it should to be said that a completed higher education program is the main factor in embarking on a career, whereas completed secondary education is the main prerequisite for social inclusion (Matković 2009). In Croatia there are certain groups of young people who are deprived in this segment: for the most part, this means young people with acute health issues and disabilities, children without parental care, and ethnic minorities, especially young Roma (Matković 2009), but also people of lower socio-economic status.

Education, therefore, is both a cause of social exclusion (in the case of a lack of education) and a prerequisite for social inclusion (through the increase of equal opportunities in education).

### **Education as the basis of economic development**

Equal opportunities in education are not merely a matter of solidarity, equality, and social equity. Even economic logic leads to the conclusion that providing equal opportunities in education is vital.

*Knowledge economy* is a term that has been used globally during the past decade to denote the kind of economy that is based on knowledge, primarily science and technology. In a knowledge economy a high level of education and the quality of education are vital. One of the main goals of Europe 2020, the European Union's current growth strategy, is to raise the level of education in Europe by the year 2020. This is planned through reducing the number of early school leavers and by means of an active increase in the number of highly educated citizens (from the current 31 per cent to no less than 40 per cent in the year 2020).<sup>1</sup>

In a major strategic document issued by the Croatian Government entitled *Strategic Framework for Development 2006–2013*, Croatia recognized the crucial role of education in economic development. The following are some of the priorities listed in the *Strategic Framework*:

- education can “permanently make the greatest contribution to the development of society,”
- education has a “strong, positive, and universal effect on economic growth,”
- “more educated people means less unemployment,”
- education in association with ICT is going to “become the most important factor in bringing prosperity to the entire society”

(Government of the Republic of Croatia 2005)

Thus, there is a global political trend toward emphasizing the importance of education as the key factor in economic development. Moreover, there is an economic logic in favor of providing equal opportunities in education: education failure and the social exclusion resulting from it are proven to be *costly* for the state in the long run. Individuals who lack the skills necessary to participate in social and economic development generate higher costs for income support, healthcare and welfare systems. (OECD 2008)

In other words, governments not only have a moral and democratic duty to ensure equal opportunities in education, but they also have a pragmatic reason to invest in such initiatives, because they have a direct interest in doing so.

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<sup>1</sup> *Europe 2020*, among other things, aims to provide lifelong learning, especially for lower-education groups; to provide flexible ways of learning, especially between different education and learning sectors; and to develop equal-opportunity programs in education, learning, and the labor market for vulnerable and socially threatened groups of society (European Commission 2010).

So how will this proclaimed increase in access to education for the entire population, with special care for vulnerable social groups, be achieved? The following is an outline of the main mechanisms, principles, and initiatives that are currently present at the global level.

### **The legal framework: human right to education**

Being one of the fundamental human rights, the right to education is defined by numerous international documents<sup>2</sup> which state that every individual has the right to access education based on the principle of equality and non-discrimination at all levels. Specifically, the right to education means the following:

- free and compulsory primary education
- secondary education available to all
- higher education available to all, based on their competence

(ETC 2003)

The governments which are signatory to the above-mentioned documents and which have incorporated the stated regulations in their respective legal codes are responsible for the realization of their people's right to education. This includes Croatia, where the right to education is stipulated in Article 65 of the Constitution: "Primary education shall be compulsory and free. Secondary and higher education shall be equally accessible to all, on the basis of capacity" (Ustav 2001).

According to Katarina Tomaševski, the first United Nations Special Rapporteur on the right to education (1998–2004), the right to education shall be based on the "Four As" in order that the right to education should be recognized in practice:

- **Availability:** Is there a sufficient number of adequately equipped education institutions and are they regionally distributed?
- **Accessibility:** Are these institutions physically and economically accessible; in other words, do all social groups have equal access?
- **Acceptability:** Do education programs offer quality education, and do the conditions for studying meet international minimum standards?
- **Adaptability:** Is the system flexible, and does it meet the needs of pupils/students, parents, minorities, the wider social community, and the labor market? Does the

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<sup>2</sup> E.g., The Universal Declaration of Human Rights (1948), The International Covenant on Economic, Social and Cultural Rights (1966), and other documents issued by the United Nations, as well as The Charter of Fundamental Rights of the European Union (2000).

system adequately adapt itself to people with disabilities, minorities, and other marginalized groups?

Unfortunately, few education systems fulfill all four As at all levels of education (see Tomaševski's 2006 report). Today, the violation of the right to education remains a burning issue in third-world countries, where, in 2007, as many as 72 million children of primary school age were not in school. (UNDG 2010) However, even in developed countries, the right to education can still be debated. Indeed, if there is unequal treatment in terms of access to education at any level, it is legitimate to question whether the government and education institutions are doing enough to meet their obligations concerning the right to education.

### **Fundamental principles: equality and non-discrimination**

While the right to education is the basic framework that needs to be established by the signatory governments, the fundamental principles to which this right refers are equality and non-discrimination. Defining these two terms is vital if we are to understand how this right can be exercised, especially when it comes to vulnerable groups.

Although the principle of equality is generally accepted in the modern world, it is still difficult to define it precisely for each domain. In short, the term has varying meanings depending on the relevant domain; there are political, legal, social, and economic equalities. Equality in education belongs to social equality, which could be defined as a state in which all individuals have the same possibilities of “developing their own competences, gaining knowledge, and climbing the social ladder” without discrimination. The term *discrimination* is defined as “working in favor of one's own group, or working against some other group based on biased criteria” in terms of social background, gender, race, religion, nationality, political or other beliefs, and other personal characteristics. (Spajić-Vrkaš, Kukoč & Bašić 2001)

But not even this definition suffices to help us understand how social equality can be measured in practice. In this sense, there is an additional generally accepted and useful definition of this term. This definition differs between the three types of social equality, regardless of whether the context is employment, healthcare, education, etc.:

- **formal equality** is procedural in nature; it requires an unbiased treatment of individuals, regardless of their characteristics. Its realization can be measured by

means of assessing the prevalence of antidiscrimination regulations in key documents and instruments.

- **equality of outcome** is substantive in nature; it focuses on the end results of formal equality to assess the degree of equality (e.g. the number of minority members in education). This approach goes beyond formal equality by taking action to change the state of inequality, which often requires the implementation of special government programs and the use of quotas (the so called affirmative action).
- **equality of opportunity** seeks to strike a balance between these two approaches by identifying the cases when formal equality is not enough to prevent possible discrimination or inequity, and it focuses on the measures for compensation of the initial inequality and equalization of opportunities instead of just insisting on the equality of outcome.

(Makkonen 2007)

Formal equality is the minimum standard when it comes to the right to education. But since this approach cannot affect deeply rooted inequalities, the equality-of-opportunity approach is being adopted increasingly in international contexts (e.g., in the documents related to the European Union, the United Nations, or the Bologna Process). In the education domain in developed countries this concept has become perhaps even more important than the concept of the “right to education.” This is probably (and unfortunately) the case because the right to education is more frequently associated with the violation of human rights and discrimination in education (especially at the primary and secondary levels) in third world countries, instead of being seen, for example, as a relevant concept in the higher education domain in Europe.

### **Education policy: toward inclusive education**

Having defined what the right to education and equality of opportunities mean, these rights and principles need to be translated into measures that will really provide the most vulnerable social groups with access to education. This is one part of education policy, where the term *inclusive education* denotes a concept used by many governments since the 1990s in the shaping of their education policies.

Inclusive education is based on the universal right to quality education and is particularly focused on vulnerable groups. Inclusive education is in fact a process that takes place through changes both in the approach to teaching and the content of education, as well

as in the very structure and strategies of the education system. The ultimate goal of inclusive education is to widen participation in learning and to decrease the level of exclusion within, or based on, education (UNESCO 2005). It is important to state that, although documents on inclusive education speak in terms of “education” and the “education system,” inclusive education in practice usually refers to primary and secondary education, whereas higher education is rarely included. Nevertheless, even from such a perspective, inclusive education is closely related to higher education, because inclusive education is a prerequisite for equality in access to higher education.

The use of the term *inclusive education* can sometimes be confusing, because it is often seen as narrowly focused on people with disabilities (i.e., pupils with physical and sensory impairment, specific learning difficulties, emotional issues, or challenging behavior) (UNDP Croatia 2006). Although this used to be its original meaning, today the term encompasses all vulnerable social groups, including individuals from poor families, minority members, individuals from rural areas, etc. (UNESCO 2005).

Today, inclusive education is a key component of the two largest global initiatives for promoting the right to education and equal opportunities in education: UNESCO’s Education for All (EFA) movement and the Millennium Development Goals (MDGs) program of the United Nations. The goal of Education for All is to provide quality education for all children, youth, and adults, with special focus on vulnerable groups and access to primary education. The Millennium Development Goals comprise eight goals, one of which is “achieving universal primary education” by the year 2015.<sup>3</sup> Inclusive education – the process of expanding the capacities of an education system to include vulnerable groups – was underlined by UNESCO as a key strategy in achieving the goals of Education for All (UNESCO 2009).

### **Higher education: toward a policy of equal opportunities**

In comparison to primary and secondary education, before the year 2000, equal opportunities in higher education played a rather minor role on the international level – both on national priorities lists and at higher education institutions. Things eventually changed in the past decade, and the issue of access to higher education has gained ground on the list of priorities in education policy, as well as in a wider social context.

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<sup>3</sup> More information is available on UNESCO’s web-site:  
<http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/>

Today, almost every party which participates in higher education at the European level has stipulated its positions and recommendations on equal opportunities in its strategic documents. Such institutions include the institutions of the European Union, as well as the governments signatory to the Bologna Process, the Organization for Economic Co-operation and Development (OECD), the United Nations Education, Scientific and Cultural Organization (UNESCO), the International Association of Universities (affiliation to UNESCO), the European University Association (EUA), and the European Students' Union (ESU).

When the principle of equal opportunities in higher education is concerned, the problem of terminology is not insignificant. At the international level, terminology often differs from country to country and from institution to institution, while key terms are frequently not clearly defined. However, new trends are emerging within terminology, and here is a list of the currently most common terms (Farnell 2008):

- **widening accessibility** means an increase in the number of individuals entering higher education. However, since this term does not necessarily include the dimension of equality, there is also mention of widening or providing “equal access,” or “equitable access” to higher education, for example, in UNESCO documents.
- **widening participation:** the term *widening participation in higher education* was coined in Great Britain, primarily because of the imprecision in the term “equal access.” The word *participation* encompasses not only access, but also attending courses and finishing one’s studies, which is crucial for the equality of outcome. Moreover, the word *widening* means active inclusion of those groups of students that have not been well represented in higher education.
- **equity:** the term *equity in education* is not connected to access, but rather to the equity of education systems in general. This term is mostly used by EU and OECD institutions, and in higher education it represents the removal of the obstacles that prevent individuals from succeeding in education based on their social or personal circumstances, so this includes both the access to and the finishing of education (OECD 2008).
- **social dimension** is the latest term, which emerged from the Bologna Process. It is used as a blanket term for the idea that the European body of students should reflect the diversity of the peoples of Europe and that students should have the opportunity to undertake and finish their studies without facing obstacles related to their descent. The

documents on social dimension appeal to the principles of equal opportunities, widening accessibility, and widening participation.

Despite being so diverse, this terminology shows that there is an international consensus on the principles of equal opportunities in higher education. Most international institutions agree upon the key measures that should help provide equal opportunities. Examples of such measures are the following:

- **stimulating interest** in higher education by informing vulnerable groups about the advantages of entering higher education,
- providing flexible **enrolment policies** by taking into consideration the obstacles to enrolment encountered by vulnerable groups and enabling enrolment based on other qualifications (e.g., for adult students without finished secondary education),
- removing financial obstacles for vulnerable groups by means of securing targeted **financial support** based on their needs,
- **adapting study programs** to the needs of vulnerable groups,
- providing **support service** for students during their studies (counseling and guidance, mentoring, etc.)

(Farnell & Kovač 2010)

All these measures ought to be complementary to the measures applied in earlier phases of education which prevent education dropout or failure in education and give incentives for pursuing education all the way to a university degree.

All of this clearly shows that equal opportunities in higher education are no longer a marginal topic. It should be stressed that the Bologna Process has put the social dimension on top of its priorities for the year 2020. This means that the guidelines of the Bologna Process will eventually be integrated into education policies Europe-wide, which will necessarily affect higher education in Croatia as well.

## **Conclusion**

A discussion about equal opportunities in higher education is not something that only economically developed countries can afford to have, nor is this a topic to be dealt with only after other priorities in the education system and society in general have been solved.

Education is not only the key to tackling social exclusion, but also the key to achieving economic prosperity and wider social development. Providing equal opportunities at all levels of education (including higher education) is a win-win situation for governments: by doing so, they improve the lives of socially excluded groups, lower the high costs of social exclusion to the state budget, and increase the potential for economic development.

Fighting inequality at the primary and secondary levels of education has become a global priority. More and more emphasis is now being placed on providing equal opportunities in higher education as well, especially through the Bologna Process in Europe. All higher education systems in Europe (including that of Croatia) are expected to achieve real improvement in the social dimension in higher education.

The Croatian Government and higher education institutions ought to follow these trends. They are expected to show determination and endeavor in setting equal opportunities in higher education as one of the top priorities in this decade, as well as to introduce measures for enabling members of the most vulnerable social groups to have access to, continue, and finish higher education degree programs.

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## Glossary

**Inclusive education:** Inclusive education is based on the universal right to quality education and is particularly focused on vulnerable groups. Inclusive education is in fact a process that takes place through changes both in approach to teaching and content of education as well as in the very structure and strategies of the education system. The ultimate goal of inclusive education is to widen participation in learning and to decrease exclusion within, or based on, education. (UNESCO 2005)

**Social exclusion:** Social exclusion refers to the status of vulnerable and marginalized groups of society. According to the European Commission (Eurostat 2010), social exclusion involves the following dimensions: poverty; unemployment; limited access to education, information, healthcare, and childcare; severe life conditions; and insufficient social participation. The occurrence and causes of social exclusion may appear at all levels: the state, the local community, the household, and the individual.

Although the term *social exclusion* is often used in international contexts, it needs to be said that there are considerable difficulties with its definition, together with the fact that the term is neither theoretically based nor empirically proven. (Sućur 2006)

**Social inclusion:** Social inclusion is usually defined as affirmative action to change the circumstances that have led to social exclusion, or in other words, actions to alleviate and reduce social exclusion. (Bejaković 2010).

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## **STUDENTS WITH DISABILITIES IN THE HIGHER EDUCATION SYSTEM OF THE REPUBLIC OF CROATIA**

### **RIGHTS OF PEOPLE WITH DISABILITIES**

Education is the main factor in social participation for all citizens (Council of Europe 2003). For education to become such a factor for people with disabilities, incentives should be made for the creation of an education system that would be able to deal with the diversity of the educational needs of children with developmental delays and people with disabilities. At the same time, access to the regular education system and to all educational contents should be provided for these children and youth in their best interest.

Article 26 of the Universal Declaration of Human Rights (Council of Europe 2003) emphasizes that precisely higher education plays a key role in promoting human rights and fundamental freedoms, as well as in strengthening democracy and tolerance. When people with disabilities are concerned, access to higher education for this particular group of individuals has an especially positive impact on both the individual and collective perception of disability. Therefore, it has an important impact on eliminating prejudices towards disabled people and on developing realistic attitudes towards these people and their abilities and possibilities.

The Universal Declaration of Human Rights (<http://www.amnesty.hr/>) proclaims basic values and principles that apply to all human beings. Some of these fundamental principles are freedom, equality, tolerance, solidarity, universality, and inalienation. By passing the Declaration on the Rights of Persons with Disabilities (Declaration 2005), the Croatian Parliament answered the need for implementing measures of anti-discrimination, strengthening the equal position of people with disabilities, and promoting and ensuring the rights of people with disabilities.

One of the fundamental human rights is the very right to education, which has to be accessible to everyone. The realization of this right directly influences the realization of another right of people with disabilities: the right to work and employment. Research has shown (Kiš-Glavaš 2005; Kiš-Glavaš & Sokač 2006; and Kiš-Glavaš & Sokač 2006a) that their low education level (and thus their limited professional competence) is the biggest

barrier to the successful employment of people with disabilities in the Republic of Croatia. In addition, it has been proven that work is a prerequisite for, if not a guarantee of, successful participation in the social life of adults with disabilities. (Kiš-Glavaš et al. 2008).

Nevertheless, concrete measures have to be taken in order to make the realization of the aforementioned (and all other) rights of people with disabilities possible. The Declaration on the Rights of People with Disabilities (Declaration 2005) puts an emphasis on the elimination of barriers for the complete integration and participation of persons with disabilities in social, economic, cultural, and political life under equal conditions, and in relation to the equalization of approach to education as a whole, the Declaration states that the Republic of Croatia will accommodate its education system to the needs of persons with disabilities by insisting on making adjustments to the present regular education programs and systems (the preschool, primary school, and secondary school programs, as well as the higher education and adult education systems); that it will promote the usage of new technologies, distance education, and e-education; and that it will ensure the availability of new technologies, means of communication, and appropriate training for their usage, giving special attention to problems of persons with disabilities. The Declaration also states that the Republic of Croatia will promote special adjustments to information and communication systems in order to efficiently make resources available to persons with disabilities.

## **THE RIGHT TO HIGHER EDUCATION**

In the Republic of Croatia, the rights of persons with disabilities, including their right to a higher education, are regulated by a whole range of laws. Some of them are general laws, such as the Croatian Constitution (Ustav 1990–2000), that guarantee equality to all members of the population, and therefore to persons with disabilities; and some of them are specific regulations that allow particular rights of persons with disabilities to be exercised, such as the Act on Mobility of Visually Impaired Persons with a Guide Dog (Zakon o kretanju 1998); but they rarely specifically mention students with disabilities as a group, such as the Ordinance Regulating the Awarding of State Grants to Regular Undergraduate Students and Compensation of a Part of Tuition Fee Costs to Postgraduate Students (Pravilnik 2002). Special rights are most frequently regulated by ordinances that relevant ministers and institutions (for example universities and faculties) issue pursuant to the law.

So the rights of students with disabilities, general as much as particular, and the obligation of the society to take the necessary steps in achieving accessibility of higher

education to all its citizens, including persons with disabilities, are mentioned in numerous general and particular acts (Zubak 2011).

The aforementioned *Constitution of the Republic of Croatia* (Ustav 1990-2001), the fundamental legal document of our country, in addition to prohibiting any type of discrimination on any basis, including disability, in Article 65 guarantees all its citizens the availability of education on all levels under equal conditions.

The Research and Higher Education Act (Zakon o znanstvenoj 2003-2007), the basic legal act regulating the higher education system, among other student rights, assures in Article 88 that all students have the right to a quality university education and an education process as defined by the study programs.

This in fact means that higher educational institutions are obligated to provide quality education to all their students, including students with disabilities.

In addition, the Republic of Croatia signed and ratified the UN Convention on the Rights of Persons with Disabilities (<http://www.posi.hr/dokumenti>). In chapter 24 (Education) of this document, the signing countries ensure that persons with disabilities have the right to an education without discrimination and on an equal-opportunity basis, and commit to providing reasonable accommodations to individual needs.

Furthermore, the National Strategy for Equalization of Opportunities for Persons with Disabilities 2007-2015 (Nacionalna 2007) emphasizes in Chapter 2.3 (Education) quality education at all levels as one of its priorities, and points out the necessity of insuring conditions for increasing the accessibility of quality education to young people with disabilities.

The Anti-Discrimination Act (Zakon o suzbijanju, 2008), which entered into force on 1 January 2009, mentions in Article 4, Section 2, that one of the forms of discrimination against persons with disabilities is the failure to make **reasonable accommodations** in accordance to their specific needs; the area of implementation of this act includes (among others) education, science, and sports (Article 8).

All the universities in the Republic of Croatia have included in their statutes the constitutional provisions prohibiting discrimination on any basis, as well as the aforementioned provision from the Research and Higher Education Act (Zakon o znanstvenoj 2003-2007) on the rights of students to a quality education. This definitely includes students with disabilities.

## **ETHICS IN THE EDUCATION OF STUDENTS WITH DISABILITIES**

Ethical principles, meaning the principles of moral and professional ethics of the members of the university community (teachers, students, and administrative and professional staff) are defined by the codes of ethics of universities and their constituents. For the purpose of this text, the Code of Ethics of the University in Zagreb (Etički kodeks 2009) will be consulted.

First and foremost, when speaking about the general obligation of monitoring and implementing the Code of Ethics, it is pointed out that all bodies of the University and its constituents are obligated, within the limits of their jurisdiction, to see to the realization and improvement of ethical standards at the University and the implementation of the Code of Ethics. They are authorized to independently interpret the provisions of the Code of Ethics and to apply them according to their own conscience in the sense of its values.

In this document, in the chapter on the principles of morally justified behavior at the University, it is said that the University ensures to every member of the university community the enjoyment of all human rights (*the principle of peaceful enjoyment of rights*) and that all members of the university community have to be respected as individuals in accordance with their guaranteed rights of life, integrity, and dignity, and that they must be ensured the right to privacy (*the principle of respect for the integrity and dignity of the individual*). Regarding this last principle, the Code points out the need to acknowledge the right of unhindered professional development and improvement in accordance with personal capability and plans to all members of the university community, in the extent that does not infringe on the rights of another individual, and the University is obligated to make efforts to ensure the appropriate conditions for the fulfillment of this right. The adjustment of academic activities to the capabilities of students with disabilities is definitely a prerequisite for the realization of the aforementioned ethical principles.

The *principle of equality and equity* emphasizes that equal conditions for the fulfillment of professional obligations, as well as the expression of intellectual abilities and progress, have to be ensured to all members of the university community. The *principle of professionalism* stresses the expectations of the members of the university community to fulfill all their obligations towards students, colleagues, and other employees of the University in a responsible, conscientious, professional, and ethically flawless manner. In their activities, the members of the academic community follow the principles of objectivity, impartiality, reason, fairness, dialogue, and tolerance. Thus, no disability of any kind should be a barrier to a professional relationship with students with disabilities.

The Code also specifically mentions discrimination and prejudice as unacceptable behavior. It accentuates the unacceptability of any form of indirect or direct discrimination based on religion, ethnic and national affiliation, race, sex, sexual orientation, lifestyle, financial situation, origin, family and marital status, pregnancy, family obligations, age, **disability**, physical appearance, political views, or state of health. In addition, it is mentioned that assessing the activities and professional competence of any member of the university community cannot be based on criteria that are not directly relevant for the performance of their activities or professional obligations. This includes the criterion of a possible disability of a person.

For matters concerning relations with students with disabilities, the particularly important provisions are those regarding transparency and confidentiality that point to the fact that all members of the university community who handle confidential data pursuant to their position at the University have to protect the secrecy of this kind of data. These provisions emphasize that no one is allowed to reveal confidential data to members of the university community or any other party, unless that kind of disclosure is part of the person's usual job performance at the University or if there is a legal or professional obligation to reveal this kind of information. Coordinators for students with disabilities at the university, constituents, or other persons assigned to provide support to students with disabilities have the obligation to maintain the confidentiality of all data on the nature of a student's impairment or difficulty, as well as of all other relevant data about students with disabilities.

## **PERSONS WITH DISABILITIES**

It is important to reiterate that in the Republic of Croatia there is no unique definition of persons with disabilities and that different systems even use different terms:

- physically or mentally impaired persons (social welfare system);
- children and young people with developmental delays, with special educational needs, or with difficulties (education system);
- persons with disabilities (pension insurance and employment system).

It is important to mention that a **disability** differs significantly from a **disease**:

The outcome of a disease can be recovery, death, or *impairment of certain organs and a decrease in the ability to work and live independently, or complete loss of work ability and high degree of dependence on the care of others* or disability. Therefore, disability represents a **state** or a **result** of a disease or impairment (Rački, 1997).

It is also useful to notice the difference between a **quantity** and a **quality** approach to disability:

- a *quantity approach* takes the “proportion” of impairment or the extent of the loss of some ability as a starting point and does not take into consideration the psychological, social, economic, or other phenomena of disability – this is a unidimensional approach;
- a *quality approach* takes into consideration the entirety of the needs of persons with disabilities – this is a multidimensional, structural, biopsychosocial approach.

Today, the emphasis is on a quality approach to defining disability because it is comprehensive and, besides the results of impairment or disease, meaning the disability or rather its type or degree, it takes into consideration other characteristics of a human being (interests, motivation, remaining abilities), as well as contextual properties (the person’s support system, attitudes of the person’s social environment, and the self-activity of the individual).

The International Classification of Impairments, Disabilities and Handicaps – ICIDH (WHO 1980) differentiates between:

- Impairment (biotic) – any kind of loss or deviation from the normal psychic, physiological, or anatomical structure or function;
- Disability (functional) – any kind of restriction or lack of ability to perform a certain activity in the manner or to the extent that is considered normal for a human being;
- Handicap (social) – a deficiency, for a particular individual, that results from impairment or disability and limits or makes it impossible for that individual to fulfill his natural role in society.

On the other hand, the new classification of the World Health Organization which is coordinated with the contemporary views of the disability phenomenon, the International Classification of Functioning, Disability and Health – ICF (WHO, 2001), sees the functioning of the individual and disability in general as results of the interaction between the physical or mental state of the person and their social and physical environment. According to this classification, disability is not a personal characteristic but a series of factors, a lot of them created by the social environment. Accordingly, it is pointed out that positive social action is necessary in order to make changes that would allow for the full participation of persons with disabilities in all aspects of society.

ICF classification is structured on the basis of the following components:

- **Physical functioning** (e.g., mental functioning, sensory functioning, cardiovascular...) and **physical structures** (e.g., the structure of the nervous system, the structures of movement, the structures of the metabolic system, the structures of the endocrine system, etc.);
- **activity** (in relation with the everyday activities of a person and self-activity in general) and **participation** (inclusion into life situations) – (e.g., communication, mobility, self-care, social participation, etc.) and
- pertinent **information** about the complexity of the impairment and environment factors (attitudes, services, support system, politics, social relations, supporting technology, etc.).

The term **INVALID** (a person with a disability) originates from the Latin language (*in-validus*) and means ‘in-valid’, ‘dis-abled’. From this, it is clear why a lot of experts emphasize a pronounced stigmatization, and because of this, the complete inappropriateness of this term (Kiš-Glavaš 2004). However, the fact that the terms that are in use are not *invalid* or *an invalid person* or *an impaired child*, but rather the terms *person* or *child* followed by a specific designation that describes that person or child based on some criterion, in this case disability or developmental delays, shows that the aforementioned persons and children are primarily considered as any other person or child, and that it is their *personality* that makes them equal to us and that we value (and not some deviation or disadvantage).

In the Republic of Croatia there has been an increase in the usage of the term *person with special needs*. This term is the result of an increasingly present attitude of *inclusion* (educational, but also a wider social inclusion) that is based on basic human rights, and that implies equal participation in social life, or equal chances for everyone. A prerequisite to this (when talking about persons with disabilities, but also all other vulnerable social groups) are consciousness and the active involvement of the social community in creating conditions (“positive discrimination” measures) for the fulfillment of the everyday needs of persons with disabilities. However, persons with disabilities point out the inappropriateness of this term because, as they explain, it is not about fulfilling special (different, distorted) needs, but of ordinary human needs. In accordance with this, in 2006 a conference of all the umbrella organizations of persons with disabilities in the Republic of Croatia was held at the Sheraton Hotel in Zagreb, and they issued the so-called Sheraton Declaration, which through their organizations enables the persons with disabilities to appeal to the press and the professional public to use the term **persons with disabilities** if adult persons are in question, and if children are involved, the term **children with developmental delays**. We consider this to be a

good reason to use this same terminology ourselves; thus we refer to ourselves as *students with disabilities*.

## **FROM THE MEDICAL MODEL TO THE WIDER SOCIAL AND HUMAN RIGHTS MODELS**

During the last few years there has been a strong change in the perception of the phenomenon of disability and persons with disabilities, and there has been a significant shift from the so-called **medical model** to the wider social **model of understanding disability** and, through its development, towards the so-called **human rights model**.

The medical model views disability as a physical or intellectual impairment that makes a person with a disability stand out from the average population, which makes “normal” functioning impossible. Persons with disabilities are perceived as incapable of living independently and deciding about their lives. According to the medical model, the basic problems of persons with disabilities are insurmountable spatial barriers and a physical environment that is not adjusted to the needs of persons with disabilities, while their social needs are limited to contacts with other persons with disabilities, an occasional social event, and employment in secure conditions (University of Warsaw 2007). Disability is seen as a medical state that can be treated, and this is a therapeutic approach to persons with disabilities. This is why persons with disabilities are predominantly considered as patients, and policy (the measures) is mostly concentrated on the medical needs of these people. Additionally, persons with a disabilities are most often assumed to be poor because of their high living expenses, which make them more important users of the social welfare system (Kiš-Glavaš, Milić Babić & Petek 2010). In such an interpretational framework, the policy towards persons with disabilities is predominantly concentrated on the individual as seen through the prism of health and social politics, and its main goal is to take care of a vulnerable social group. The measures that are used in relation to persons with disabilities are of a compensational nature (mostly in the form of financial aid) and in a way try to compensate for the disadvantages caused by the person’s disability. This model is actually based on pity and the apparent helplessness of persons with disabilities, and the change and adjustment it aims at in fact is a change in the person with a disability: “... the emphasis is on the rehabilitation of the individual in order to make him able to ‘fit in’ within society” (Žilja 2006).

As a critical reaction to the medical model, in the 1970s a new understanding of disability appeared; this definition included the social dimension in addition to the physical

characteristics of a person with a disability. Disability is the result of social barriers that hinder “normal” functioning, so disability is a product not solely of the individual’s shortfall, but also the society’s. Disability is not a characteristic of the individual anymore, but a complex phenomenon that is a result of the interaction between a specific characteristic of the individual and the characteristics of the environment – the inaccessible physical environment and discriminatory social structures. The point is, that a human being’s impairment is only a physical fact; it turns into a disability only when it becomes a social fact (*Kiš-Glavaš, Milić Babić & Petek 2010*). Development and change in understanding disability are followed by changes in other elements of the way policy towards persons with disabilities is created.

Policies affecting persons with disabilities are being extended to new areas and to new adjectival policies (*Kiš-Glavaš, Milić Babić & Petek 2010*). Predominantly emphasized are anti-discriminatory mechanisms that aim at removing social (psychological) barriers, or rather prejudices towards persons with disabilities. A noticeable shift was made from the practice based on needs towards the practice based on rules (*Puljiz 2010*). The mobility of persons with disabilities, or removing the spatial barriers is also important. The basic change was that of the focal point which was largely transferred from the individual – a person with a disability, to the society itself – the surroundings of a person with a disability (the so-called *environmental modifications*). A poor patient became a citizen with a disability, with the goal of changing the environment into one that would ensure equality (especially in the eyes of the law), and better social conditions (*Kiš-Glavaš, Milić Babić & Petek 2010*).

In the context of higher education, this means that persons who were perceived before as “dis-abled” (un-capable) are in fact very capable of studying in higher education. The conditions necessary to achieve this are the following: identifying the difficulties caused by the disease or impairment, defining the solutions necessary to overcome the identified difficulties, and implementing appropriate measures and adjustments (*University of Warsaw 2007*). Measures and adjustments will surely vary depending on the type of impairment or disease and the types of study programs offered. However, all measures have to rely on one principle, which states that the standards of realization of the study programs and the expectations of the students with disabilities cannot in any way be reduced. **This topic is discussed in more detail in the handbook *Teaching and Outcome Monitoring and Evaluation* in relation to the topic “Universal Study Design and Academic Standards.”**

The last model to develop was the human rights model, which originated as an amendment to, rather than a critique or replacement of, the social model. This is especially visible in the fact that these two models define disability identically. In fact, the idea was to

develop the social model by re-emphasizing the significance of the individual, and subsequently to extend the policy towards persons with disabilities. Its goal is no longer just to achieve (legal) equality, but also to develop the potentials of persons with disabilities in order to strengthen them. It is pointed out that legally guaranteed equality, as a principle of social justice and a mechanism of social inclusion, is often insufficient for the realization of social inclusion in practice (Dill 2010). That is why the human rights model accentuates the citizen as the bearer of human rights and not the disability. This clearly implies the realization of rights, but also the fulfillment of obligations, and points to the responsibility of persons with disabilities as well. The spectrum of adjectival policies is also extended, with educational policy becoming the most important, but also for example, cultural policy, or increasing the quality of leisure time of persons with disability, becoming more important (*Kiš-Glavaš, Milić Babić & Petek 2010*). This is why it is more precise to speak about two models overall – the medical model and the “complete,” or wider, social model.

Of course, in the practice of creating policies towards persons with disabilities, there are no pure models. The medical model is always partly “in force,” considering that a person with a disability always needs specific adjustments of the healthcare system and is always a patient, as well as any other citizen. In addition, the approach in which the state “measures” disability by enumerating impairments and attributing a certain percentage of disability as a prerequisite for the realization of different benefits is retained. The question is whether these “remnants” of the medical model can ever be completely overcome (*Kiš-Glavaš, Milić Babić & Petek 2010*). One of the possible reasons for this is the fact that a lot of persons with disabilities encourage this kind of perception, expecting significant privileges or accepting their “inferior” social status (*University of Warsaw 2007*). However, what is even more interesting is the “competition” between the social and the human rights model. On the level of goals these two models certainly supplement, and even condition, one another. But in concrete situations of fulfilling these goals, sometimes they can be posed against each other or contradictory. A good example of this is the measures of positive discrimination that were mentioned earlier.

## **PRIVILEGED TREATMENT MEASURES AND COMPENSATIONAL MEASURES**

**Measures of positive discrimination** are instruments of state intervention used in an attempt to equalize the approach towards the rights of persons with disabilities in relation to the general population. The advantage of such measures is that they (attempt to) equalize

possibilities, and the disadvantage is that they are also a type of discrimination (*Kiš-Glavaš, Majsec Sobota, Sućec & Zećirević 2010*). Positive discrimination measures are divided into two groups of measures: privileged treatment measures and compensational measures.

**Privileged treatment measures** place the persons with disabilities into a privileged position in relation to others, for example, by introducing the quota system of employment, by offering direct enrolment at universities after passing the entrance exam, or by granting state scholarships for students with disabilities based exclusively on the criterion of disability.

**Compensational measures** attempt to compensate for the less favorable position of persons with disabilities, for example, by organizing additional programs in the transitional period from the end of education to the point of employment that would enable persons with disabilities to strengthen and advance their acquired work and workplace-social skills and abilities; additional preparations adjusted for candidates with disabilities for enrolment at university; scholarships for students with disabilities on the criterion of excellence; etc.

It is necessary to stress here that compensational measures in the past were typical for the medical model of understanding disability and that they were mostly financial in nature, trying to “compensate” for the disadvantages caused by disability, or rather to substitute social, technical, and economic restrictions of disability (Council of Europe 2003).

Unfortunately, these types of measures in fact have been proven to lower the level of personal motivation even more, due to the person not being a more actively involved in the creation of his own future, and that they increase the tendency towards relying on financial aid from the state, or on receiving disability payments. Today, however, compensational measures are of a totally different nature; they do not consist of financial aid but of services, adjustments, support, or supporting technology that attempt to compensate for the disadvantage that is a direct consequence of a person’s disability and in that way to initially equalize the position of persons with disabilities with the position of the general population.

Measures of privileged treatment neglect the developmental needs of persons with disabilities and do not contribute to (sometimes they even hinder) the goal of strengthening these persons. This is because, for example, they decrease motivation and activation, they are passive forms of protection, they treat persons with disabilities as passive users, they are a part of the system of personal protection, they are successful only in short duration, and they are expensive, even though they help, at least for a short while, to advance equality. On the other hand (when conceived in a contemporary way), compensational measures include the possibility of making decisions and the responsibility of persons with disabilities for their own destiny, they open up possibilities for activities and active control, they are active forms

of protection, they imply that persons with disabilities are active participants in rehabilitation procedures, they are a part of the system of human rights protection, and they are effective as well as cost-effective in the long term. This very example shows the development of the policy towards persons with disabilities on the level of instruments that are also modified to encourage the achievement of the wider goal of social inclusion, and which requires the human rights model to be added to the social model (Kiš-Glavaš, Milić Babić & Petek 2010).

However, when applying positive discrimination measures, caution is advised. The right to different social benefits can turn persons with disabilities into exclusive consumers of social welfare and aid, which in fact denies them their basic human rights (Zaviršek 2009).

## **STUDENTS WITH DISABILITIES**

According to the Ordinance Regulating the Organization and Functioning of the Office for Students with Disabilities at the University in Zagreb (Pravilnik 2007), **students with disabilities** are all students that have difficulties in the realization of everyday academic activities due to a disease or impairment (regardless of the decision on disability) . This definition, besides students with sight and hearing impairments and physical disability, includes students with chronic diseases, psychological disorders, and specific learning disabilities.

A student with a disability is required to prove his/her status (to the coordinator for students with disabilities of a faculty or academy or to another person assigned to provide a support system for students with disabilities on the level of the university or its constituents) by presenting a Decision on the Categorization of Disability (the degree of physical impairment) issued by the Croatian Pension Insurance Institute, a Decision on an individualized approach during an earlier stage of education or a Certificate of the Supervising Physician of School Medicine (*Special Accommodations for University Entrance Exams*, [www.unizg.hr](http://www.unizg.hr)). The intention of the system is not to label and stigmatize the aforementioned students but to define those individuals who have the right to special academic adjustments with the confirmation of their status.

It is necessary to mention here that students with disabilities who do not want to declare themselves as such are not obliged to do so in the system of higher education, but in that case, they cannot exercise their right to special academic adjustments.

Although we are witnesses of different approaches and criteria of defining disability, it is certainly possible to distinguish “visible” from “invisible” impairments that can cause a

person's disability. Visible impairments are sight and hearing impairments and physical disability, while the so-called invisible impairments may include certain chronic diseases, psychological disorders, and specific learning disabilities. Since disability in itself stigmatizes a person, some persons with invisible impairments decide not to publicly declare themselves as such, which in fact can only make their position harder because then their environment is not familiar with their true possibilities and needs.

According to the Charter of the University in Zagreb (Statut Sveučilišta), one becomes a student after enrolling at the university. The student has the status of a regular university student during the time of the regulated duration of a university education.

In accordance with that status, the student achieves the right to public health insurance, subsidized meals, and housing in student dorms, while other rights can be achieved in accordance with special regulations.

According to Article 56 of the Charter of the University in Zagreb (Statut Sveučilišta), the student has specified rights as well as obligations, but the difficulty is that for more or less objective reasons, students sometimes cannot fulfill some of these obligations. For example, students with disabilities sometimes do not manage to fulfill their student obligations in the prescribed period because of an acute deterioration in their medical condition, the need for rehabilitation and/or hospitalization, and so on.

According to the statistical data, the average duration of university education in the Republic of Croatia is seven years. However, with the insight in the situation, it has been noticed that the average duration of a university education for a student with disabilities is significantly longer. It is evident that there is a need for some steps to be taken in order to make the higher education system more accessible and appropriate for students with disabilities.

In the Republic of Croatia there are no reliable data on the number of students with disabilities. According to rough estimates (primarily from the official records of organizations of students with disabilities), at the University of Zagreb, which educates more than 65,000 students per year, there are only about 200 students with disabilities (slightly more than three per thousand). However, it has to be mentioned that these are mostly students with the above-mentioned visible impairments. For example, students with psychological disorders and specific learning disabilities are not actually registered in the higher educational system in the Republic of Croatia. However, a significant shift has been made within the Tempus ISHEDS project (Identification and Support in Higher Education for Dyslexic Students), which has "discovered" 129 students with dyslexia at the University during the year 2010. So it is

possible to say that there are around 330 students with disabilities at our biggest university, which is equal to more than a half of the registered students with disabilities at all seven of Croatia's universities, and that is still discouraging data. It has to be mentioned, however, that the number of these students (primarily thanks to the efforts of individuals as well as of the organizations of students with disabilities in solving individual cases and thus opening new possibilities for other students with similar needs) has been growing annually. In the long run, work should be done to make the number of students with disabilities at least 10 times greater than today, as is the case in the countries of the European Union and in the more developed countries outside Europe (even though in these countries 70% of the students with disabilities are in fact students with specific learning disabilities, which, as mentioned above, is not at all the case in Croatia).

Besides the objective, subjective, and organizational barriers to quality higher education for students with disabilities, the main reason for the current condition is probably the unsuitable preparation of students with disabilities for university education and the obsolete, rigid educational profiles (teaching programs) in secondary and especially in special education, which are not coordinated with the needs of the labor market and modern technologies (Kiš-Glavaš 2006).

Although even in academic surroundings, **the individualized approach** and the fulfillment of quite specific needs can be the only right way of supporting students with disabilities, there are still some measures and procedures that can solve the crucial issues common to all students with disabilities, or to specific categorized groups of students that are generally defined according to their impairment.

Thus, for example, for students with motor impairment, the most recognizable barriers will surely be spatial ones; for students with sight impairment, the need for an adjusted approach to the literature is most important; for students with hearing impairment, there is the unresolved question of financing a sign language interpreter; for students with chronic diseases and for those with psychological disorders, there is a need for flexibility in deadlines for the fulfillment of student obligations and sometimes in their daily rhythm of activities; and for students with specific learning disabilities, accommodations in teaching materials and ways of testing knowledge should be made. (Kiš-Glavaš, 2006).

In general, the possibility of including persons with disabilities in the higher education system will depend on the accessibility of transportation; the accessibility of university buildings; the accessibility of educational resources, equipment, and programs; and when

necessary, the accessibility of appropriate technical support for students with disabilities (Council of Europe 2003).

Persons with disabilities testify today that in the last ten years a lot has been done concerning the care of persons with disabilities. However, they will also point out that the accessibility of education and employment – and that means the accessibility of information above everything else – has still not been realized to sufficient extent. In the higher education system, candidates and students with disabilities already realize a number of measures of positive discrimination through privileged treatment (e.g., the right to direct enrolment in chosen study programs if they pass the entrance exam), and a lot less through the compensational measures (for example the right to special accommodations for university entrance exams). These measures are, after all, just an attempt to alleviate the omissions made in earlier stages of education. So, by providing adequate access to (quality) information to every child with developmental delays and every person with a disability, which also includes educational information, and by removing the number of potential barriers to their successful education, employment, and work, it is possible to realize the prerequisites of their full social integration and to realize their human rights.

In the following chapters we will discuss some of the characteristics of students with disabilities in the higher education system in the Republic of Croatia. Even though we are dealing with students classified according to their type of impairment, it is necessary to point out that we are dealing with an exceptionally heterogenic population and that this one individual characteristic – impairment – is not enough to understand their personalities, nor is this information enough to be the basis for choosing the form and degree of their support.

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#### Glossary:

- Academic standards represent a demonstrated capability of achieving a certain level of academic success; this is a measured competence of a certain person in achieving specific goals of courses that are operationalized through performance on a certain task.
- Children with developmental delays include children with sight impairment, hearing impairment, voice and speech communication disorders, intellectual disabilities, physical disability, autism, personality disorders caused by organic factors or by psychosis, and several types and degrees of impeded psychological or physical development.
- Coordinators for students with disabilities are persons, mostly university teachers (but in exceptional cases it is possible for them to be members of the administrative or the

professional staff of the university), who are assigned to fulfill the right of students with disabilities to reasonable accommodations in their studies. They are also a link between the students with disabilities and the Office for Students with Disabilities, as well as the Commission for Students with Disabilities on the level of the University.

- Inclusion of persons with disabilities implies the participation of persons with disabilities in all social activities to the degree that the society accepts the disability as a variation that contributes to the general quality of social relations and attempts to adjust all of its activities to the capabilities of persons with disabilities.
- Integration of persons with disabilities implies the participation of persons with disabilities in all social activities in such a way that persons with disabilities “adjust” to fit into society.
- Measures of positive discrimination are instruments of state intervention used in an attempt to equalize the approach towards the rights of persons with disabilities in relation to the general population. They are divided into measures of privileged treatment that place persons with disabilities in a privileged position and compensational measures that attempt to compensate for the less favorable position of persons with disabilities in relation to others.
- A person with a disability is any person with a physical, sensory, or mental impairment who, as a result, has permanently (or at least for 12 months) decreased capabilities for the fulfillment of personal needs in everyday life (Act on Vocational Rehabilitation and Employment of Persons with Disabilities, Official Gazette, 33/05).
- Quota system of employment is one of the measures of privileged treatment that legally binds employers to employ a certain number of persons with disabilities on the total number of employees.
- Reasonable accommodations are adjustments made with the purpose of equalizing the opportunities of persons with disabilities without the need for extensive funding. They are usually connected to the matters of expense, benefits and effect on other people. For example, accommodations that would be reasonable to expect from some large faculty would not be reasonable to expect from a dislocated faculty department (like mounting a platform or access ramp). Or something that would be reasonable to expect from a university that is in a good financial position would be unreasonable to expect from a university of the same size that is in a difficult financial position. It would also be unreasonable to expect expensive compensational activities, even if a

person in question has a difficult disability, if that kind of activities would just slightly improve that person's position (e.g. expensive optical readers for a visually impaired person that is also dyslexic or has some other specific learning disability and needs specially adjusted texts – in this case it is much more realistic to provide a person to read to that disabled person) Also, it would not be reasonable to demand compensational activities if the degree of disability is very small. With all reasonable accommodations precaution has to be taken in order not to compromise the defined academic standards.

- Special academic accommodations are adjustments of teaching methods that allow the students with disabilities the accessibility of academic activities in a way that does not compromise the academic standards.
- Special approach implies an array of accommodations, especially in teaching methods and techniques provided to a specific student with a disability without compromising the defined academic standards.
- Students with disabilities are all students that have difficulties in realization of everyday academic activities due to disease or impairment (regardless of the decision on disability). This definition, besides students with sight and hearing impairment and physical disability includes students with chronic diseases, psychological disorders and specific learning disabilities (Ordinance Regulating the Organization and Functioning of the Office for Students with Disabilities at the University in Zagreb, 2007).

**Andrea Fajdetić**

## **VISUALLY IMPAIRED STUDENTS**

**A blind student in her second year of undergraduate studies is satisfied with her choice of studies. Before applying to the university, she went to a regular secondary school. Even though she was accepted at the university, she postponed her studies. Why? During her education, she had gradually been losing her vision. She read the newspaper until her second year of secondary school and used her remaining vision for mobility and orientation. When her classes at the university began, she had to take care of her accommodation in Zagreb. Suddenly, she realized that studying in a big city and being independent was going to be a great challenge. She was not sure whether she was mature enough to handle the situation. There were many issues bothering her. How was she going to move around Zagreb? How was she going to accomplish everything that her mother used to do instead of her up until that point? She realized that she was not actually capable of taking care of herself alone, and she went to experts who included her in rehabilitation programs designed to help persons with vision impairments. During the rehabilitation period, she gained certain skills that helped her to do all of her typical everyday activities more quickly, efficiently, and safely. Today, she prepares meals by herself, washes her clothes alone, and when she has time, cleans her dormitory room. Even though she is blind, Maja still has remaining vision, which means a lot to her. For many years, she was convinced that if she used her vision it would be burdened and “spent.” She was afraid of using her remaining vision, because she thought that she was going to lose the poor vision that she had left. Today she is aware that that is impossible. Experts have taught her to interpret what she sees in a better way. They have also taught her how to help herself in situations in which her vision quality is significantly different.**

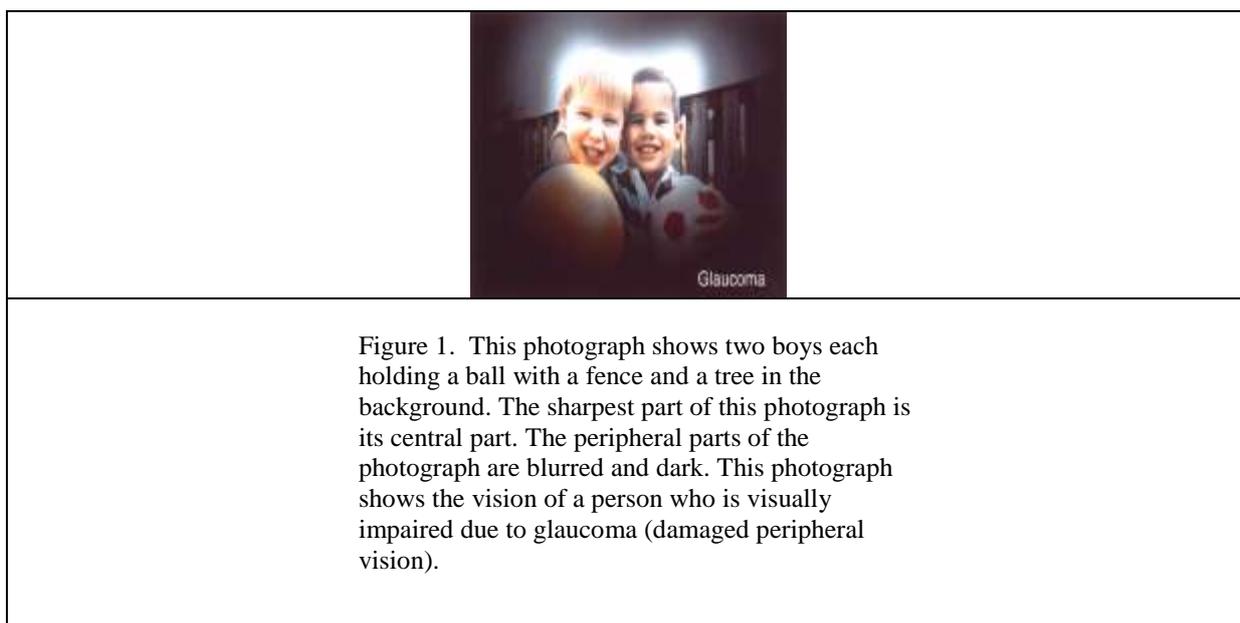
## **INTRODUCTION**

Vision impairment is a sensory impairment that causes low vision or blindness. The different terms used in the Croatian literature are often very similar and vague, or in some cases, these

terms are actually synonyms which describe this population, and it is often hard to define whom we are talking about. The following are typical terms used in books: blind persons, practically blind persons, blind persons with remaining vision, partially sighted persons, persons with vision impairments, etc. Some common terms used in foreign literature are the following: blind persons, partially sighted persons (those who have some remaining vision; this refers to the population of low vision persons), and visually impaired persons (those with visual impairments; this term refers to persons with visual impairments, including both blind and low vision persons). This handbook deals with visually impaired students, and by that we mean blind and low vision students.

Vision impairments may arise in any period of life as a result of health problems. They are defined by the diagnosis of an eye disorder and may be calculated according to the remaining vision expressed as a percentage. Vision impairments often involve several different eye diseases and affect various segments of visual functioning and the way in which vision is used (Colenbrander 2003). Vision impairment may also occur at birth, or it may arise as a result of eye diseases. Visually impaired students vary according to the degree of vision impairment. Vision impairment is reflected in the results of the estimation of visual acuity (vision quality) and the estimation of the amplitude of accommodation (vision quantity).

Rajn (2011) explains the terms *visual field* and *visual acuity*. Visual field is the space that a person sees with both eyes while the head is stationary and the person is looking at a fixed point within a part of the surrounding area. Visual acuity is the ability to observe details.



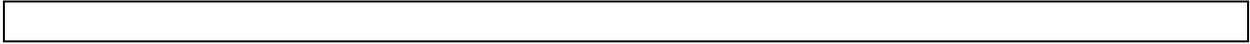


Figure 2. This photograph shows two boys each holding a ball with a fence and a tree in the background. The whole photograph is blurred. This photograph shows the vision of a person who is visually impaired due to cataracts.



Figure 3. This photograph shows two boys each holding a ball with a fence and a tree in the background. Some parts of the photograph are completely black. The faces are split and cannot be recognized at all. This photograph shows the vision of a person who is visually impaired due to diabetic retinopathy. The photograph is a simulation of peripheral and central visual field loss.



Figure 4. This photograph shows two boys, each holding a ball, with a fence and a tree in the background. The central part of the photo is blurred. The sharpest part of the photograph is the ball (the lower part of the photograph). This photograph is a simulation of visual field impairment and lowered visual acuity.

Internet source for figures: <http://www.icareoptometrists.net/eye%20health%20disease.htm>

The population of visually impaired students is by its characteristics extremely varied, and, apart from visual impairments, students may have other difficulties. Other difficulties include hearing impairments (Lolli & Sauerburger 2006), motor impairments (Rosen 2006), learning and other disabilities. There are various types of ability of using remaining (residual) vision, that is, there are various levels of functional vision. This depends on various eye disorders as well as on the influence of the individual characteristics of the student.

The most common eye disorders that lead to visual impairments include amaurosis, amblyopia, ametropia, astigmatism, albinism, aphakia, optic nerve atrophy, macular degeneration, glaucoma, visual field loss, optic nerve hypoplasia, cortical visual impairment, cataract, coloboma, nystagmus, refractive errors, and diabetic retinopathy (see the glossary of terms, below). The loss and the impairment of vision in adulthood may be caused by trauma, tumor, myopia, degenerative eye diseases, and the like. Even though it may seem that being familiar with the diagnosis of each visually impaired student is not so important, learning about diagnoses may be helpful for preparing and adapting the materials. Every diagnosis has a different effect on the visual functioning of the visually impaired student.

Visually impaired students have the same needs as all other students. It is a reasonable and justified presumption that a visually impaired student (as any other student without any impairment or with some other impairment) wants to move independently, to be informed and participate in classes, to learn, and to meet their student obligations.

There are various institutions, offices, and non-governmental organizations that provide support for visually impaired students. Depending on available funds, this support may include significant help regarding rehabilitation, as well as psychological and social help. Some specific rehabilitation programs provide for the regaining of important skills as well as independent and efficient functioning of the program of activity in everyday life (Heslinga 1979; Sajković 2007), Braille (Fajdetic 2010), assistive technologies, orientation and movement (Zovko 1994 & 1998; Rotim 2007), and vision exercises (Markowitz 2006; Košćec 2007).

To have a successful study program that involves visually impaired students, it is of great importance to be familiar with the specific functioning of every student. It is necessary to be familiar with the levels of functional vision and the advantages of visually impaired students. Knowing the students helps with the selection and adaptation of teaching methods and tools,

assistive technologies, access to information (Augusto & Schroeder 1995), methods of classroom accommodation (Cox & Dykes 2001; Gray & Wilkins, 2005), etc.

**For more information about visually impaired persons, please visit the following Web pages:**

The Vinko Bek Center for Care and Education <http://www.centar-vinko-bek-zg.skole.hr/>

Croatian Association of the Blind <http://www.savez-slijepih.hr/>

Croatian Library for the Blind <http://www.hkzasl.hr/>

Association for the Promotion of Education for the Blind and Visually Impaired  
<http://www.uuosso.hr/>

Silver Rehabilitation Centre <http://www.czrs.hr/centar-silver-czrs>

Optical Studio and Polyclinic for Ophthalmology <http://www.monokl.hr/pomagala-za-slabovidne/38/>

The Typhological Museum <http://www.tifloloskimuzej.hr/>

There are numerous myths and prejudices regarding visually impaired students, blind students, or partially sighted students. The following includes the most common myths and prejudices and real facts regarding visually impaired students, i.e. blind and partially sighted students.

<b>Myths and prejudices (regarding visually impaired students)</b>	<b>Facts (about visually impaired students)</b>
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<b>Visually impaired students do not have the same needs as other students at the university.</b>	<b>Visually impaired students have the same needs as all the other students.</b>
<b>Visually impaired students are not able to study at university.</b>	<b>Visually impaired students are able to study at university. In most cases, visually impaired students are very successful students.</b>
<b>Visually impaired students can study only at some universities and academies.</b>	<b>With reasonable adjustments, visually impaired students can study at most universities and academies and can apply to most programs of study.</b>
<b>It is complicated to adjust classes to the needs of visually impaired students.</b>	<b>Teaching types, methods, and techniques are the same for all students.</b>
<b>The adjustment of classes is very time consuming and requires a lot of engagement.</b>	<b>Depending on the type of impairment and the effect that that impairment has on the way that the student collects information and participates in classes, class adjustment includes certain methods that are already well known and practiced.</b>
<b>Visually impaired students have few opportunities to participate in sports. There are sports in which visually impaired students cannot participate.</b>	<b>Most sports can be adjusted. Visually impaired students successfully participate in various sports.</b>

<b>Blind students do not see anything. Blind students live in complete darkness.</b>	<b>Most blind persons have a usable amount of remaining vision. The amount of remaining vision that blind students have is less than 5%.</b>
<b>Remaining vision determines the</b>	<b>The use of vision does not depend on remaining</b>

<b>quality of vision.</b>	<b>vision but on its functionality.</b>
<p><b>Blind students can only do certain jobs.</b></p> <p><b>Blind persons can only be successful at certain types of jobs.</b></p> <p><b>Blind persons can only work as masseurs, physical therapists, or call agents.</b></p>	<p><b>Certain occupations are traditionally related to the population of visually impaired persons.</b></p> <p><b>However, the facts show that visually impaired persons have various (and very successful) professional careers.</b></p> <p><b>Blind persons choose their occupations in the fields of management, arts, crafts, trade, education, communications, legislation, medicine, politics, media, science, rehabilitation, and social work.</b></p>
<b>Blind students have better hearing than others.</b>	<p><b>Blind students do not have better hearing abilities.</b></p> <p><b>They are focused on the communicated information they receive through hearing, as well as on the gathering and interpretation of all auditory input.</b></p>
<b>Blind students are more musically talented.</b>	<p><b>Blind students may be more or less musically talented.</b></p> <p><b>On average, they are equally talented as other students.</b></p>
<b>Blind students write slowly.</b>	<b>Blind students write at equal speeds as, or even faster than, students who do not have any impairment. Various tools and new technologies assist them in writing.</b>
<b>Blind students write only in Braille, and if they need to sign something, they write an X.</b>	<b>Blind students can write in upper or lower case. Writing in the latin alphabet is part of the rehabilitation of the blind. Blind students can write their signature on their own.</b>
<b>Guide dogs lead blind students</b>	<b>Blind students make the decision about the</b>

<b>around. Guide dogs make decisions on their own and point the direction.</b>	<b>direction. Blind students give orders to the dog, monitor the movement of other participants in traffic and point the direction of the dog's movement.</b>
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<b>Partially sighted students write faster than blind students.</b>	<b>Partially sighted students often write more slowly than the blind. Visual impairment affects the way visual input is gathered and interpreted, so partially sighted students often write slowly and their writing is often illegible.</b>
<b>Partially sighted students have normal vision.</b>	<b>Partially sighted students' remaining vision is less than 40%. Partially sighted students' vision is significantly impaired.</b>
<b>Partially sighted students' vision is a little worse than the vision of students with no visual impairments.</b>	<b>Partially sighted students' vision is significantly worse than the vision of students with no visual impairments, and their visual input is significantly altered and impoverished.</b>
<b>Partially sighted students will "spend their vision" or will "damage it even more."</b>	<b>Vision cannot be "spent" or "even more damaged."</b>

## **THE EVERYDAY LIFE OF VISUALLY IMPAIRED STUDENTS**

The everyday life of visually impaired students is very similar to the everyday life of other students. Visually impaired students live in student dormitories or in private housing. Some students do not change their place of residence and stay in their parents' home during their studies.

Everyday life involves all of the usual activities: taking care of oneself, maintaining personal hygiene, maintaining the household, preparing meals, leisure, professional and voluntary

activity, and the like. It takes a little longer for them to organize and carry out everything mentioned above, and they also need to be very well-organized personally. There are certain methods and techniques that make it easier for them to function and orient themselves. These methods and techniques also make certain activities less dangerous (Heslinga 1979).

Visual impairment makes everyday functioning somewhat demanding. Some visually impaired students have difficulties with orientation, independent functioning, and time management. Without specific skills, the everyday life of visually impaired students can be very frustrating and their activities extremely demanding. If all such activities are demanding, it is very difficult to focus on student obligations. Getting groceries, preparing meals, and maintaining a household require more time and energy.

Vision enables a person to gather of a great amount of information independently. Visually impaired students have to use their memory more because they cannot gather visual input. Therefore, they have to use specific organizational and other skills. For example, if a student with no visual impairment forgets where their student identity card is, they would look for it on the desk using their vision and locate the card. In the same situation, a blind student has to look for it using their sense of touch. This takes longer and is not as efficient as searching visually.

Leisure and sports are very important for the maintenance of our health. In their free time, visually impaired students may get involved in various leisure activities and sports. Most sports can be adjusted to them.

Visually impaired students do not need pity, but they sometimes need help and support. It is possible that a visually impaired student has not asked for professional help or taken part in training and rehabilitation programs. A mentoring approach and sincere involvement can help a lot to direct a student and motivate them to take part in specific programs and/or organize their time in a meaningful manner.

## **Useful advice**

### ***Housing***

*Visually impaired students differ in terms of the way they make personal decisions and choose their housing. Some students choose private housing, some stay with their parents, and some live in student dormitories.*

*One should not assume that visually impaired students would want to live in a separate part of the dormitory accommodated specially for students with disabilities. If they have an option, they should be asked where they want to live. Sometimes accessible and accommodated housing means that it is close to the tram station. It does not have to be accommodated in some special way like it has to be for students with various other needs.*

### ***The use of common rooms***

*When using common rooms, it is advisable to follow certain rules that make the surroundings safer for blind and partially sighted persons.*

*Every open cabinet or drawer represents a change in the space that visually impaired students do not expect, making it a potential obstacle which could cause them to fall or hurt themselves. The rules are simple: do not leave cabinets, windows, or drawers open. Do not leave chairs around the room – push them under the table. The main or any other door must always be either closed or completely open.*

*It is not advisable to often rearrange the furniture and other objects in the room. If a change is made, the student should be informed about it. It is advisable to ensure that the student is familiar with the new order in the room. All of the things in the room should always be put in the same place.*

*Also, one should keep in mind the use of electric cables for charging notebooks and other long cables. Electric cables and other installations that are not put into channels for cables present a threat for blind and partially sighted persons because they might fall if the cables are all around the floor.*

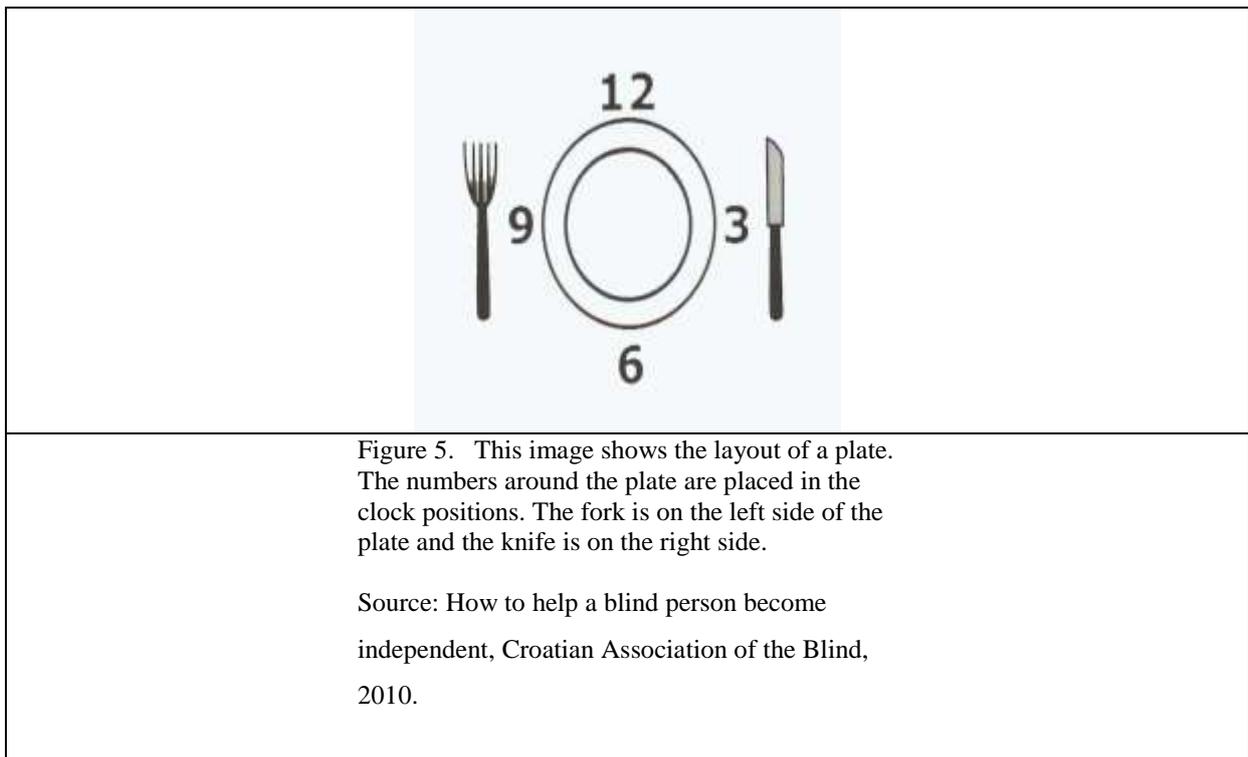
### ***Diet***

*You should offer assistance with choosing and serving food to a blind person if they do not have a seeing guide.*

*You should assist them with reading the menu. Firstly, you should describe the categories of food on the menu (appetizers, soups, main dishes, side dishes, deserts, drinks) and let them decide what to take. You should also read the price of each item.*

*You should describe where the food has been served, using the positions of the clock. The simplest way to do this is to say: “The meat is at 12 o’clock, vegetables are at 9 o’clock and the side dish is at 3 o’clock.”*

*When you put food or drinks on the table, you should tell the visually impaired student the following: “Here, Maja, water is on your left side.” The sound that the glass makes is an additional auditory input that a visually impaired student (together with the verbal input about the location of the glass) uses to locate the glass on the table.*



*The student cafeteria should provide menus in alternative forms like Braille, large print or audio recording. Information about the dishes and daily menus would be more accessible if put on a web page.*

### ***Leisure time***

*In their free time, visually impaired students do all of the same things as all the other students: they listen to music, go to all the popular gathering spots of students, go to the movies or the theater, participate in walking and hiking tours, travel. Visually impaired students play chess, cards, darts, Monopoly, and other games.*

*You should motivate visually impaired students to take part in various activities of organized free time, or you should include them in those organized at the university.*

*Visually impaired students may participate in various sports: Alpine and Nordic skiing, swimming, boating, archery, futsal (indoor soccer for the blind and the partially sighted), goalball, bowling, weightlifting, cycling in pairs, athletics, and judo. Visually impaired students also engage in the dramatic and musical arts.*

For more information, please visit the following links:

Vinko Bek Center for Upbringing and Education <http://www.centar-vinko-bek-zg.skole.hr/>

Zagreb Sports Association of People with Disabilities <http://www.zssi.hr/>

Croatian Paralympic Committee <http://www.hpo.hr/>

New Life Theatre of the Blind and Visually Impaired <http://www.novizivot.hr>

Croatian Blind Sport Association <http://www.hsss-cbsa.hr/>

## **ASSISTIVE TECHNOLOGIES FOR VISUALLY IMPAIRED STUDENTS**

**Zlatko is in his second year of graduate studies. He was born blind, and he loves engineering and technology. Many people would feel bad for him and say: “Poor him – he is blind.” People sometimes react in a good way and behave normally, but most times people are not so comfortable when they meet him. Zlatko says that this discomfort manifests in the way that people avoid communication with him. Zlatko thinks that this kind of behavior does not have anything to do with his blindness but with their politeness. Sometimes he hears the thoughts and doubts of his professors that he is not**

**capable of participating in classes equally. However, Zlatko uses assistive technologies. He admits: “I am not sure if I would have finished my studies if I had not had the opportunity to use all the advantages of computer innovations. I would carry everything with me to my classes. In my legendary bag, I would always carry an electronic notebook, a digital audio recorder, and an electronic magnifier.” Zlatko knows how to use his remaining vision. That confuses people around him. “Zlatko says that he is blind but look at him – he can see.”**

It is not unusual for students without impairments to use computers and other technologies, and that they have everyday access to information through various Internet browsers and other tools. Visually impaired students have the same needs. Technical developments have made visually impaired students equal to the students without impairment (Söderström & Ytterhus, 2010). Assistive technologies make class attendance easier and provide access to information for visually impaired students. In order to utilize assistive technologies in full when it comes to classes held at institutions of higher education, it is advisable to allow students to explain all of the features of the assistive technologies that they use. Assistive technologies provide access to previously prepared materials. Students know their assistive technologies and can explain all of the styles in which the materials might be used. Information and communication technologies provide fast and adapted access to and processing of information (data).

DeFreitas et al. (2009) claim that assistive technologies are applicable to visually impaired students and explain why it is important that adequate computer programs are chosen. Information technologies increase their efficiency of reading and writing skills, as well as their equality in terms of the ability to communicate with their surroundings. Therefore, their standard of living is increased and their process of learning is improved. Information technologies are a very important tool for the promotion of the independence and autonomy of visually impaired students. Students use a combination of styles, tools, and techniques in order to fulfill their obligations at the university.

#### Assistive technologies for blind students

Assistive technologies for blind students include (1) screen readers and speech units, (2) electronic notebooks, and (3) other electronic tools. Screen readers and speech units make it possible to listen to all of the information shown on the screen or in a document. In this way, the student's access to written information is adapted.

Electronic notebooks are assistive technologies that are accommodated to meet the needs of the blind. Electronic notebooks for the blind are easy to carry and serve as a tool for saving and accessing various types of information. Actually, electronic notebooks are special notebooks that convert written input into sound and very often have a Braille line. A Braille line is the part of the electronic notebook for reading the written input, and its main function is the conversion of written text into tactile form, i.e., Braille. A Braille line may consist of 20 or 40 Braille characters. Electronic notebooks significantly contribute to making blind students equal to students without impairments.



Figure 6. This photograph shows a computer for the blind with a Braille line. There are also speakers, a monitor, and a telephone.

Source: *How to help a blind person become independent*, Croatian Association of the Blind, 2010

### Assistive technologies for visually impaired students

Assistive technologies for visually impaired students include (1) screen magnifier programs and (2) electronic magnifiers. Screen magnifier programs enable visually impaired students to adapt visual materials and make reading and orientation easier. Electronic magnifiers have the same purpose. There are portable magnifiers and parts of assistive technologies with their own screen.

## **Useful advice**

### *Partially sighted students*

*Partially sighted students may use pencils or markers. A pencil is an instrument used for writing and drawing with the widest range of color possibilities. Pencils differ by hardness: hard (HB), soft (B). Partially sighted students may use soft pencils (B3, B4 or softer). Soft pencils leave a thicker and darker trace that makes reading easier. Partially sighted students may also use markers of various types of thickness and of high contrast. Partially sighted students may prefer additional lighting. This can be set up on a table, or it can function as part of a portable magnifier. Magnifiers may enlarge the contents of the screen (books, catalogues, magazines, articles).*

### *Blind students*

*Computers for the blind and the partially sighted include software and hardware solutions that are evolving day by day. The availability of these solutions makes each assignment easier, even though one usually needs to see to be able to do those assignments (reading texts from the computer screen, writing various essays, papers, etc.) It should be ensured that the students have access to all of the assistive technologies. It should not be forgotten that the type of assistive technology depends on the type of teaching material. The students may use a Braille machine, a slate or a stylus. A Braille machine is not a very attractive teaching tool. It is massive and heavy. Nevertheless, it is irreplaceable in teaching mathematics or any kind of calculation. Characters written by a Braille machine enable students to check and overview what they have written. The Braille line on electronic notebooks consists of a small amount of characters (Braille) – from 20 to 40 characters per line. The problem is that, with notebooks, only a part of the calculation is available due to the small number of characters that fit in one line (Braille characters are very complex in mathematics). The calculation written with a Braille machine is completely available, because it is written on a Braille paper and not saved as a file on an electronic notebook. The Braille machine is irreplaceable in teaching such subjects as mathematics, physics, chemistry, accounting, etc.*

*For more information on assistive technologies, please visit these sites:*

Croatian Association of the Blind <http://www.savez-slijepih.hr/>

Association for the Promotion of Education for the Blind and Visually Impaired

<http://www.uosso.hr/>

## **MOBILITY OF VISUALLY IMPAIRED STUDENTS**

**Lukas is a blind student pursuing a doctoral degree. Depending on his obligations, he attends classes and comes to the university on his own. Even though he comes from a small town, he does not have any problems getting around Zagreb. He has a guide dog and a white cane. He chose a guide dog because he really likes to go outside, and the dog ensures that his walks are dynamic and provides him the safety that he needs.**

**Depending on the situation, Lukas uses various walking methods. There are various mobility methods for the blind depending on their needs and circumstances: a guide dog, a white cane, a seeing person's assistance, and the technique of following.**

**Sometimes he uses the upper part of his hand to follow pointers, and as for additional protection he uses safety techniques.**

Students are an extremely active population. They travel and participate in various events – they are active and conscious citizens. Visual impairments may significantly affect independence in mobility, and yet, most of visually impaired students move independently both in their place of residence and in their place of study. Visually impaired students independently choose the way in which they will move and use various methods/techniques for moving. When visually impaired students are assisted by a person without visual impairments (a so-called seeing guide), the consequences that visual impairment has on the visually impaired student's mobility are hardly noticeable. Together with the assistance of a person without visual impairments, students may use the techniques of following and safety techniques like a white cane or a guide dog.

The technique of following is the simplest mobility technique used by the blind. It is used in closed spaces. It ensures orientation and pointing in motion. The technique of following is used when a blind person uses the dorsal part of their hand to feel and follow objects in space

(such as a wall or a table). Safety techniques are used for the protection of the upper and lower parts of the body. The position of the hands in relation to the body and head enables timely recognition of obstacles and reduces the possibility of injury.

A white cane is used both in open and closed spaces. A white cane helps detect obstacles and protects the lower part of the body. A white cane also attracts the attention of other people to the visually impaired person. It warns people to pay attention to the blind person and to assist them.

Not all visually impaired students need mobility assistance. Most students will look for help on their own if they need it. If you want to offer assistance, say hello and introduce yourself (so that the student knows who has approached them) and ask them if they need assistance. If the student accepts the offered assistance, put the dorsal part of your hand on the dorsal part of his hand.



Figure 7. This photograph shows two students. The student is establishing initial contact with the visually impaired student.

A visually impaired student will follow your forearm and put their hand under your elbow. Hold your elbow slightly bent.

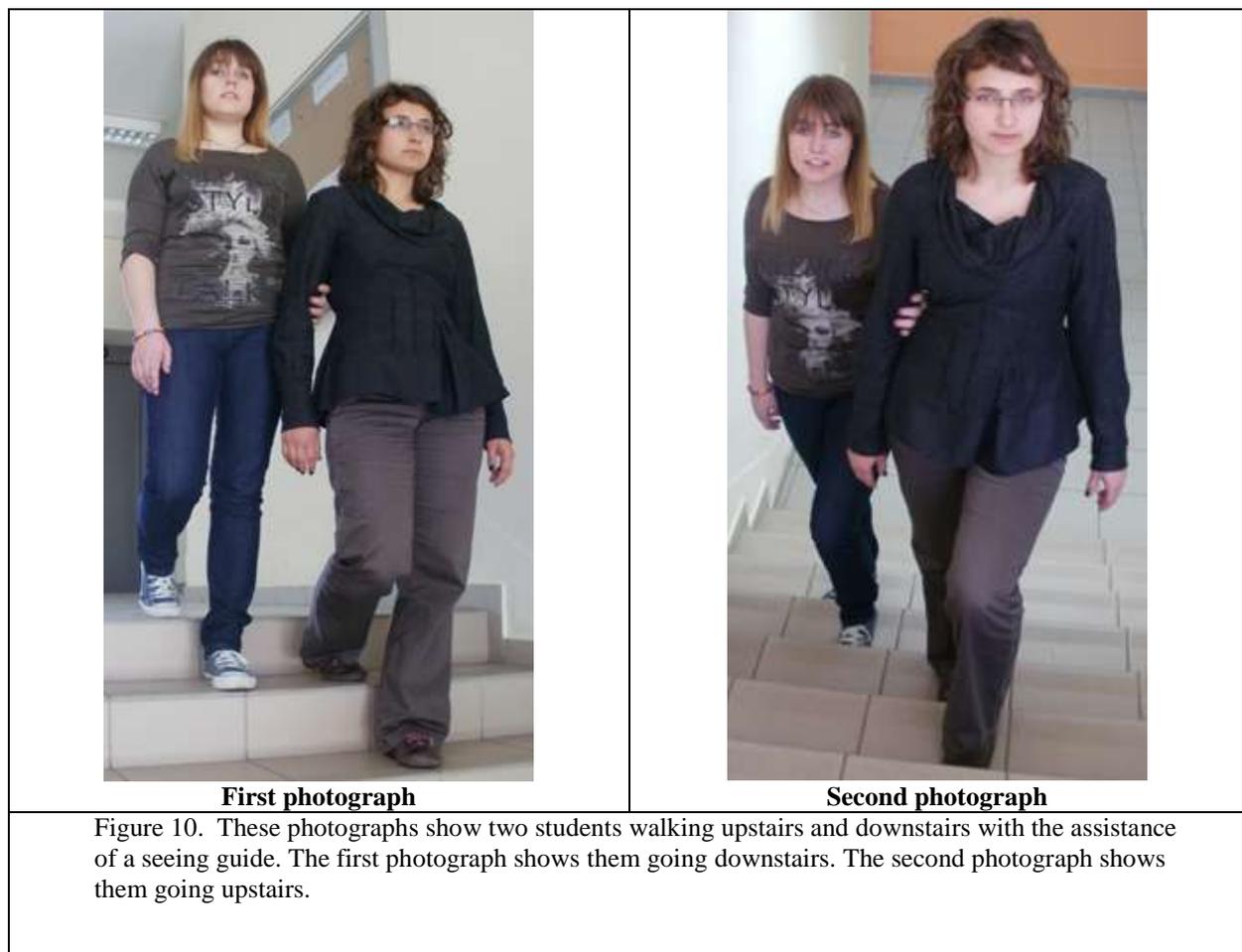


Figure 8. These photographs show two students. In the first photograph, the visually impaired student is holding the upper arm of the seeing guide and standing half a step behind her. In the second photograph we can see how the upper arm should be held.

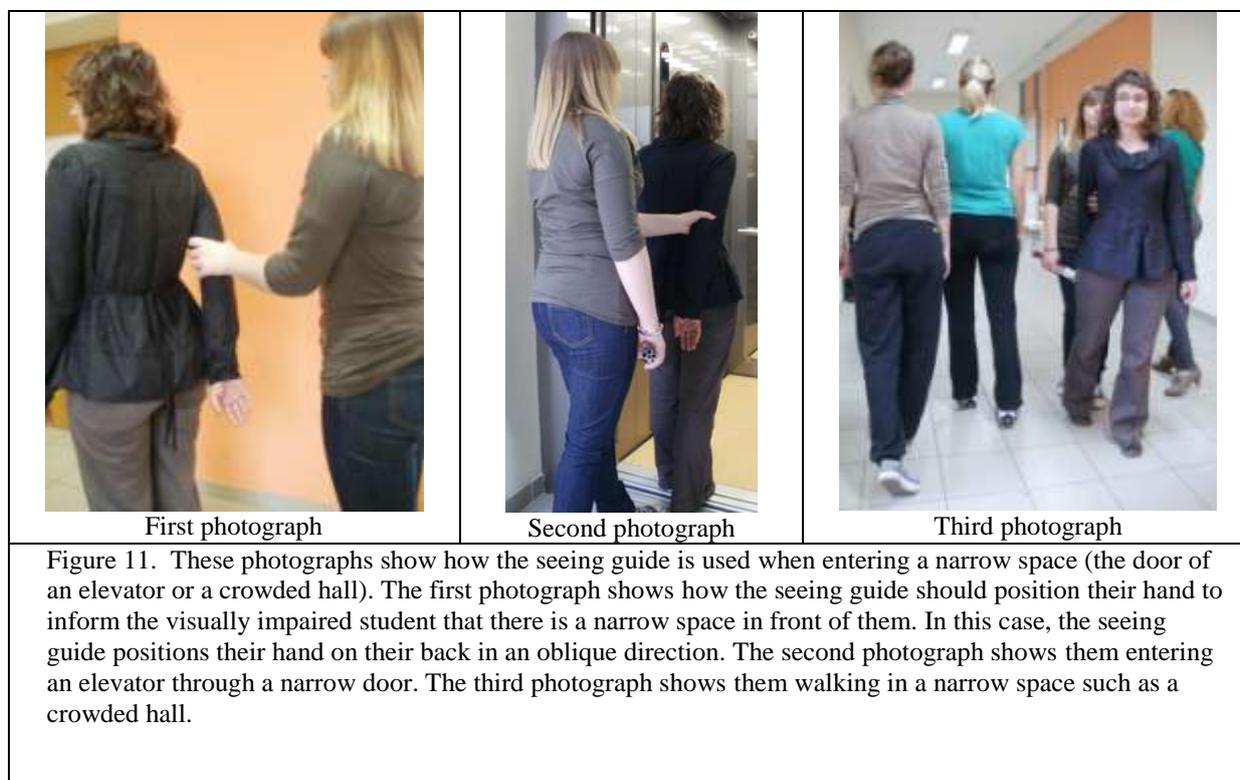


Figure 9. These photographs show two students. The first photograph shows how a visually impaired student walks with the assistance of the seeing guide. The second photograph shows what it looks like to walk with the assistance of a seeing guide.

The student will know how to follow and interpret your motion. The student walks a step behind the guide in order to respond in time (e.g., suddenly stop). To inform the student in time about steps (or some other kind of obstacle), it is important to say, “There are some steps in front of us going up/down.” For the student to be able to locate the step and place their foot on the first step, it is necessary to approach the steps vertically and stop after stepping on the first step.



It is not easy to move in various types of spaces, and some types of spaces are not wide enough for two persons. In such cases (e.g., a crowded hall), the seeing guide should position their hand behind themselves in order for the visually impaired student to move behind them, not beside them. Verbal instructions are given in this way: “We are entering the elevator and the door is narrow” and the hand of the seeing guide is in an oblique direction behind them.



When walking, it is necessary to pay attention to obstacles at the level of the head. To be sure that the visually impaired student will not hit any obstacles, you must take both your own body width and theirs into consideration (double body width). It is also necessary to pay attention to what is in the way of the person that you are guiding. When going through a door, let the visually impaired student open it. Check if the student is on the “right side.” In order for the student with impaired vision to take part in opening a door, they should be holding your hand on the side of the door’s hinges. When the seeing guide puts their hand on the handle, the visually impaired student follows their hand with their free hand, puts their hand on the handle, and after entering the room, closes the door.



First photograph



Second photograph



Third photograph



Fourth photograph

Figure 12. These photographs show two students going through a door. The first photograph shows the seeing guide putting her hand on the handle. The second photograph shows how the visually impaired student locates the handle. The third photograph shows how the seeing guide goes through the door and the visually impaired student holding the door open. The fourth photograph shows both students entering the room and the visually impaired student closing the door.

A seeing guide also assists a blind person in finding a seat (in the cafeteria, classroom, or library). After choosing an adequate location, the seeing guide puts their hand on the back of the chair while the visually impaired student follows their forearm and puts their hand on the back of the chair. As an additional precaution,

the seeing guide helps the visually impaired student locate the desk. After locating the back of the chair and the desk, the student can sit down.



Figure 13. These photographs show two students. The first photograph shows how the seeing guide helps the visually impaired student locate the back of the chair. The second photograph shows the student as she follows the forearm of the seeing guide to locate the back of the chair. The third photograph shows how the seeing guide helps the visually impaired student locate the desk.



Figure 14. These photographs show a visually impaired student sitting down in a chair. The first photograph shows the visually impaired student pulling out the chair. The second photograph shows the visually impaired student sitting down while holding the back of the chair.

## **Useful advice**

*If you notice a visually impaired student walking on their own close to you, greet them although you may not personally know them. Do the same thing when entering or leaving a room in which there is a visually impaired student. In this way, the student gets information about who is close to them or who is in the room.*

*If visually impaired students have to walk within a university building, try to influence the defining of the rules related to putting down unnecessary objects in the corridors and classrooms. One should also pay attention to windows, doors, and other objects in a room, so that a visually impaired student does not get injured. Objects left on the floor may be a potential obstacle on which a student may trip and fall.*

*It is always good to offer help, especially if you believe that a student needs help when walking. Depending on his or her real needs, a student will accept or refuse your help. When offering help, be direct, do not speak loudly and look directly at the visually impaired student. You can simply ask, "How can I help you?"*

*Never grasp a visually impaired student by the hand and drag them along.*

*Never push a visually impaired student. Do not drag a visually impaired student over a curbstone.*



*A visually impaired student cannot anticipate your moves. Ask him/her whether s/he needs any help, and simply say, “Here is my left hand”. Touch the back of the hand of the student*

*you want to help with the back of your hand. The student will know how to grasp your arm (above the elbow).*

*When walking with a visually impaired student, walk at a normal speed and make a short stop before going up or down steps. Do not drag a visually impaired student over a curbstone.*

*When giving instructions which should make a blind student's orientation in space easier, do not show direction with your finger. Instead, describe particular landmarks (buildings, kiosks, etc.) or the pathway itself. For instance, say, "After two crossings, turn left. Your destination is on the right side of the road (when going toward the north)." When giving verbal instructions, they should be expressed in such a way that they relate to the blind person's direction/side: "Turn left". The most common mistake when giving guidelines and instructions for walking is to express the instruction from our point of view. One should keep in mind that, to a person who is facing us, "our left" is "his or her right."*

*When a student has a dog guide, it is desirable to ask them which spot in the classroom suits them the best and to enable the student to keep the dog guide next to them. When the dog is guiding, it is performing a serious task, and at that moment, it is neither a pet nor a friend. One should not address the dog without asking the blind person for permission.*

For more information about walking, please visit the following websites:

Silver Rehabilitation Centre <http://www.czrs.hr/centar-silver-czrs>

Croatian Guide Dog and Mobility Association <http://www.psivodici.hr/>

## **COMMUNICATION SKILLS OF VISUALLY IMPAIRED STUDENTS**

**Group consultations are a usual activity during one's studies. A blind student who has good communication skills will face his/her interlocutor during the conversation. His/her face will not be directed toward the floor, and the position of the head will follow the interlocutor's movements, if s/he is moving. When agreeing with what has been said, a**

**student will nod his/her head (up and down) as a sign of approval. A student will react to a joke with laughter or a smile. When having more than one interlocutor, a blind student will direct the position of his/her head toward the various interlocutors as they speak.**

Young people, that is, students, often worry about meeting new friends, finding a suitable peer group that will understand them, and being accepted. It is necessary to apply one's skills of communication and interaction with other people, known as social skills, in order to fit into a particular interest group. One's relationship with other people, acceptable behavior, and obeying rules include both nonverbal and verbal skills. Vision enables the simultaneous gathering of information from one's immediate environment, which makes socialization easier. In other words, rules of behavior are acquired by imitating the behavior of people from one's environment. With the help of imitation, we learn how to introduce ourselves, how to meet someone new, how to listen to our interlocutor or to control our reaction when we are angry, and how to ask for permission. In the same way, with the help of imitation, we learn how to deal with specific problematic situations, such as conflicts, how to show empathy, and how to cooperate. The visually impaired have different ways of acquiring social skills because of the influence of visual impairment and the features of their behavior. The usual ways of acquiring rules of behavior are not the most efficient ones.

Although it seems easy to use acceptable and desirable patterns of behavior, a visually impaired person has to learn how to position his/her body and direct his/her head toward the interlocutor, how to react when disagreeing with what has been said or when s/he believes the opposite. Since they are not able to observe people around them, visually impaired students do not learn through imitating in their early childhood, and this is why they do not learn how to communicate nonverbally. The poverty of facial expression and simple mimicking is noticeable in almost all visually impaired students, especially in blind students. Weaker nonverbal abilities and skills can give the impression that the student is not interested or rude (which is most often not the case).

Some visually impaired students can have stereotyped behaviors. A synonym for stereotyped behaviors is the term *blindisms*. Although this synonym implies behavior typical for blind people, stereotyped behaviors are noticeable in all people. The most common stereotyped behaviors are rubbing the eyes, head weaving, and body swaying (forward/backward).

## **Useful advice**

*Since it is not possible to establish eye contact, communication between an educator and a student can be difficult. When you want to ask a visually impaired student a question, and s/he is taking part in group or pair work, address the student by name, so that s/he knows that the question relates to him/her.*

*When expressing specific instructions, it is important to be precise and short. For instance, instead of saying “here” or “there”, it is more helpful to say “in front of you,” or “on your left/ right.”*

*When communicating, it is important to recognize facial expressions. Students with low contrast sensitivity (who perceive facial expressions as fast, moving, pale shadows) will not be able to recognize one’s facial expression and other nonverbal messages.*

*Stereotyped movements of visually impaired students appear because of different causes. They can appear because the student’s situation is stressful, because they miss a small amount of visual information which would otherwise have included the student in an activity, or because the student is thinking or is dealing with a problem. Stereotyped behaviors of visually impaired students are considered undesirable, but it would be wrong to take them into consideration when evaluating the outcomes of students’ learning and achievements.*

*Information gathered during a conversation with a visually impaired student is sometimes not enough for a teacher to get detailed insight into how the student fulfils his/her obligations. Furthermore, additional information cannot be gathered by observing a visually impaired student’s nonverbal communication. That is why it is always advisable to ask additional questions such as “What do you think about it?” or “Do you have any suggestions?”*

*Since visually impaired students, and especially blind students, are more familiar with perceiving auditory information, it is unnecessary to speak louder (in most cases, visually impaired students do not have an additional hearing impairment), but one should also not speak quietly, especially in situations where noise aggravates the hearing and understanding of an uttered message.*

*The visually impaired are not able to establish nonverbal communication (eye contact). Therefore, always introduce yourself and greet them. This is a simple way for a student to get information about who is close to him/her. This is important because blind and partially sighted students cannot always recognize a person by his/her voice.*

*When communicating with a visually impaired student, it is usual to use the words “watch,” “look” and “see.” Visually impaired students watch and see, and while doing that, they also use other sensory modalities – hearing, touch, or smell.*

*When talking to a blind person, it is good to look directly at that person. If you change the direction of your gaze and the position of your head, your voice will be directed in the new direction. The blind person will therefore know that you are not looking at him/her.*



*When the nonverbal part of communication (for instance, the facial expression, which supplements what is said and gives new meaning, etc.) causes a reaction of a group of students, it is desirable to verbally explain what provoked laughter, comments, etc. in the group, so that a visually impaired student is included in the group’s work in the same way that the sighted students are.*

Communication with a blind student is largely based on providing information using speech and hearing the uttered facts and messages. It is often thought that blind students have better and sharper hearing. However, the average blind student actually does not have above-average hearing. The features of auditory functioning of a blind student are equal to the abilities and features of an average sighted student. Although blind students do not hear better, they pay more attention to the perception of auditory information. It is not necessary to emphasize that, when communicating with their environment, visually impaired students use speech. The speech of visually impaired students can be impressive. Speech is one of the advantages of this population. However, because of their everyday functioning without visually collected information, there are sometimes difficulties called *verbalism*. This term denotes difficulties of a semantic (concerning the meaning of words) and pragmatic (concerning language use) nature. Blind students sometimes use words in the right context, but there is no real understanding of individual words. To check whether they really understand a concept/word, a teacher may ask for additional explanations and a description of the concept/object, its function, its features, etc.

### **An example of verbalism of a visually impaired student**

**Petar is a blind biology student. He has never had problems with memorization or simple reproduction of teaching material, which can also be seen by his grades (he has had an extraordinarily high grade-point average). However, Petar's educators have noticed a decrease in his acquisition of abstract concepts, accompanied by mere reproduction of facts during his higher years at university. They came to this conclusion based on an interesting event. There was a conversation about brown bears, a native species in Croatia. Petar knew everything about brown bears and research, and when he had to describe how big a brown bear is, he said: "it is more or less as big as an African elephant." Connecting and relating size was always harder for Petar.**

## **WRITTEN COMMUNICATION OF VISUALLY IMPAIRED STUDENTS**

**Ana is finishing the college she has chosen with top grades. She wants to get a job, but it is hard to find a job today, especially if you are a person with disabilities, who needs additional help and adjustment of the workplace. Ana believes that the skills she possesses, especially the communication skills, compensate for the difficulties caused by her visual impairment. She has always known that successful communication also includes the skills of written communication. She likes new technologies and uses all possibilities of access to written information. She uses touch (Braille), hearing (she often listens to the digital notes from her classes) and sight (she successfully uses her functional vision when watching simple graphical illustrations). She believes that her ingenuity and competence in written communication with the help of a computer will help her find a job.**

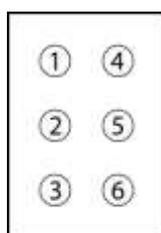
One of the usual activities of students is writing. While studying, visually impaired students communicate and use written language. When writing, they use Braille or standard print. Braille is known throughout the world as a system of raised dots. Different research show how important the use of Braille is (Allman 1998). Depending on the number of dots, two kinds of Braille are distinguished: six-dot and eight-dot Braille (computer Braille). Six-dot Braille is written with the help of standard aids (slate and stylus, Braille machine). Eight-dot Braille is a computer Braille written and read with the help of assistive technologies. Braille is a dynamic code system which is changed depending on the needs and improvement of individual sciences. Foreign language standards most often use Braille contractions – Grade 2 Braille (Krznarić 2001, 2002), and the most modern linguistic trends are trying to create the unique, that is, the Unified Braille Code of world national Braille notation (Wetzel & Knowlton 2006). In Croatian national Braille notation, the meaning of a particular sign depends on the context of use. The Croatian Braille standard supports the contextual use of Braille signs (Fajdetic 2010; Pugar 2002). National Braille notations are mutually different (Croatian Braille notation is different from German Braille notation).

In the twenty-first century, Braille is not exclusive anymore; it has become a writing system for “each and every person.” Braille can be used by blind and highly visually impaired persons, who use their touch when using this writing system. Highly visually impaired persons use Braille when they cannot read the standard, large, or adapted standard print. Braille can also be used by sighted people (experts, family members, or friends), who use

their eyes when reading. Modern, inclusive and total (complete) access to the Braille alphabet has enabled two forms of Braille: tactile and graphemic. The graphemic form of Braille is available when using computers and Braille fonts. Braille fonts are adjusted to every individual language, and they enable the preparation and the adaptation of materials, as well as the production of tactile illustrations. This form of Braille can be helpful during the process of learning, adapting, transcribing, and correcting a Braille text. Braille gets its tactile form through the use of Braille writing tools or assistive technologies.

The system of Braille dots is most often illustrated with the help of the graphemic illustration of the six-dot Braille system. The simplest illustration, in which the dots are marked with numbers, facilitates the memorizing of Braille combinations and is the basis for encoding individual Braille signs.

**Illustration: Graphemic illustration of the six-dot Braille system**



Description: Graphemic illustration of the six-dot Braille system illustrates the system of Braille dots. The system of Braille dots is determined by the position of dots within three horizontals: upper, middle, and lower, and two verticals: left and right. The first, the second, and the third dot are in the left vertical, whereas the fourth, the fifth and the sixth dot are in the right one. The first and the fourth dot can be found in the upper horizontal, the second and the fifth dot in the middle one, and the third and the sixth dot in the lower one.

Depending on their functional vision, each individual student will choose their tools and media to access written information. Individual ways of access within rehabilitation prefer and encourage the hearing of written materials, that is, “auditory reading”. Depending on the vision functionality and other features of visually impaired students, the system of support, and other factors, the student chooses his/her way of access to information on his/her own. During higher education, s/he can use only one medium (standard print or Braille), dual medium, that is, Braille and standard print (Lusk & Corn 2006), total access to information (a combination of their remaining vision, touch, and hearing; Fajdetic 2010) and there is also the possibility of using all assistive technologies.

## **Useful advice**

*Visually impaired students often use different media to access information. They also read and write in a specific way. The ability of written communication is the basis and the opportunity for the evaluation of knowledge and the results of learning with the help of a written exam. However, although visually impaired students have the ability take written exams, they are very often orally examined without a good reason.*

*If one decides to orally examine a visually impaired student instead of giving him/her a written exam, it is advisable to explain and to give information about the written exam in advance. It is desirable to inform the student about (1) the number of tasks and the number of points, (2) the type of tasks (cloze, multiple choice, open-ended questions), (3) the time at his/her disposal. In the above-mentioned situation, the examiner reads the questions. That is why it is advisable to set the rules in advance about: (1) the speed of reading the tasks, (2) the possibility of rereading a task, (3) omitting a task, (4) the possibility of going back to the same task, etc.*

### *Partially sighted students*

*It is often believed that students who are partially sighted will manage better if the materials are enlarged. However, the enlargement of a text is not an appropriate adaptation for students with peripheral vision impairment whose visual field is so narrowed that they have tunnel vision – in this case, the enlarged letters will be larger than the visual field.*

*If this happens, students cannot completely see the enlarged letters, only their parts. In order to adjust the materials, it is advisable to find out something about the best features of teaching materials. Enable partially sighted students to write in big, capital letters. This is sometimes the only way for them to read their own handwriting.*

*Help a partially sighted student when s/he has to fill out different documents and forms. It is also desirable to help him/ her when reading smaller letters. When a partially sighted student needs to sign a document, hold your finger above the place where the student has to put his/her signature.*

### *Blind students*

*It is advisable to allow blind students to use all the means necessary for written communication, so that they can communicate a written form. In individual situations, students will use more advanced technologies or more traditional writing means. The use of the Braille machine creates a unique sound, and writing is often described as “hitting the machine.” The sound which is created when using the machine can sometimes be disturbing for other students, and the mere loudness created by typing can be reduced if a sound absorbing pad is put under the Braille machine (a felt or soft rubber pad).*

*The loudness of the Braille machine is neither an excuse nor a possible reason for separating the student into a different room during the examination.*

*Complete (total) access to information and the use of assistive technologies help visually impaired students follow classes and enable them to be faster when preparing their notes. If a student uses several different technologies or needs some time to prepare the use of a particular assistive technology at a particular moment, it would be good to enable more time for the preparation and realization of an activity (sometimes even 100% more).*

*Help the blind student when s/he has to fill out different documents and forms. Read the document or send it to the student via e-mail. When a blind student needs to sign a document, hold your finger above the place where the student has to put his/her signature.*

For more information about written communication, publishing, and written materials, please visit the following websites:

Vinko Bek Centre for Training and Education <http://www.centar-vinko-bek-zg.skole.hr/>

Croatian Library for the Blind <http://www.hkzasl.hr/>

Croatian Association of the Blind <http://www.savez-slijepih.hr>

Association for the Development of the Education of Blind and Partially Sighted Persons  
<http://www.uosso.hr/>

## **VISUAL FUNCTIONING OF VISUALLY IMPAIRED STUDENTS**

The visual perception of visually impaired students is significantly modified because of different eye diseases. The functioning of visually impaired students is under the influence of individual features, visual abilities, and functional vision. A student's functioning also depends on whether s/he has other difficulties besides visual impairment, on his/her intellectual abilities and the abilities of compensating for the visual impairment with the help of the information s/he gets through other senses (touch and hearing). The features of the student's environment and learning materials also influence how successfully a visually impaired student functions. Environmental conditions may influence the visual functioning of a visually impaired person positively or negatively.

The way in which a visually impaired person uses his/her remaining vision influences all aspects of a visually impaired student's functioning (everyday skills, mobility, written communication, social skills, etc.). Persons with good functional vision walk independently, they most often do not need any help, and they do not use specific mobility methods for the blind. Furthermore, the performance of everyday activities is faster and more efficient, while less effort and energy is needed.

Contrast sensitivity may be defined as the ability of an eye to notice real physical differences of illumination (the luminance of two neighboring areas of a visual scene, such as a letter and its background). If a visually impaired student has a lack of sensitivity to differences in contrast, s/he will have difficulties in distinguishing between shades, as well as in the perception of details and in recognizing shapes.

Color vision is the ability of distinguishing one color from another. Both visually impaired and sighted persons can have difficulties in color perception. Normal color perception is the ability of a visual system to distinguish between colors in the visible spectrum, such as blue, green, yellow, red, purple, and orange, as well as the ability to notice differences in shades. Some visually impaired students have difficulty in seeing one part of the spectrum (red/green or blue/yellow).

Accommodation is the adjustment an eye makes in order to see close objects. Students with difficulties in accommodation also have difficulties in watching and noticing details. Noticing details actually tells us about the ability of looking at small objects, texts, or drawings (observing close materials).

Visual field is connected with the quantity of vision. Visual field impairment relates to a decrease in peripheral vision, central vision or the combination of a decrease in central and peripheral vision. Depending on their visual field impairment, students may have difficulty following moving objects or reading materials that have been adjusted in the wrong way.

Glare is light which is not useful for watching and which comes from an angled light source and enters the peripheral part of the eye, increasing the background light and decreasing contrast. If a visually impaired student is sensitive to glare, s/he may suffer from eye fatigue more often, which causes headaches. Glare may be caused by the specific functioning of the visual apparatus, unadjusted room illumination, particles in the air (dust), and the reflection of natural and artificial light from a glowing (varnished) surface.

Dark adaptation is the ability of an eye to notice minimal quantity of light after spending some time in darkness. A partially sighted student with dark adaptation difficulties will have difficulty adjusting to sudden changes in light quantity in a room. In such situations, s/he will behave like a blind person (s/he will need help when walking and will search for additional explanations or information).

### **Useful advice**

*If we want to get valuable and useful information about how a visually impaired student “sees,” we can get it from the student herself. Questions such as “How do you see?” and “What helps you in watching?” enable students to explain how they compensate for the visual impairment, how they see, and what makes it easier for them to gather the information they need. Most visually impaired students like to talk about how they see and watch. Take some time and allow the student to tell you how their visual impairment influences their behavior and their management of everyday situations.*

*An important part of instruction in higher education is the preparation of feedback on a term paper, an essay, etc. Feedback on a term paper may be oral or written. Written feedback should be legible. If written by hand, the safest thing is to use a felt pen or a soft (B3) pencil. If written with the help of a computer program, ask the student which font size and font type suits them the best. Feedback can also be sent via e-mail, and the student themselves can adjust and choose the font type, font size, contrast, font color, etc.*

*In higher education, different teaching methods are used (presentations, demonstrations, etc.). When activities include the acquisition of new concepts, tools, and technologies, we should describe the features of the object to the visually impaired student, and if there is a possibility, we should also put the object in the student's hands. When describing an object, words related to visual (colors), tactile (texture), and functional (use value and function) features of the object should be used. If a photograph, illustration, or drawing is used in class, it is advisable to describe it and to completely explain it, as well as to supplement the description with the description of its individual parts. When a student states that glare aggravates their visual functioning, it is advisable to try and influence changes in the organization of space at your university and to choose alternatives which reduce the possibility of environment reflection. The most adequate way of adjusting to and helping students whose visual functioning is aggravated by glare is by selecting furniture with matte surfaces (without varnish or shiny material) and nontransparent curtains (yellow), as well as by keeping the room clean.*

*If a student suffers from complete color blindness, they perceive colors as shades of gray and can probably distinguish between dark (blue, black, brown) and light (white, yellow, pink) colors. Seeing will in this case be aggravated by bad illumination and environment reflection, as well as by a decrease in the contrast of the material the student is looking at. Looking at an object or a picture saturated with the same colors (or similar shades) can result in more difficulty seeing and eye fatigue.*

*Nearsightedness and farsightedness equally influence the quality of information gathered with the help of vision. Many daily activities and tasks depend on noticing details. Reading, looking at pictures, etc., depend very much on noticing details. That is why it is desirable to enable the student to come closer to the object or the model and also to give them some extra time.*

For more information about aids and adjustments for the visually impaired, please visit the following websites:

The Vinko Bek Centre for Training and Education <http://www.centar-vinko-bek-zg.skole.hr/>

The Croatian Association of the Blind <http://www.savez-slijepih.hr/>

The Association for the Development of the Education of Blind and Partially Sighted Persons <http://www.uuosso.hr/>

Optical Studio and Polyclinic for Ophthalmology <http://www.monokl.hr/centar-za-slabovidne/>

As mentioned at the beginning of this appendix to the handbook, it is important to be informed about the specific features concerning how every individual student functions in everyday situations in order to successfully implement university classes which include visually impaired students. Sighted people sometimes believe myths about visually impaired persons, have negative attitudes about them, or are prejudiced against them.

This handbook offers a simple look into the basic features of visually impaired students, as well as an overview of facts about their everyday lives, mobility methods and techniques, communication, and features of written communication, as well as how they function visually.

A knowledge of visually impaired students' basic characteristics may be helpful when preparing and organizing university classes.

## **Glossary**

**achromatopsia:** an organically determined disorder of color perception. A person with achromatopsia cannot distinguish between some colors or cannot see colors at all because of a disorder of the receptors (cones) in the retina.

**adapted print:** print which is the best for an individual because of its font type and font size, color, contrast, line spacing, and paper, and which takes all features of one's visual functioning into account.

**aids for visually impaired people who are insured and therefore have the right to these**

**aids:** people whose visual acuity in both eyes is 0.05 or less (blind people) have the right to different tephrotechnical aids (a long cane for blind people, a watch for blind people, a Braille machine, a 4-channel player, a text-to-speech screen reader, a Braille electronic notebook for the blind).

**albinism:** a hereditary condition in which body lacks pigment (it may affect the skin, eyes, hair, etc.) Oculocutaneous albinism involves the lack of, or reduced amount of, pigmentation of the eye. A person with albinism is sensitive to light and functions much better when the amount of light is reduced. There are often symptoms such as loss of visual acuity, nystagmus and amblyopia.

**amaurosis:** a complete loss of sight, blindness.

**amblyopia:** partial sight, a condition in which an otherwise healthy eye provides poor vision. However, there are no pathological changes.

**ametropia:** a condition which occurs because of a refractive error that causes a blurred image on the retina. It occurs because of a reduced ability of an eye to focus properly. Refractive errors are hyperopia (farsightedness), myopia (nearsightedness), astigmatism (distorted letters), presbyopia (a normal eye condition affected by age and the loss of accommodation).

**astigmatism:** a condition caused by an irregular curvature of the cornea or lens (refractive error), which is created by an unequal diffraction of light rays on all eye meridians.

Astigmatism can be recognized by symptoms such as a blurred image, difficulty reading, double vision, eye fatigue, headaches, etc.

**attitudes:** attitudes toward visually impaired people can show the relationship between a wider social community and visually impaired people. Historically, attitudes were mostly negative, and visually impaired people were segregated. Positive environmental attitudes enable the acceptance and support of a visually impaired person, as well as the establishment of realistic requirements related to obligations in a particular community. Attitudes of parents can be divided into five groups: acceptance of the blind child and his or her impairment, denial of the handicap, overprotectiveness, hidden rejection, and open rejection.

**blindisms:** stereotypical mannerisms or behaviors of blind children. These stereotypical behaviors include eye poking or pressing, turning the head, hand gestures or swinging, turning oneself around. Stereotypical mannerisms appear more often in situations which are stressful for blind people. These behaviors are the result of self-stimulation that blind people create to compensate for vision loss. They are quite noticeable and socially unacceptable, and their appearance and persistence may lead to social segregation. Blindisms may be prevented by a number of educational rehabilitation activities (stimulation, physical activity, development of an interest in the environment and investigating environment).

**blindness or complete loss of vision:** a condition caused by impairment of the visual apparatus. The WHO (World Health Organization) estimates that there are between 40 and 45 million blind people in the world, and up to 80 percent of blindness is preventable through nutritional, therapeutic, and sanitation-improvement programs. There are over 6,000 blind people registered in Croatia as members of the Croatian Association of the Blind.

**cataract:** a leading cause of blindness in the world. Cataract is a clouding of the lens of the eye. It may be inborn, as a consequence of a virus or a toxin attack on the embryonic lens, or hereditary. The symptom of cataract is blurred and unclear vision.

**central vision:** vision in the centre of the visual field. The loss of central vision causes cloudy vision or a blind spot, while peripheral vision remains intact. This causes difficulties in reading, recognizing faces, or distinguishing most details in the distance. However, mobility is usually normal because of the remaining peripheral vision.

**color vision:** normal color vision is the ability of the visual system to distinguish between colors of the visible spectrum, such as blue, green, yellow, red, purple and orange, as well as to notice differences in shades. Some individuals have difficulty seeing one part of the spectrum (red/green or blue/yellow). If a person has complete color blindness, s/he perceives colors as shades of grey and can probably divide colors into dark (blue, black, and brown) and light (white, yellow, pink) colors. Vision will in this case be weakened by poor room illumination and environment reflection, as well as by reduced contrast of the material that is being looked at.

**computers for the blind and partially sighted:** one type of new technology used to access and analyze information (data). Computers for the blind and partially sighted include software and hardware products, which are becoming considerably advanced.

**contrast:** contrast sensitivity is the ability to distinguish between samples of different contrast. If a person has reduced sensitivity to differences in contrast, s/he will have difficulties when the light in a room is poor, when there is glare, and when the contrast of the material s/he is looking at (on a TV screen or in standard print) is decreased. Colors which provide the best contrast are white and black, as well as blue and yellow. Contrast enhancement is a non-optical or environmental aid which maximizes the rest of a person's vision. Contrast may be enhanced by using different colors or by increasing the level of light,

which enables better visibility of the object that is being looked at. Contrast is improved either by placing or depicting light objects against a dark background – or dark objects against a light background.

**eye mobility:** eyeball movement can be voluntary or involuntary. Voluntary movements enable us to gather information by means of sight, to fix our sight on an object, and to a visual stimulus. Involuntary eye movements (nystagmus) may occur in different directions: side-to-side (horizontal nystagmus), up-and-down (vertical nystagmus), in circles (rotational or torsional nystagmus), or combined. Involuntary movements make it difficult to focus on an object.

**functional vision:** vision is functional if a person is able to utilize visual information to plan and carry out a task.

**functional vision assessment:** this assessment includes an assessment of how a visually impaired person behaves and uses visual skills (visual acuity at a distance and at close range, visual field, localization, fixation, search, observation, changing the direction of watching, the dominant eye, hand-eye coordination, color vision), as well as an assessment of the environmental conditions (illumination, color and contrast, size, distance, necessary time).

**Glare:** according to the definition suggested by the WHO (World Health Organization), glare is light which is not useful for watching. It comes from an angled light source and enters the peripheral part of the eye, increasing the background light and decreasing contrast. If a person is sensitive to glare, s/he may more often suffer from eye fatigue when watching.

**glaucoma:** an abnormal rise in intraocular pressure caused by irregular circulation of the aqueous fluid. It is most often asymptomatic and therefore very often discovered when the disease has reached an advanced stage. Acute glaucoma is manifested by the following symptoms: pain, sensitivity to light and external pressure, photophobia.

**hemianopsia:** a loss of vision in the right or left half of the visual field. Objects or people in the visual field may appear to be cut in half. Hemianopsia is a common symptom of migraine headaches.

**impairment:** there is no consensus on the meaning of this term. Educators, doctors, and rehabilitation specialists use this terminology according to their personal preferences.

**intact senses:** senses without impairment, used in order to compensate for the visual impairment.

**intact senses training:** training of the usage of unimpaired senses, which are used to compensate for the visual impairment.

**integration:** inclusion of individuals in society (environment). Integration may be educational (at school), professional (at the workplace), and social (complete integration of a person into the environment s/he lives in).

**long (white) cane:** the travel aid most commonly used by visually impaired people. It is covered with white reflective material, and it is available in collapsible folding or telescoping models. It is usually made of fiberglass, aluminum, or wood. Cane techniques vary depending on where the cane is used (indoors or outdoors). The diagonal technique is used indoors, and the touch or slide technique outdoors.

**noticing details:** the ability to look at small objects, texts, or drawings. In order to successfully look at precisely these materials, it is necessary to have good visual acuity. Nearsightedness and farsightedness equally influence the information a person can gather when looking at something.

**nystagmus:** involuntary movement of the eyes (vertical, horizontal, or in circles) which causes focusing problems.

**ocular prosthesis:** used to replace an eye or an abnormally small eyeball, and may be a scleral shell or full thickness.

**ophthalmologist:** a doctor whose specialization includes education in the field of the diagnostics and treatment of eye diseases.

**partial sight:** a condition caused by impairment of the visual apparatus. The WHO (World Health Organization) estimates that there are about 120 million partially sighted people in the world. Partial sight is caused by a considerable visual impairment which cannot be corrected with contact lenses (eyeglasses) nor by operation or any other medical treatment, and which influences everyday functioning.

**photophobia:** a condition which is not a disease or an impairment, but rather oversensitiveness to light. It is also often a symptom of acute inflammatory diseases.

**prejudice:** attitudes and beliefs about different ideas, people or a group of people, which are more often negative than positive, and which are created before or without knowing any objective facts about the object of the attitude.

**peripathology:** see orientation and mobility.

**peripheral vision:** the side vision of the visual field. It gives information about the area surrounding central vision. The impossibility of seeing anything on the side or above or below the eye level, also known as tunnel vision, is typical of peripheral vision loss.

**protection techniques used for the mobility of visually impaired people:** these techniques, consisting mainly of holding the arms in a protective position when walking, protect the body of the visually impaired person. The upper body protection technique protects the head and the neck, whereas the lower body protection technique protects the lower part of the body. They can be used separately or together. A long cane functionally replaces the lower body protection technique.

**residual vision:** a person's remaining vision, estimated medically and defined by a percentage in comparison to vision.

**sighted guide:** a technique which enables blind people to walk with the help of a sighted person. A visually impaired person uses the technique properly when s/he grasps the sighted guide's arm above the elbow. The shoulders of the sighted guide and of the visually impaired people should be leveled, the guide's forearm slightly bent, and the visually impaired person should be walking a half step behind the guide.

**simultaneous perception:** the perception of several things at the same time (for instance, visual perception – we see the size, the shape, and the color of the object by only one look at it).

**social skills:** skills of communication and interaction with other people. Rules and acceptable behavior, as well as relationships with other people, are created and communicated verbally and nonverbally. The process of social skills acquisition is called socialization.

**specific rehabilitation programs for visually impaired people:** educational rehabilitation programs which help in the acquisition of skills important for everyday functioning and visually impaired person's inclusion in an activity (orientation and mobility, everyday skills, social skills, vision functionality, new technologies, Braille, professional rehabilitation, vision training, intact senses training).

**successive perception:** a kind of perception which enables the gradual gathering of information (in parts), for instance, tactile-kinesthetic perception (a person familiarizes him-/herself with each feature of an object by touching it).

**typhlopedagogy:** the field of science dedicated to the teaching of visually impaired people (Gr. *typhlos* – blind)

**verbalism:** a manner of expression and reproduction of content which appears to be skillful, although the speaker does not have real understanding and knowledge.

**vision training:** an educational rehabilitation program (training) which helps to improve the functionality of residual vision.

**vision training:** an educational rehabilitation procedure by means of which visually impaired children are trained how to effectively use their decreased vision in everyday situations and in the process of knowledge and skills acquisition. Vision training differs from other similar medical procedures. A person who was born with visual impairment often does not know how to use their existing residual vision or uses the vision deficiently. Visual images are impoverished, and optical and perspective functions remain undeveloped. Visual effectiveness becomes considerably advanced with the help of a program in the planned learning of watching (vision training).

**visual abilities:** abilities defined by an ophthalmological evaluation. They include visual acuity, visual field, eye mobility, brain functions, light and color perception (observation).

**visual field impairment:** visual field impairment relates to the loss of peripheral and/or central vision in different combinations. If a person has peripheral vision impairment, the area which can be seen when a person is looking forward is narrowed. There are also difficulties when looking at moving objects. If a person has peripheral vision impairment, there can be problems with a sudden change of illumination (slower adjustment to looking at something in a room in which the intensity of light has been changed). If a person has difficulties which include a combined loss of central and peripheral vision, difficulties typical for both visual field losses can appear.

**visual impairment:** visual impairment is a sensory disability which causes low vision or total blindness. It can appear at any age, as a result of health problems. It is defined with the help of eye diagnoses, and it can be expressed by the rest of the vision in percentage. Visually impaired people may have additional difficulties: hearing impairment, motor impairment, learning difficulties, etc.

**visually impaired people:** visually impaired people may be partially sighted or blind. The impairment is expressed by the percentage of residual vision of the better eye (with correction), and it is determined by a doctor – an ophthalmologist.

**visual task:** an object, a written task, or an activity observed by using sight. The difficulty of the visual task depends on the size of the object that is being looked at, the number of details, contrast with the background and with the environment, illumination quality, the time necessary for watching, whether the object is static or moving, and the distance of the object. The successfulness of the visual task perception depends on the text (picture), color, line spacing, the size (and type) of letters, room illumination, and the time one has at one's disposal.

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## STUDENTS WITH HEARING IMPAIRMENTS

This part of the handbook examines more closely the possible ways of ensuring equal access to information for students with hearing impairments at the level of academic activities, but also in everyday life.

*When Klara was a year old, her parents noticed that she didn't hear well. Her poor speech skills had already worried them before, and it was then confirmed by a doctor that Klara was severely hard-of-hearing. At that time, around twenty years ago, neither newborn hearing screening nor cochlear implantation existed, so her rehabilitation started rather late, at the age of three. Since the necessary rehabilitation of speech and hearing was not available in her small hometown, Klara was placed with a foster family which became her second home. Klara was a determined, intelligent child; with the support of her caring foster parents and parents, she managed to catch up with her hearing peers and to develop speech and language competence, following a few years of rehabilitation. It was then decided that Klara was to be integrated into a mainstream school. Her teacher decided to accept the challenge, although she had had no contact with deaf people before Klara, and knew nothing about the consequences of hearing impairment; with the help of experts in the field of hearing impairment, she did everything to provide equal conditions of schooling for Klara as for all other children. Having finished primary school, Klara enrolled in a grammar school, although many people tried to persuade her otherwise. Her special needs were frequently ignored in secondary school, both by teachers and pupils. There were many sleepless nights, tears shed, and questions asked: "Why do teachers walk while they teach, stand next to the window, write on the blackboard and comment...? The pupils are avoiding me... What am I doing here anyway? I should just give up and choose something easier. Why do Mom and Dad think I can do this? Am I deluding myself?"*

*It was not until the end of secondary school, when she proved herself to be an excellent pupil, that her surroundings started to acknowledge her exceptional abilities. Brimming with confidence, Klara enrolled in the university of her choice, but the "story" from secondary school started to repeat itself all over again...*

## Characteristics of hearing-impaired people

### Degree and age of onset of hearing impairment

Hearing impairment is one of the most common congenital disorders whose incidence is 1 to 3 in 1000 newborns, according to the World Health Organization (WHO). In around 70 to 80% of children, the impairment is already present at discharge from the maternity unit, and in the remaining 20 to 30% of children, the impairment develops at a later age, usually due to some disease or traumatic head injury.

In order to understand the problem of hearing impaired individuals, it is important to address a few important factors defining hearing impairment. The first factor is the *degree of hearing impairment*, according to which there are two basic groups: the deaf and the hard-of-hearing. People whose hearing is completely destroyed are totally or clinically deaf; they have an average hearing loss of greater than 91 dB and they cannot fully perceive spoken language, not even with the help of a hearing aid. Clinically deaf people account for only 1% of the population of hearing-impaired individuals. Deaf people are very sensitive to vibrations, which for the deaf are often a source of information about audio stimuli, such as a motorcycle passing by the house, doors slamming, music or speech perception through a radio speaker, etc. A hearing aid helps them to orient themselves and to perceive sounds, such as those of a pneumatic drill, car noise, motorcycle noise, a loud phone bell, etc.

Hard-of-hearing people, who have an average hearing loss of between 20 or 25 dB and 90 dB, are more numerous. According to world classifications (USA, Great Britain), hard-of-hearing individuals are usually classified into four categories: the mildly hard-of-hearing (25-40 dB), the moderately hard-of-hearing (41-55 dB), the moderately severely hard-of-hearing (56-70 dB), and the severely hard-of-hearing (71-90 dB) (Radovančić 1995).

What can hard-of-hearing people hear? With the help of a hearing aid, the mildly hard-of-hearing can acquire (without rehabilitation support) the speech and language of their environment spontaneously. Speech difficulties may include distorted pronunciation of certain sounds, such as /z/, /s/, /č/, /š/, and /ž/. With the help of a hearing aid, the moderately hard-of-hearing can also acquire the speech and language of their environment spontaneously, but in communication they rely more heavily on speechreading, as well as on visual contact. Moderately severely hard-of-hearing and severely hard-of-hearing people complement audio information with speechreading. With the help of a hearing aid, they can partially perceive spoken language messages, and they can only attain a high level of speech and language competence if they receive rehabilitation support.

Research has shown that many deaf and hard-of-hearing individuals have a relatively low level of language competence, which is of course an obstacle to attaining academic knowledge, among other things in life. The vocabulary of deaf and hard-of-hearing individuals is significantly poorer than the vocabulary of hearing people, and their language is generally very ungrammatical. This is the main reason why there are very few deaf and hard-of-hearing individuals in the non-university and university higher education system, not only in Croatia, but also worldwide. The less residual hearing they have, the more difficulties they have in keeping up with all forms of teaching (Pribanić 1995; Carver 1998).

The second factor defining hearing impairment is *the age of onset of hearing impairment*. According to this factor, it is possible to distinguish between pre-lingual, peri-lingual, and post-lingual hearing loss. In other words, hearing impairment may develop during infancy (congenital hearing impairment, which may be progressive), during the period of intensive acquisition of speech and language (up to the second or third year of life), or a person may acquire speech and language prior to the onset of hearing impairment (attained hearing impairment). Pre-lingual hearing loss is a very serious sensory impairment which affects a person's general development and psychosocial maturation.

Various diseases and conditions may cause hearing impairment throughout a lifetime. Some hearing impairments may be alleviated, and sometimes even completely removed, by prevention, medications, or surgical procedures. In some cases, hearing impairment is irreversible, varying in degree and prognosis of progression.

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## **Additional information**

### **Newborn hearing screening**

Testing all newborns' hearing prior to discharge from the maternity unit has become a common practice in maternity units around the world. However, few countries organize newborn hearing screenings in all their maternity units. Due to the efforts of the Croatian Association for Early Hearing Impairment Diagnostics (HURDOS) and the humanitarian action "Dajmo da čuju" (conducted in 2001), newborn hearing screening was introduced into all Croatian maternity units in September 2002; all newborns are now tested prior to

discharge from the maternity unit using the Automated Otoacoustic Emission (AOAE) screening test. It is a completely painless and simple procedure, in which a tiny microphone is inserted into the newborn's ear canal, where it measures the sound waves generated by every healthy ear. If no sound waves are recorded, hearing impairment is suspected and the newborn is referred for further diagnostic procedures. This is a satisfactory method of providing early diagnostics, which is a prerequisite for early intervention. However, every child's hearing skills, reactions to audio stimuli, and language and speech development should be carefully monitored continually, so that any impairment, which may develop at a later age, may be detected in time (Marn, 2002).



*The left side of the head of a sleeping newborn, in whose ear a miniature microphone is being inserted as part of a hearing screening test.*

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### **Individualized approach – individual differences**

Individual differences between hearing-impaired people are great, and they significantly affect the choice of the mode of communication. Regardless of the great individual differences, the common characteristic of all deaf and hard-of-hearing individuals is that they have to face certain (greater or smaller) obstacles in information exchange. In other words, they cannot perceive audio situations (and react to them) like a hearing person, which can cause problems in interpersonal relationships. The degree of inclusion of hearing impaired individuals into society depends on how much their environment is willing to acknowledge these problems and to accommodate the special needs of hearing-impaired persons.

In order to establish communication between a hearing-impaired person and their social environment, effort is needed on both sides. On an individual level, this means that

both sides need to be willing to establish communication and that all available means have to be used to ensure that communication is intelligible and that the information is verified. The latter has to be especially emphasized, because it is unverified information that sometimes causes fatal misunderstandings for hearing-impaired persons. Poorly understood information most surely affects the level of the final academic competencies of students with hearing impairments who attend university lectures.

It is therefore vital that every hearing-impaired student is approached individually, so that the preferred mode of communication can be discovered and implemented. The possibility of making audio-recordings of lectures is a great help for some hearing impaired students, because they can afterwards ask a familiar hearing person to “repeat” the lecture to them (using sign language, writing..), i.e., to clarify any possible dilemmas regarding the lecture. Moreover, it would also be helpful if the lecture summary, or even the whole lecture, could be made available to hearing-impaired students a few days before the lecture.

If a hearing-impaired student uses a sign language interpreter during a lecture, the teacher should continue to address the student, not the interpreter. Moreover, the teacher should use their usual rate and loudness of speech during the lecture. Interpreters usually sit opposite the student, but they can also sit next to the teacher. If the teacher talks too fast and the interpreter does not have enough time to interpret, the interpreter has the right to ask the teacher to talk slower or to repeat something, so that the interpreter can convey all the information to the student.

Whether or not hearing impaired students should learn foreign languages, even when that is an obligatory part of the study program, is a commonly discussed issue nowadays. The European academic community feels that hearing-impaired people should definitely be given the opportunity to learn foreign languages and that their knowledge of a foreign language should be based primarily on writing and reading skills (University of Warsaw 2007).

### **Speechreading**

Deaf and hard-of-hearing individuals receive almost all information through the visual channel, and they use their eyesight both efficiently and intensely. The greater the hearing loss, the more a hearing impaired person relies on the visual channel. However, if the visual is not explained, then the information received by hearing impaired people is not complete.

Both deaf and hard-of-hearing people use speechreading in communication. In this way, hard-of-hearing people supplement the audio/spoken information which they receive via

the hearing aid (Bradarić-Jončić 1997). The success of speechreading depends on the following factors: hearing-impaired people, in this case, hearing-impaired students, must have a high level of language competence, i.e., they should know the Croatian language very well and they have to be familiar with the context and theme of the conversation, which helps them to understand messages. This is another reason why it is a good idea to prepare lecture handouts in advance and to deliver them to the student.

The success of speechreading also depends on the subjective abilities of the person addressing the hearing impaired person: how they form utterances (sentence length, grammatical word order in sentences, word choice, and word type), whether or not they talk slower to a hearing impaired person, whether or not their articulation is expressive, whether or not they have a moustache/beard that can cover a lip or both lips. It is important to ensure a sufficient amount of light on the speaker's face and a neutral background behind the speaker. The speaker's face should be placed opposite the source of light and not in a shadow. This form of receiving information cannot be used for a very long time because it is very tiring, and after a while it becomes increasingly harder for a hearing-impaired person to process the received information. It is advisable to make a few shorter breaks, so that students can rest and motivate themselves for further work. The optimal concentration time span for speechreading is 20 minutes, 30 minutes at best.

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## **Additional information**

### **Speechreading equal to guessing**

Speechreading is in fact *guessing* about the content of the uttered message according to the image it forms on the mouth and face of the interlocutor. Why is it called *guessing*? In everyday communication, speechreading is used very often. However, certain restrictions of speechreading use need to be taken into account. First of all, it takes a certain amount of talent for a hearing-impaired person to become a successful speechreader. There is no proof that hearing-impaired people are any better at speechreading than hearing people. Those especially skilful at speechreading can read only around 40% of what their interlocutor is saying, and they use their experience, their knowledge of language and the audio information received through their hearing aid to complete the information. Secondly, it is impossible to speechread without knowing the structure of the language being spoken (e.g., imagine

speechreading while watching a movie in Finnish, provided that you know only a few Finnish words and nothing about Finnish grammar). Thirdly, it is impossible to *learn a language* just by using speechreading: it is impossible to determine word boundaries; some sounds cannot be seen while they are being pronounced (/k/, /h/, /g/) and some sounds are so similar that they cannot be differentiated (/b/ and /p/) (Bradarić-Jončić 1997).

## Hearing aid

Individuals with usable residual hearing can benefit greatly from using a hearing aid in communication. It functions as an amplifier of sounds (i.e., spoken language), as well as of environmental sounds, thereby facilitating hearing for mildly, moderately, and severely hard-of-hearing people.



*A behind-the-ear (BTE) hearing aid in the palm of a hand. The image shows the main shell section of the aid, which is placed behind the ear, and the tube connecting the main shell with the ear-mold, which is inserted into the ear canal. The hearing aid is designed to match skin color.*

A hearing aid consists of a miniature microphone, amplifier, and speaker. The basic types of hearing aids are the behind-the-ear (BTE) hearing aid and the in-the-ear (ITE) hearing aid. The advantage of behind-the-ear (BTE) hearing aids is that they are easily accessible to tune and they are resistant to earwax and secretion from the ear. The advantage of in-the-ear (ITE) hearing aids is that they are placed in the ear canal, i.e. they are “invisible”. Depending on the electronics used, hearing aids can be analog or digital, which determines the quality of sound reproduction and affects the price of the hearing aid.

Due to the development of technology, modern hearing aids are becoming ever more perfect and ever more miniature. The latest hearing aids are digitally programmable hearing devices: miniature computers placed entirely in the ear canal. They can be tuned automatically according to changing environmental sounds, and they enable better hearing and understanding of speech. It takes time and patience to accustom one's ear to this way of hearing, and this is achieved by special rehabilitation procedures. The brain of a hearing impaired person has to gradually learn to process the "new" acoustic stimuli which it receives through the hearing aid.

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### **Additional information**

#### **Hearing aid – a fashion detail**

One of the latest world trends is to custom fit hearing aids to the needs of the individual user, not just regarding their technical and listening features, but also regarding their design, i.e. they are becoming a fashion detail, such as designer glasses. One new type of hearing aid has been developed which is integrated into a pair of glasses, it has an additional microphone placed in the direction of sight and it can additionally amplify the speech of the wearer's interlocutor.

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#### **Cochlear implant/artificial cochlea**

A *cochlear implant* or an *artificial cochlea* (a more common name in Croatia) is a sophisticated electronic hearing device that is implanted under the patient's skin in the area behind the ear and which enables better hearing. This device, which can be described as an "inner ear prosthesis," has been surgically implanted in deaf people since the 1970s. Unlike other hearing devices, it not only amplifies sound, but it also increases neural responses. However, it should be emphasized that cochlear implantation is not a miraculous procedure

for recovering normal hearing, but rather an extremely uncertain method of partially activating the sense of hearing, with great individual variability.

Cochlear implants are indicated for people whose hearing impairment has been caused by a functional disorder of the inner ear (cochlea). The cochlear implant bypasses damaged cells in the inner ear and in the cochlea, and it directly stimulates the hearing nerve. The hearing nerve and the central auditory system must therefore be undamaged. The hearing center in the brain perceives signals as either sounds or speech. Although an artificial cochlea cannot recover hearing completely, it can significantly improve the quality of hearing and increase the degree of speech understanding.

Early cochlear implantation (until the second year of life), in combination with early rehabilitation support, results in most cases in the timely acquisition of speech and language, which helps a deaf person to attain a high level of language competence and is also a basis for integration into the world of hearing people.

In Croatia, an increasing number of deaf people (mostly children and young people) have undergone cochlear implantation surgery over the past ten years. Therefore, it is only logical to assume that a certain number of students with cochlear implants will soon emerge. If the implant is well hidden by hair, it is not possible to even guess in most cases that the person has a hearing impairment. They are as proficient in speech and language as any other future academic citizen. They may have some discrete speech distortions – for example, they may have some difficulties with the proper pronunciation of certain Croatian sound.

A person wearing a cochlear implant may be considered mildly or moderately hard-of-hearing, and when the cochlear implant is turned off (deliberately or due to a malfunction, used-up battery, etc.), the person is virtually deaf.



*The profile of a young man with a cochlear implant. The receiver is placed behind the ear, and the magnet is strapped a bit further on the head. The hair is cut very short and there is a visible cut on the right side of the head above the ear (from the cochlear implantation surgery).*

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## **Additional information**

### **Artificial cochlea**

Advantages:

- everyday sounds can be heard, speech and language can be heard and understood, spoken language is learned more easily
- the phone can be used
- hearing is better than with a hearing aid
- communication is possible without sign language and without speechreading

Disadvantages:

- rough sports, contact sports or underwater sports (boxing, diving, etc.) should be avoided
  - short battery span
  - residual hearing is destroyed in the ear in which the artificial cochlea is implanted
  - surgical risks
- 

## **The Deaf as a cultural and linguistic minority**

The dominant approach to dealing with hearing-impaired people was for many years the so-called medical model (also known as the pathological or the deficit model), according to which deafness is a pathological condition and emphasis is put on the impairment as well as on the limitations that hearing-impaired people experience in standard communication. It was considered that hearing impairment, and especially profound deafness, negatively influenced cognitive, emotional and social development as well as the acquisition of speech, language, and literacy.

Attitudes towards deaf and hard-of-hearing people and the Deaf community started to change in the 1980s mostly due to linguistic, sociolinguistic, psycholinguistic, and neuro-

linguistic research on sign language. Linguistic research has shown that sign language is the true natural language of the deaf, which relies on the visuo-spatial mode of communication, unlike spoken language, which is dominantly perceived through the audio channel. Research on the linguistics of national sign languages (primarily American Sign Language – ASL) has confirmed the presumption that sign language has all the grammar levels as any other spoken language: phonetics, morphology, syntax, semantics and pragmatics (Wilbur 2004).

Neuro-linguistic research on the cerebral lateralization of sign language has shown that the left brain hemisphere is not only specialized for processing spoken language, but for language processing in general, regardless of whether the mode of communication is audio-temporal or visuo-spatial. The same brain regions that are used for the perception, production, and understanding of spoken language are also used for the perception, production, and understanding of sign language. The above-mentioned research projects have contributed to the affirmation of the social (i.e., cultural) approach towards the Deaf community.

One of the main aims of the Deaf community is that they be recognized worldwide as members of a cultural minority, that is, a minority community which has its own language, cultural heritage, institutions, values, customs, history, and association. Besides sign language, deaf people also use other forms of manual communication to communicate more effectively, such as the one-handed and two-handed manual alphabets or the simultaneous use of sign language and spoken language. Hearing impaired individuals who are members of the Deaf community use the services of a sign language interpreter only when fast, clear, unambiguous, and efficient communication is needed (Bradarić-Jončić, 2000).

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### **Additional information**

#### **Gallaudet University, Washington D.C., USA**

Gallaudet University is the world's leading university in which all the programs of study – undergraduate, graduate, and postgraduate (doctoral and professional) – are taught in American Sign Language (ASL). Ninety-five percent of the students are hearing-impaired and

the remaining 5% of the student body are hearing students who can communicate well in ASL.

The University's history traces back to 1856, when the systematic education of deaf and hard-of-hearing children, as well as educational institutions for children with hearing impairments, started to develop in the United States. In 1986, Gallaudet College developed into Gallaudet University.

Be sure to visit their website at: <http://www.gallaudet.edu/>

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## **Needs and adjustments**

### **Educational sign language interpreter – the path to equal opportunities**

Educational interpreting is organized as a profession aimed at ensuring equal access for deaf and hard-of-hearing pupils and students to teaching materials and to all other types of information that may be communicated in inclusive education settings. In this way, students can experience every learning environment, regardless of whether it is a lecture room, library, hallway, gym, the secretary's office, or any other place where students may find themselves during lectures. An educational interpreter is the primary communication link and a linguistic role-model to deaf or hard-of-hearing students. Much like all hearing students, deaf students have to achieve the final goal of education, which is to acquire usable knowledge and to be able to function independently once they enter the working world (Bradarić-Jončić & Tarczay 2005; Pribanić 2007).

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## **Additional information**

### **Sign language interpreter – a profession**

The profession of “educational interpreting” started to develop in the 1980s in the United States. The first educational interpreters were teacher's aids with no qualifications – they were either self-educated or, in most cases, the children of deaf parents. The need for qualified educational interpreters started to grow as more deaf children were integrated into

local mainstream schools. Becoming a qualified educational interpreter was not only desirable, but also necessary.

In Croatia, a few educational interpreters have completed Croatian Sign Language courses organized by different associations for deaf people. They now work in several secondary schools and universities as interpreters for pupils and students. The law on translation, which will also include educational interpreting, has still not been passed in Croatia.

There have already been successful deaf and hard-of-hearing students at Croatian universities, and hearing-impaired students still attend Croatian universities successfully with the support of educational interpreters.

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It is especially important to prepare primary and secondary school teachers, as well as university teachers, for the teaching deaf students and to familiarize them with the role of educational interpreters. Moreover, deaf students need to learn how to communicate with the help of an interpreter if they haven't used that service during their prior education. Deaf students cannot be expected to know intuitively their roles and responsibilities regarding the interpreting service.

Students need to be educated about what they can expect from their interpreters, how to express dissatisfaction in the case of misunderstandings, what their responsibilities are, etc. The Code of Ethics of the profession should also be studied, and each secondary-school and university student should be given a copy.

In Croatia, such training courses have been organized by "Dodir" – The Croatian Association of Deafblind Persons. Support can also be provided by the Croatian Association of the Deaf and Hard-of-hearing (HSGN), as well as by the Hearing Impairment Unit of the Center for Rehabilitation, which is the clinical unit of the Faculty of Education and Rehabilitation Sciences of the University of Zagreb.



*An educational interpreter in a secondary school, sitting in front of a deaf pupil and interpreting the teaching material into Croatian Sign Language.*

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### **Additional information**

#### **Avoiding misunderstandings**

During the reception of information which is interpreted at university lectures, difficulties may arise. Misunderstandings in communication sometimes occur because of one's unfamiliarity with the context of the teaching content. Most difficulties are connected with the interpretation of diagrams and tables, as well as with the interpretation of verbal descriptions of the teaching content. A deaf student cannot simultaneously look at the interpreter and blackboard/projection screen while the teacher is explaining a diagram or while the teacher is drawing something and explaining the drawing at the same time; nor can the deaf student look simultaneously at the interpreter and some visual material, such as diagrams, handouts, or projection screens.

A teacher who has a deaf student attending his lectures should be aware of the fact that deaf students, unlike hearing students, cannot simultaneously take notes and pay attention to the lecture, which is why the teacher should adapt his speech rate and make sure that the interpreter has enough time to interpret all the information.

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### **Recommendations for successful communication with deaf/hard-of-hearing persons**

Fear of failure often prevails in communication with a hearing impaired person. Will mutually successful communication be achieved? Will we understand what the deaf person is trying to say, and will our message be completely conveyed? In order to achieve these goals, it is advisable to follow some practical advice regarding subjective and objective circumstances of communication with deaf persons:

- Establishing personal contact with the deaf person with whom you are trying to communicate is the best way to create a good atmosphere and good interpersonal relationships. Always try to establish contact with a deaf person yourself in a way which seems most appropriate at a given moment: by speaking, writing, pointing, manual communication, or sign language if you know it. Of course, before all that, you should know something about the state of hearing of the person(s) you are addressing, about their degree of literacy, about their knowledge of spoken language and of other forms of communication. How can you find these things out? Hearing-impaired persons will not mind, nor will they be uncomfortable, if you ask them about the state of their hearing and about the accommodations necessary for successful communication. From their responses you will know (hear) how intelligible their speech is, how loud it is, etc. If necessary, you can ask the hearing-impaired person to talk quieter, to slow down, or to repeat something. Do not nod your head in approval if you do not understand something.
- Hearing-impaired persons will often tell you themselves that they are deaf and that they speechread (communicate in that way).
- In many cases, it is sufficient to talk clearly and intelligibly or simply to talk louder and use writing as a last resort, especially if the message is meaningful and there is no possibility of ambiguity or partial understanding.
- You should check whether a deaf person has understood your message completely, which cannot be achieved by expecting them to nod their head in approval. It takes patience!
- Some deaf people like to use the services of a sign language interpreter because it makes them feel safe and competent during a conversation.

When communicating with deaf/hard-of-hearing persons:

- Do not talk with an object in your mouth (pencil, cigarette, chewing gum, etc.) because it hinders speechreading.
- Keep your hand away from your mouth because this helps speechreading.

- Do not stand with your back facing the source of light (windows, lamps, and the like) because it hinders speechreading. Try to stand in a position in which your face is well lit.
- Do not talk “around” a deaf/hard-of-hearing person – i.e., do not look at the wall or other people. Make eye contact!
- Do not use sign language if you are not sure that the deaf person uses it.
- If a deaf/hard-of-hearing person does not understand you, rephrase the sentence, make it simpler, shorten it! Repeat or rephrase the entire sentence, not just individual words because that is often useless.
- If you do not understand a deaf/hard-of-hearing person, do not pretend otherwise!
- If you are with deaf/hard-of-hearing people during an audio warning or some other audio stimulus, explain to them what is happening – e.g., the arrival of a fire engine or an ambulance - we can hear the siren from far away, but deaf people cannot hear it until the sound is very near, so it is advisable to warn them beforehand, regardless of whether you are indoors or outdoors.
- Rely on the services of interpreters.
- If you have any questions or comments, address the deaf person and not the interpreter. Avoid using phrases such as: “Ask him/her...” or “Tell him/her...”
- You can get the instant attention of a deaf person by switching the lights on/off briefly.

### **Communication aids for persons with hearing impairments**

According to the “Ordinance Ensuring Access to Buildings for Persons with Disabilities and Reduced Mobility” (*Narodne novine* 2005, no. 151), besides provisions for ensuring unobstructed access to buildings in public spaces and institutions, standards have also been established for enabling communication to persons with hearing impairments. This is achieved by installing communication aids, i.e. induction loops. A “communication aid” means an induction loop system, which is also called a transmission loop. Induction loops are installed in the following buildings: Financial Agency (FINA) branches, banks, post offices, health clinics, hospitals, sanatoriums, rehabilitation institutions, homes for the elderly, museums, theatres, concert halls, universities/faculties, passenger facilities at bus and train stations, airports, harbors, businesses, catering and/or tourist buildings, churches, etc. In the Republic of Croatia, few buildings (mostly banks) have been equipped with induction loops.

The main purpose of these communication aids is to provide wireless reception of the audio signal directly into the hearing device for persons with hearing impairments, regardless of whether they wear a classic hearing aid or a cochlear implant.

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### **Additional information**

#### **Why are wireless systems for the transmission and reception of sound used even though every hearing aid already has a built-in microphone?**

This is mainly because in most rooms there is substantial background noise, clamor and reverberation, which can camouflage useful sounds, often making it impossible for a hearing impaired person to understand speech under these conditions. Therefore, the aim is to transmit the useful sound (e.g. different spoken information) into the user's hearing aid directly from the speaker's mouth, without the background noise.

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#### **Three different technologies for wireless sound transmission:**

1. Audio Frequency Induction Loop System (AFILS)
2. Infrared (IR) System
3. Frequency Modulation (FM) System

#### **Induction Loop System\***

This is the oldest system (it has already been in use for around 60 years) and the most frequently used system, the use of which has increased in the last ten or so years. It is often called simply "Telecoil" and the internationally accepted symbol is the letter *T*.

Modern induction loops, in accordance with the currently valid international standards BS EN 60118-4:2006, i.e. IEC 60118-4:2006 (revised in 2006), should provide good reception of the audio signal within the loop perimeter, regardless of the movements of the person wearing a hearing aid. Induction loops can be installed in different ways and can be adapted to different spatial demands. Sometimes, the induction loop system can "cover"

the entire space of a hall or room, and sometimes (the cheaper option) the loop perimeter can be limited to one specific part of a larger space (e.g., a few rows or a few seats in an auditorium).

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\*This text has been partly taken from the website [www.taracentar.hr](http://www.taracentar.hr) with the author's permission.

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## **Additional information**

### **Accidental discovery**

This all began with the first hearing aids and early models of the telephone, whose receivers consisted of electro-dynamic speakers (magnet – coil), while at the same time, the earliest hearing aids used dynamic microphones, the operating principle of which is opposite to that of the electro-dynamic speaker. When a person with a hearing aid put a telephone receiver to their ear (hearing aid), the sound in the hearing aid would become louder and clearer. This was caused by induction: electricity, which was generated in the electromagnetic field of the receiver's speaker, would be induced directly in the coil of the hearing aid microphone (thus forming the term TELE-COIL: TELE (telephone) + COIL (coil)).

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*The international symbol for locations equipped with induction loops (the symbol of the ear and the capital, printed letter "T" in the lower right corner). According to the above-mentioned Ordinance, other symbols can be used for such locations (such as the*

*symbol of the coil, ear, and letter "T", to the right). The symbols are square-shaped; the background is blue, while the image of the ear, the letter "T" and the coil are white.*

Advantages of the Induction Loop System:

- Most hearing aids and artificial cochleas (produced by different manufacturers) have a micro-switch which can be switched to the “T” position. In that position, the hearing aid microphone is turned off and the telecoil signal is turned on. These hearing devices have a special built-in T-coil (Telecoil), which can receive the sound emitted into a certain space by an induction loop system.
- Induction loop technology is unique and compatible worldwide. Every hearing aid or cochlear implant can receive the signal of any induction loop system, provided that they have the “T” switch, i.e. the built-in telecoil. Therefore, induction loops can be used in all public places visited by a large number of persons.
- The sound is of good quality, providing that the induction loop system is properly installed, dimensioned according to spatial requirements, and calibrated.
- The entire system is very reliable and durable (guaranteed up to five years).

#### Disadvantages of the Induction Loop System:

- Powerful sources of electromagnetic radiation (e.g. powerful transformers, electric motors or large electric devices) may cause interferences in the audio signal.
- Installing induction loops requires certain spatial adjustments (placing electrical conductors on/in the floor, walls, or ceiling), which affects the total installation cost.
- The presence of metal building parts requires additional calculations and amplifications of the induction loop signal (e.g. walls of reinforced concrete and predominantly metal constructions).

#### **Infrared (IR) System**

The infrared system first came into use some 30 years ago, but today it is seldom used because of its many disadvantages. Its operating principle is that the audio signal is converted into modulated infrared rays (invisible to the eye). The infrared rays are then emitted into space and the hearing aid has to have a special IR receiver to receive these rays and to convert them into electrical signals, analogous to sound. Infrared rays are spread in the same way as light rays. There can be no obstructions between the transmitter, which transmits the infrared signal, and the receiver, which receives it, because the signal cannot pass through obstructions (it may reflect and reach the receiver, but in a weakened and distorted form). Modern remote controls for TVs, audio and video devices use the same operating principle (if the remote

control is not pointed directly towards the TV receiver or if there are any obstructions, the TV will not receive the order from the remote control).

## **FM System**

The FM system has the same operating principle as the radio signal (radio and TV stations). The audio signal is frequency modulated (FM) and transmitted (at frequencies mostly between 150 and 250 MHz). FM systems require a special transmitter and a special receiver.

Advantages of the FM system:

- It requires no special installation.
- It has good sound quality.
- It is cheaper than the induction loop system.
- Physical obstructions or sources of electromagnetic signals do not interfere with the FM signal.
- It is very convenient for home use (although caution is needed because the signal can be picked up in a neighboring apartment as well).

Disadvantages of the FM system:

- Technical incompatibility between the manufacturers and the different models of FM systems is the main and biggest problem. There are about ten well-known hearing aid and cochlear implant manufacturers in the world. However, each of them offers up to ten different models of transmitters working at different frequencies, and as many different receivers. Each receiver is designed to fit a particular model and type of hearing aid, making combinations impossible. It can be concluded that there are a hundred or more different models of FM systems in the world, which are mutually incompatible. Since a unique world standard does not exist, FM system users can use their system only for personal use (e.g. in their home), but the system cannot be used in other places.
- Besides, FM systems may be “contaminated” by the frequencies of a nearby transmitter or a similar device. “Overhearing” and interferences in the signal, as well as the unwanted transmissions of confidential content beyond the desired area, may occur.

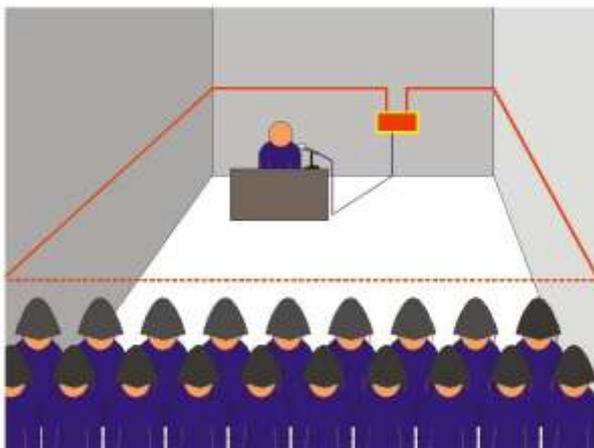
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## Additional information

### Telecoil – induction loop

The basic trend in the development of hearing devices is that induction loop (TELECOIL) technology is becoming more widespread, as it is the only system which is standardized, unified, and compatible throughout the world. All the leading world hearing aid and cochlear implant manufacturers are increasingly installing Telecoils in their products. This trend includes the new generations of digital hearing devices as well. In some European countries, it is even compulsory that health institutions prescribe only those hearing devices with the obligatory built-in “T” option. Most western European countries will introduce (or have already introduced) induction loop systems into all institutions and objects of public interest (educational institutions, universities, health institutions, museums, theaters, concert halls, churches, means of public transportation, banks, post offices, etc.)

Manufacturers have also embraced the new additional technological advancement which enables the simultaneous use of telecoil and microphone (there is a T+M – telecoil + microphone – option on the hearing aid). This option is important because it can improve the participation of hearing impaired persons in group work activities (e.g. when the pupil is actively participating in group work, interactive teaching or school sports activities), where it is equally important to be able to hear the teacher well, as well as the other participants. This option is less important in “ex cathedra” teaching.



*Schema of a lecture room equipped with an induction loop system. The teacher is sitting at his/her desk and speaking into the microphone while the listeners are seated in rows in front of the teacher. The induction loop system is installed on all four sides of the wall at the height of the listeners' heads and it is connected with the microphone.*

## **Equal access to information for hearing-impaired students – conclusion**

Equal access to information for the deaf and the hard-of-hearing at all public events, in educational and health institutions, and in the realm of private needs, is an imperative in the contemporary world. The preceding pages have illustrated how this could be realized in the higher education system. In this conclusion, I would like to summarize the answer to the question of how we should provide equal access to information for hearing-impaired students in higher education.

Modes of receiving information can differ depending on individual preference; that is, they depend on the modes of communication that an individual has employed during the course of her or his education. When it comes to the deaf and the severely hard-of-hearing, the primary mode of communication is the visual-spatial mode, whereas for the moderately and the mildly hard-of-hearing, the dominant way of receiving information is auditory.

Taking this into account, one could say the following:

- For those students who prefer sign language, it is necessary to provide an *educational interpreter* who can be hired full- or part-time. The services of an educational interpreter can be arranged via local branches of the Croatian Association of the Deaf and Hard-of-hearing (HSGN) in every Croatian city, or via Dodir – The Croatian Association of Deafblind Persons in Zagreb, Split and Osijek. Students who require the services of an educational interpreter are often members of the above-mentioned organizations, so they are informed about the options these organizations offer. Of course, there is always the question of who will pay for the interpreter's services. So far, these services have been financed via the projects that these organizations implement, but there have been some indications that the financing of interpreting services could be regulated, and that the profession of “sign language interpreter” could be recognized in the official occupational nomenclature.
- For those students who prefer lipreading in combination with listening, the support of an oral interpreter could be provided. An *oral interpreter* speaks, that is, repeats the

exposure (lecture) by speaking softly and clearly to the student who is hard-of-hearing, at a distance of up to one meter. An oral interpreter is skilled at quickly finding substitutes for words that are difficult to lipread. This kind of support for the hard-of-hearing does not exist in Croatia, unlike in the UK, where one can find so-called *communication support workers*, trained to provide various means of communication support to hearing-impaired persons.

- For those students who are hard-of-hearing and prefer receiving information via speech, optimal reception of verbal information via the FM system or the induction loop system should be ensured. Aside from warranting unobstructed access to public spaces and institutions, the Ordinance Ensuring Access to Buildings for Persons with Disabilities and Reduced Mobility (*Narodne novine* 2005, no. 151) also sets standards for facilitating communication with hearing-impaired persons. This is achieved by installing communication aids, i.e. induction loops. In lecture rooms where hearing-impaired students attend lectures, or are expected to attend lectures in the future, a communication aid should be installed throughout the whole room or in one part of the room.
- for those students who prefer written language, a *notetaker* should be provided – a person who transcribes via computer everything that has been said in real time, so a hearing-impaired student can read it on her/his screen. A notetaker can be hired via the Croatian Association of the Deaf and Hard-of-hearing (HSGN) or via Dodir – The Croatian Association of Deafblind Persons (HSGN). In the near future, a Croatian version of the speech-to-text software shall be developed – this type of software translates speech into text. Some universities in the USA or the UK offer this kind of support for those students who are deaf or hard-of-hearing.

### **Can a deafblind person attend university?**

Hellen Keller (world's most famous deafblind person, 1880-1968) once said that deafness separates us from people, blindness separates us from things, but deafblindness leads to isolation. She is a remarkable example of how a person with double sensory impairment can lead a good and fulfilled life if s/he has support from her/his surroundings. However, it should be noted that Hellen Keller was not born deafblind, but acquired deafblindness in her childhood. So when a question of whether a deafblind person can attend

university is posed, one must take into consideration several important facts that shall be discussed in the remainder of this text.



*This image shows Hellen Keller seated in a chair in cap and gown, the symbol of an academically educated citizen. She is holding papers in her lap and running her fingers over the Braille script – she is reading.*

### **Deafblindness – a unique impairment**

Deafblindness is a specific and unique twofold sensory impairment of hearing and sight that occurs in a variety of possible combinations of intensity: hearing loss and visual impairment, deafness and visual impairment, blindness and hearing loss, and practical deafblindness. One could consider a person to be deafblind if, along with an existing hearing loss, they also have a prognosis of progressive visual impairment, or when, along with the existing blindness/visual impairment, they have a prognosis of progressive hearing impairment. Similarly, there are corresponding classification groups for deafblind persons with characteristic syndromes (e.g., Usher Syndrome, Charge Syndrome).

Deafblindness is not the sum of visual and hearing impairments, and one cannot speak of it in terms of “1 + 1 = 2”. A blind person who hears well can, to a certain extent, compensate for her/his visual impairment, and a person who is deaf or hard-of-hearing and who sees well can use their vision “instead” of hearing. For a deafblind person, it is difficult,

or even impossible, to use the support for the deaf or the blind. Meeting the needs of the deafblind requires a specific approach. Difficulties and/or limitations that arise from being deafblind manifest themselves in all aspects of daily life in the community: in communication, access to information, mobility, learning, education, job training, the organization of leisure activities, and social life (Pribanić & Tarczay 2006).

There are many causes of deafblindness, and deafblindness may be congenital or acquired. It is important to understand the differentiation between congenital and acquired deafblindness, since there are significant differences both in the approaches to and methods of education, as well as in the means of communication and need for support. The main difference between congenital and acquired deafblindness lies in the formation of a linguistic communication system. Persons with congenital deafblindness have great difficulty in adopting concepts and usually linger on tangible symbols, tactile and other signs they use for communication. Only a small number of deafblind children manage to achieve progress in their speech and language development.

Persons with acquired deafblindness usually have an already formed linguistic communication system, so from the moment they acquire deafblindness onwards, their usual mode of communication requires only a certain adjustment to communicating with others and accessing information. For instance, a person who has been deaf since birth acquires sign language and uses it for communication. By becoming visually impaired, s/he is no longer capable of perceiving visual signs, so a modification from sign language to tactile sign language is needed. This way, a deafblind person can perceive the same signs tactually. Or if a narrowing of the visual field has occurred (so-called tunnel vision), a person can communicate by using sign language, but the distance should be modified and the signing space reduced (Tarczay 2003).



*This image portrays an educational interpreter while interpreting to a deaf student with progressive visual impairment. In the foreground, one can see the interpreter and the deafblind person. They sit opposite each other. In the background, one can see the teacher and several students following the lecture.*

When we speak of the deafblind, it is important to stress that they are a very heterogeneous population. At times, one can be puzzled by the fact that certain deafblind persons cope very well with everyday life, while others seem to be extremely insecure. Also, it is important to say that this does not depend solely on the severeness of their difficulties, but on a number of different objective and subjective circumstances. For instance, there are deafblind persons who can read independently, but cannot go to the city alone, or are unable to find some personal things, etc. (Tarczay 2004).

### **Orientation, mobility, and communication**

Blind persons use a distinctive white cane for orientation and getting around, while deafblind persons use a red and white cane. This is how they can be recognized on the street. Some deafblind persons are skilled at getting around independently in a familiar outdoor space; that is, without the help of an intervenor.

In a communicative situation, a deafblind person should be alerted of the presence of another person. The best way for one to approach a deafblind person is from the front, to call their name loudly or touch their arm or shoulder, and always to identify oneself. Conversations with a deafblind person will probably run somewhat slower than those between two hearing persons, and one should have patience. Some deafblind people can perceive distinct speech; that is, they are able to speechread. It is important to avoid noisy places and make sure that the source of light is behind the deafblind person, so that the other person's face is well lit.

Some deafblind people can communicate by writing. It is best to use a thick black marker on white paper. One can also use her/his index finger and fingerspell large block letters across the deafblind person's palm. There are certain rules that apply, and these can be found in the publications of Dodir – The Croatian Association of Deafblind Persons (2007). Naturally, if you are familiar with them, you can always use manual alphabet and sign language.

General things to remember when communicating with a deafblind person are the following: you should always address the deafblind person directly (and not, for example, the sign language interpreter); you should always be facing the light source; you should make sure that the deafblind person sees the other person clearly and that the room has enough light for clear communication; you need to speak loudly and slowly, and to use simpler phrases.

The inability to get around independently and safely leads the deafblind to a gradual decline in cognition and experience acquired in interaction with their immediate and broader surroundings. Basically, deafblindness is not a physical mobility impairment, but a sensory-information impairment. These persons cannot (or cannot fully) use sight and hearing to obtain the information they need about the environment they find themselves in and moving around. Therefore, many deafblind persons need support in overcoming mobility difficulties, and not only in unfamiliar or poorly lit spaces, but often also in familiar spaces, in order to avoid further frustration and potentially endangering circumstances. The type and frequency of the support does not depend solely on the degree of visual and hearing impairment, but also on the deafblind person's level of knowledge, skills, and abilities, and especially on the level of her or his self-esteem (Tarczay 2004).

When providing support, one should convey all the important details from the deafblind person's surroundings. Providing information about the space in which one is moving, as well as about what is happening in it, should ensure that a person gets a better understanding of her/his surroundings, forming an idea of what it looks like and making a decision on how and where s/he wants to go. A deafblind person will either hold you by the elbow or above it; put their hand under yours and hold you by your forearm; cross their forearms; or hold you by your hand. Walking speed will depend on the deafblind person.

The best way for deafblind persons to familiarize themselves with objects is by touching them. Never be aggressive (by pushing or pulling) while trying to expose a deafblind person to tactile experience. While her/his hand is resting on yours, you should slowly *carry* it toward the desired object.

It should be noted that, due to significant restrictions upon independent mobility, deafblind persons significantly depend on the availability and "good faith" of their close ones. Continuously adapting and adjusting their desires and needs with other people's capacities can be very frustrating. This is why deafblind persons grow more and more distant from the community and retreat into isolation (Tarczay 2004).

### **Access to higher education**

The above-mentioned difficulties that deafblind persons encounter daily result in an extremely small number of deafblind persons in the higher education system in general, and especially in Croatia (currently, only a single deafblind person is registered at the graduate level at the University of Zagreb, although it is believed that there are more). Having in mind their intellectual potential, other abilities, motivation, and right to equal access to education, it is important to supply them with adequate support, thus increasing their numbers in the academic community.

The example of the two deafblind students who studied at the Faculty of Education and Rehabilitation Sciences, University of Zagreb and successfully completed their undergraduate studies proves that one can make the best of a situation which may seem impossible to a “regular” person. Not only did one deafblind student finish her undergraduate studies, but she also got her MA degree and is now preparing for doctoral studies. This is what she considers to be the key to her success: “...*I’ve always had to invest considerable efforts to compensate for the lack of information. I was expected to be like the “hearing”, to know the same things as the “hearing” and to speak like the “hearing”, but how was I supposed to do that when this “hearing” world was not fully accessible to me? An important part was missing.*

*A trip to Sweden in 1994 brought a powerful change to my life. I learned how to achieve equality and successfully integrate into the “hearing” community. It seemed really simple: it “merely” took having a sign language interpreter. This time, it was not a communication support worker who frequently answered my questions or made my decisions for me, but a professional with the necessary skills and knowledge who ensured good communicative interaction while at the same time leaving my decisions and my answers up to me. [...]*

*Here, I believe it is important to share an extraordinary experience that I went through, one related to the quality of translation and how it actually affects our lives. The insights that I gained through this experience shook me at first, but later on they strengthened my desire and willingness to persist in achieving what the Swedes have had for decades. A recent trip back to Sweden [...] is the experience that I would like to share. I was fed up with the numerous and constant chores, and I wanted to give myself a break from everything, so I decided to go to Sweden, by myself. At first, it seemed like an impossible mission, but thanks to an exceptional woman, the head of an interpreting agency in Stockholm, the impossible mission became a dream come true. I traveled alone, accompanied by the staff of Croatia*

*Airlines, and the head of the agency met me at Arlanda and escorted me to an apartment. There I was instructed that I would get two volunteers who studied interpreting. They were in their third year of studies, of a total of five. I didn't worry too much because I knew Swedish sign language well, since I had spent two years at the Swedish Upper Secondary School for the Deaf and Hard-of-hearing. /.../*

*I was pleasantly surprised the following day when I met my "interpreters" who accompanied me during my stay in Stockholm and the grand celebration of the 50<sup>th</sup> anniversary of The Association of the Swedish Deafblind. /.../*

*I was deeply touched by their dedication and determination in trying to convey all the information, and by their ethical approach and high regard for me. /.../ ...they interpreted everything they saw and heard. /.../*

*In the Constitution of the Republic of Croatia, the principle of equality among all citizens is proclaimed as the highest value, and it includes people with disabilities. For the deaf and the deafblind, this means that they need to be guaranteed and ensured equal access to information and communication, at the same level of quality and quantity as all other members of society, thereby taking into account the individual particularities of their needs (Bradarić-Jončić & Tarczay 2005). [...] Today we witness that members of the deaf and deafblind community in particular are least actively represented in all aspects of personal, educational, business, and social life, unlike other persons with disabilities, such as blind persons or persons with physical disabilities. We wonder: what is the cause of this? The layman's answer is rather simple: "They can't hear." [...] It is inadmissible that the deaf and the deafblind do not have equal access to information due to their hearing loss, and it is necessary and urgent to allow them equal access to information, both in education and in everyday life." (Tarczay 2009).*

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## GLOSSARY

### **Inclusion, inclusive model, inclusive education**

Inclusion is an approach which points out that diversity in individual abilities and strengths, as well as disabilities and weaknesses, is a natural feature which is desirable in a community. An inclusive model of community life (from family to kindergarten to school, and finally to the workplace) requires developing sensitivity and the creation of conditions to meet the various individual needs of each person, including disabled persons. Inclusive education enables all children to learn – together. This means that the education system should be organized and equipped so as to recognize and respond to the needs of a diverse spectrum of students, including those who have traditionally been excluded from access to regular forms of education and denied their right to equal access to education (from kindergarten to university).

### **Intervenor**

Intervenors are persons who help the deafblind to get around and orientate in space, as well as to engage in informal communication.

### **Language components: phonetics, morphology, syntax, semantics, pragmatics**

Phonetics is the branch of [linguistics](#) that studies articulatory and [acoustic](#) properties of [sounds](#) and [speech](#).

Morphology is a part of grammar that studies the system of language forms, that is, the way in which [words](#) of a language are formed and changed.

Syntax is the part of grammar that studies the rules that govern sentence structures. It lays down the rules of combining words into sentences.

Semantics is the branch of linguistics that studies meaning at the level of words, phrases, sentences, and discourse.

Pragmatics is the branch of linguistics that studies the use of language in communication.

### **Reverberation**

Reverberation is a sound phenomenon that occurs when a signal from the sound source reflects from the walls back to the listening place located within the same space. It is also known as the “echo effect”.

### **Signing space**

Signing space is the space within which sign language is used for communicating. It is bounded by the end points on the torso, head and overhead, in which a certain sign is gestured.

### **Tangible symbol**

Tangible symbols are used in therapeutic work with deafblind persons. Tangible symbols can replace real objects in a minimized form, or symbolize an action or an event by their main feature.

## STUDENTS WITH PHYSICAL DISABILITIES

### **Petar**

*Petar suffers from muscular dystrophy. The first symptoms of the disease appeared in his early childhood. He has been in a wheelchair since he was 14 years old. He successfully finished his secondary education, and now at 23 years of age, he is close to obtaining a degree in history and archaeology at the Faculty of Humanities and Social Sciences. In secondary school Petar was confronted with the question of his identity and his future. Although he could not fully enjoy the same life as his peers, which at one time was a difficult thing to accept, with great determination he decided to make the most of his interests and abilities and build his future on that foundation. With the great support of his family, friends, classmates, the staff of the Faculty, and experts (physicians, rehabilitators, physical therapists), Petar has been successful in fulfilling his academic obligations, even though very often this has not been an easy thing to do. The time spent attending classes, socializing, reading scholarly as well as fictional literature, and going to exhibitions would alternate with rehabilitation sessions and the conditions brought on by his disease (exercising, occasional overall body weakness, getting tired easily).*

*Petar's areas of interest are archaeology and the ancient history of his region. His classmates would often tell him that he was being "stubborn" for insisting on accompanying them when they went to do fieldwork at archaeological sites, although he was exempt from that obligation. Petar did not want to miss the opportunity to experience in the field the practical side of the archaeologist's profession. Transportation to the sites was usually organized through the Organization of Students with Disabilities, and if a particular site was more remote, transportation was organized by parents or classmates. The topic of his graduate thesis is "The History of Crafts in Old Zagreb", and the sources for the thesis consist of old documents stored in two historical archives. Access to the archives is not adequate for a person in a wheelchair (one of the archives is on the second floor of a building without an elevator, while the other one is in the basement of a building also without an elevator). Owing to the kindness of the archives' staffs, who have temporarily provided Petar with an office on the ground floor, he has been able to read the old documents and write his graduate thesis.*

## INTRODUCTION

A physical disability as a functional disability may be the consequence of a locomotor impairment, a central nervous system impairment, a peripheral nervous system impairment, or it can be the consequence of chronic diseases affecting other organ systems (Soldo 1986). The first three groups of impairments are primarily related to the impairments of the locomotor system – muscles, bones, and joints – as well as impairments of the nervous system (central and peripheral), which determines and controls the functioning of locomotor organs. Within this context, these impairments may be classified as *motor skills disorders*. Diseases that are characterized by their long duration and that are related to other organ systems may be classified as *chronic diseases*. These classifications are based on organic factors that cause motor skills, disorders, or chronic diseases; however, the basis for a complete understanding of a person, including a person with physical disabilities, is their *biopsychosocial structure* (Kovačević et al. 1988; Prstačić 2003, 2004), that is, the structural combination of the biological, psychological, social, and spiritual characteristics of the person. This structure is not merely the sum of all the elements/characteristics – it is rather that these elements through their mutual interaction create a new multidimensional and multicausal quality that represents the existence and essence of the person. In other words, the meaning of a single impairment that is biotic in nature cannot be understood and explained unless it is analyzed in relation to the entire structure and social context in which the individual has developed and in which s/he lives. When it comes to persons with physical disabilities, more devastating than the impairment itself is the hindrance to satisfying one's need for social inclusion, which is presented by their environment, that is, people without disabilities. The understanding and acceptance of the nature of these impairments is necessary for the environment to grow in a direction that will insure greater support for these people. In the broadest sense, this support would be associated with the total quality of their lives, in which education occupies an important place.

## MOTOR SKILLS DISORDERS

**Impairments of the locomotor apparatus**, which consists of bones, joints, and muscles, may be divided into the following categories: *congenital defects* (hip dislocation, club foot, phocomely, spina bifida, etc. – see figure 1); *general affections of the skeleton* (e.g., gigantism or dwarfism, which are caused by hormone disorders, or rickets, which is caused by

a metabolic disorder – see figure 2); *inflammations* (osteomyelitis, infectious arthritis, rheumatoid arthritis, etc. – see figure 3); *traumas* (fractures, limb amputations, paralysis caused by spinal fractures, etc. – see figure 4); *spinal deformities* (scoliosis, kyphosis, lordosis, kyphoscoliosis – see figure 5); and *progressive muscular dystrophies* (myopathy, myotonias – see figure 6).

Figure 1. Congenital defects (The two illustrations and photograph below show examples of congenital defects: hip dislocation, phocomely and spina bifida.)



Hip dislocation  
(This illustration shows the head of the femur outside the joint capsule.)

Phocomely  
(This photograph shows a man with no arms and legs surfing.)

Spina bifida  
(This illustration shows the nerves of the spinal cord that are outside the vertebral canal)

Figure 2. General affections of the skeleton (The first photograph shows the world's tallest and smallest person, and the second one shows two persons suffering from dwarfism engaged in a running competition.)



Figure 3. Inflammations (The illustrations below show inflammatory processes in osteomyelitis and rheumatoid arthritis.)



Osteomyelitis (This illustration shows the inflammatory process in one of the toe joints.)

Rheumatoid arthritis (This illustration shows the inflammatory process in finger joints.)

Figure 4. Traumas (The photographs below show a spinal fracture and a leg amputation)

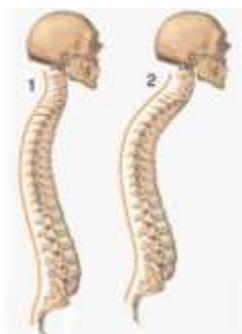


Spinal fracture (This photograph shows a CT scan of a spinal fracture.)

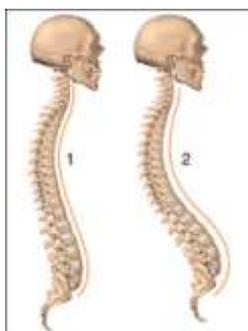


Amputation (This photograph shows a track runner whose leg has been amputated wearing a prosthesis.)

Figure 5. Spinal deformities (The illustrations below show spinal deformities.)



Kyphosis (This illustration shows a skeleton with normal vertical spinal posture and a skeleton with the upper part of the spine curving towards the front.)



Lordosis (This illustration shows a skeleton with normal vertical spinal posture and a skeleton with the upper part of the spine curving backwards.)



Scoliosis (This illustration shows two skeletons with the upper part of the spine curving either to the right or to the left, thus forming an S-shaped curvature.)

Figure 6. Muscular dystrophy (The illustrations below show the muscles of the lower part of the body in normal condition and in a case of muscular dystrophy.)



The most frequent consequence of a **central nervous system impairment** is *cerebral palsy* (figure 7), which is defined by the World Commission for Cerebral Palsy as “a **persistent but not unchanging disorder of posture and movement, caused by damage to the developing nervous system, before or during birth or in the early months of infancy.**” The clinical picture of cerebral palsy, which is characterized by the hindered development and functioning of the neuromuscular and musculoskeletal systems, consists of *abnormal muscle tone and muscular*



Figure 7. Cerebral palsy (This photograph shows communication between two rehabilitation therapists and three young people in wheelchairs who suffer from cerebral palsy.)

*weakness, the existence of primitive reflexes, poorly developed motor skills and balance reactions, and reduced development of the skill, coordination, and harmony of movement.*

Cerebral palsy may have different degrees of intensity, different types, and different clinical pictures depending on how and which parts of the body are affected.

The most common is *spastic type* cerebral palsy (paralysis/paresis of the locomotor organs and muscular hypertonia in which voluntary movements are slow or cannot be performed, and there are stereotypic movements). Other types include *athetoid type* cerebral palsy (the existence of purposeless, slow, involuntary, uncoordinated, and bizarre movements, with possible tremor, body laxity and facial grimacing), *ataxic type* cerebral palsy (broad-based posture and gait, precarious balance, tremor, wide movements), *choreoathetoid type* cerebral palsy (athetoid movements accompanied by choreic movements – i.e., quick, asymmetrical, involuntary, purposeless contractions of different muscle groups – which occur in the area of the head, as well as the rest of the body), and *muscular atony* (very scarce active movements, passive movements are possible to the point of being bizarre, joint luxations are frequent). Depending on which parts of the body are affected, types of cerebral palsy are divided into the following categories: *diplegia/diparesis* (all four extremities, arms are less affected); *hemiplegia/hemiparesis* (one vertical half of the body); *quadriplegia/quadriparesis* (all four extremities are equally affected); *triplegia/triparesis* (three extremities are affected); *paraplegia/paraparesis* (both legs are affected); and *monoplegia/monoparesis* (one extremity is affected). Due to these dysfunctions, the development and functioning of sensory and perceptual systems, as well as of the respiratory system, are hindered. There are difficulties in speech communication; intellectual difficulties are also common, as well as low self-esteem, anxiety, depression, etc.

**Amyotrophic lateral sclerosis (ALS)** is a disorder characterized by the progressive degeneration of motor neurons in the brain and the anterior horns of the spinal cord, which are responsible for controlling voluntary movements. Amyotrophic lateral sclerosis most often affects middle-aged individuals. There are 1-2 cases per 100,000 people, and most patients die within 3-5 years of diagnosis. The clinical picture is characterized by a progressive loss of muscle mass and strength, fasciculations (rapid twitches of single muscle bundles), spasticity, hyperreflexia, as well as the development of dysarthria (difficulty in articulating speech) and dysphagia (difficulty in swallowing). The disease has a rapid progressive course, and the only recommended medication is riluzole, which may prolong the patient's life (<http://hr.wikipedia.org>).

**Multiple sclerosis** is an autoimmune disease of the nerve fibers involving the damage of the myelin sheath that surrounds them. The spreading of nerve impulses is slowed down or stopped, which results in various neurological incidents. The course of the disease is very changeable – frequent deteriorations of different degrees alternate with sudden improvements. The disease is accompanied by many disorders of different degrees, from mild rigidity and difficulty walking to complete paralysis, blindness, etc. The average lifespan of patients with multiple sclerosis is six to ten years shorter than the lifespan of healthy people, and it primarily depends on the patient's age at the time when the first symptoms appear. There are around one million people in the world who suffer from this disease, and most of them live in developed countries. The disease occurs somewhat more frequently in women than in men (3:2). Although the cure has not yet been discovered, there are various medications that affect the course of the disease, help in the recovery after the recurrence of symptoms, and improve the quality of life of persons with multiple sclerosis (<http://multipla-skleroza.com>).

**Arthritis** is an inflammatory disease that normally affects joints. It is presumed that the cause is either some kind of an inflammatory process or an autoimmune response of the body. Although in most cases it occurs in the elderly and women, statistics show that a growing number of young people fall ill with this disease. There are over a hundred different types of arthritis, and the most common one is osteoarthritis (arthrosis), which leads to joint cartilage deterioration. The main symptoms are joint pain, swelling and rigidity, loss of joint mobility, and the formation of bony protuberances. Some other types of arthritis are rheumatoid arthritis, infectious arthritis, psoriatic arthritis, etc.

**Peripheral nervous system impairments** are caused by infantile paralysis or poliomyelitis. This acute infectious disease (usually in children) caused by the poliovirus used to appear in epidemic proportions, but it has been almost completely eradicated after the introduction of the preventive vaccine. The patient excretes virus particles in his/her saliva, urine and feces, and thus becomes a source of the contagion. The disease develops in three stages: the preparalytic stage, the paralytic stage, and convalescence. The paralytic stage is characterized by the disappearance of the initial, preparalytic symptoms (high temperature, severe headache, pain in the bones, muscles, and joints) and the onset of limb paralysis. Reflexes in the limbs are lost, the paralyzes are asymmetrical, and there is a laxity of the limbs and muscles. During recovery, the functions of paralyzed muscles and limbs may slowly be re-established, and if after two years the recovery is not complete, the paralyzes are considered to be permanent (<http://hr.wikipedia.org>).

With the aim of improving the quality of their life and minimizing their symptoms, persons with motor skills disorders are given the opportunity to take part in education and rehabilitation treatments, as well as other kinds of treatment (physical therapy, pharmacotherapy, surgery, etc.) and they use assistive technology (wheelchairs, adapted everyday objects, adapted computer equipment, etc.).

## **CHRONIC DISEASES**

**Chronic diseases** are characterized by their prolonged course; they often last for a lifetime, and they may reduce the quality of one's life and even result in disability or premature death. They are classified into several categories: cardiovascular diseases; malignant diseases (tumors of different localizations); metabolic disorders (diabetes, etc.); respiratory diseases (chronic obstructive pulmonary disease – COPD, chronic bronchitis, emphysema, asthma, etc.); endocrine disorders (thyroid diseases, etc.); neurological disorders (epilepsy, etc.); digestive disorders (Crohn's disease, etc.); and allergies. In addition to the basic medical treatment (treatment in a hospital or at home, medical rehabilitation, etc.), the treatment of chronic diseases also has a psychosocial component that consists of providing patients and their families with complementary rehabilitation and support in confronting the disease. The following is a brief description of some chronic diseases.

**A tumor** (neoplasm) is an abnormal tissue mass whose growth is uncontrolled and exceeds the growth of normal tissue. The main division of tumors is based on the differences in their effect on the patient's health and life. This is the division into benign and malignant (cancerous) tumors. Benign tumors grow more slowly and expansively, and lead to dangerous conditions only if their position endangers vital functions (e.g., the brain). The growth of malignant tumors is fast, infiltrative, and destructive. They are prone to metastasizing, and there is a greater likelihood of relapse (the recurrence of cancer at the site of the surgically removed primary cancer). According to the type of tissue on which they appear, tumors are divided into the following types: carcinomas (epithelial tumors – tumor of the breast, lungs, prostate, large intestine, and skin), sarcomas (tumors of the bones, tendons, and muscles), lymphomas (tumors of glands and other parts of the lymphatic system), and leukemias (tumors of the blood). The main principle of prevention, and thus of more successful treatment, is the early detection of the tumor. Early detection is enabled by different programs of preventive examinations for the general population. Conventional treatment options for

malignant tumors include surgical treatment, chemotherapy, immunotherapy, and radiation treatment.

**Diabetes**, according to the WHO, is a chronic disease that occurs either when the pancreas does not produce enough insulin (type 1 diabetes), a hormone that regulates blood sugar, or when the body cannot effectively use the insulin it produces (type 2 diabetes). Type 1 diabetes requires the external administration of insulin, and 10% of all people with diabetes have this type. Type 2 diabetes comprises 90% of people with diabetes, and is largely the result of excess body weight and physical inactivity. Over time, raised blood sugar can lead to serious damage to many of the body's systems, especially the nerves and blood vessels. For example, diabetes increases the risk of heart disease and stroke, and it increases the chance of foot ulcers (diabetic foot), visual impairment (diabetic retinopathy), liver damage, neuropathy, etc. The overall risk of death among people with diabetes is at least double the risk of their peers without diabetes.

**Asthma** is a chronic inflammatory disorder of the airways. It causes breathlessness, chest tightness, and coughing. These symptoms occur in episodes, especially when airways are exposed to risk factors, which are also the basis for the classification of this disease. The risk factors for allergic asthma are dust mites, fur, feathers and dead skin cells of animals, molds, and pollen from trees, grass, and weeds. When it comes to non-allergic asthma, the risk factors are tobacco smoke, cleaning products, perfumes, and indoor and outdoor air pollutants. Fumes, chemicals, resins, dust, insecticides, smoke, and other factors cause occupational asthma, and asthma episodes may also be triggered by physical activity, as well as some medications and food ingredients. The symptoms of the disease are managed by medications and adequate changes in lifestyle, i.e. by avoiding exposure to risk factors. It is estimated that approximately 300 million people worldwide suffer from this disease and the prevalence is increasing, especially among children (GINA 2009).

**Epilepsy** is a chronic neurological disorder characterized by an excessive and abnormal discharge of nerve impulses in the brain. The consequences can manifest themselves in the sensory, locomotor, perceptual, and vegetative nervous systems, and there may be frequent losses or disorders of consciousness. It affects 1% of the population; in the Republic of Croatia, around 45,000 citizens. Epileptic seizures, which are transient, are divided into generalized seizures (grand mal seizure, i.e., a large seizure, and petit mal seizure, i.e., – a small seizure) and focal or partial seizures. The occurrence of seizures may be relatively well regulated with medications (Padovan 1992).

**Crohn's disease** is a chronic inflammatory disease of the intestines, whose etiology is still unclear. It affects the entire depth of the intestinal wall, and usually it occurs in the lowest parts of the small intestine and in the large intestine, but it can also develop in any other part of the digestive system. The cause of this disease is not known, but it is assumed that its occurrence may be influenced by genetic predisposition, a disorder of the immune system, infections, and diet. The symptoms that indicate the presence of this disease include pain in the lower right quadrant of the abdomen, loss of appetite, weight loss, fistulas, liver damage, gallstones (significantly more frequent than in the general population), anemia, osteoarticular changes, eye changes, skin changes, etc. Periods without any signs of the disease may last for years or decades, but relapses are common. Crohn's disease is treated by administering medications that reduce the inflammation of the intestines, by administering corticosteroids and immunosuppressants, and by adequately adjusting the diet. Surgery may be done in the case of a narrowing of a part of the intestines ([www.poliklinika-analiza.hr](http://www.poliklinika-analiza.hr)).

**Allergies** are caused by overreactions of the immune system to certain stimuli from the environment – i.e., to certain antigens or allergens. The most common allergens are food and food ingredients (preservatives, additives), pollen, grass, medications (penicillin), and the sun. When it comes into contact with an allergen, the immune system starts to excessively secrete immunoglobulin E and histamine, which results in an array of symptoms such as nasal congestion, runny and itchy nose, intense sneezing, itchy and watery eyes, dry cough, shortness of breath, occasional choking, digestive problems, lightheadedness and loss of consciousness, various swellings, and skin irritation. Besides the local symptoms, there may be a general bodily reaction that includes cardiovascular problems and may lead to anaphylactic shock and the person's death (Padovan 1992). In addition to conventional medical treatment, which is currently aimed at alleviating the symptoms (chemical therapy) or blocking the reactions of the immune system (immunotherapy), another method that has proven to be effective is the use of the BIOCUM (Biological Computer) device, which by means of electric vibrations harmonizes the functioning of the body's systems, and thereby the functioning of the immune system. Also, people with allergies resort to some complementary treatment methods, such as homeopathy, herbal treatments, traditional Chinese medicine, etc.

What distinguishes people with chronic diseases, depending on the type and severity of the disease, are frequent hospitalization, the use of medications, side effects caused by their use (nausea, vertigo, etc.), occurrences of sudden conditions (epileptic seizure, asthmatic

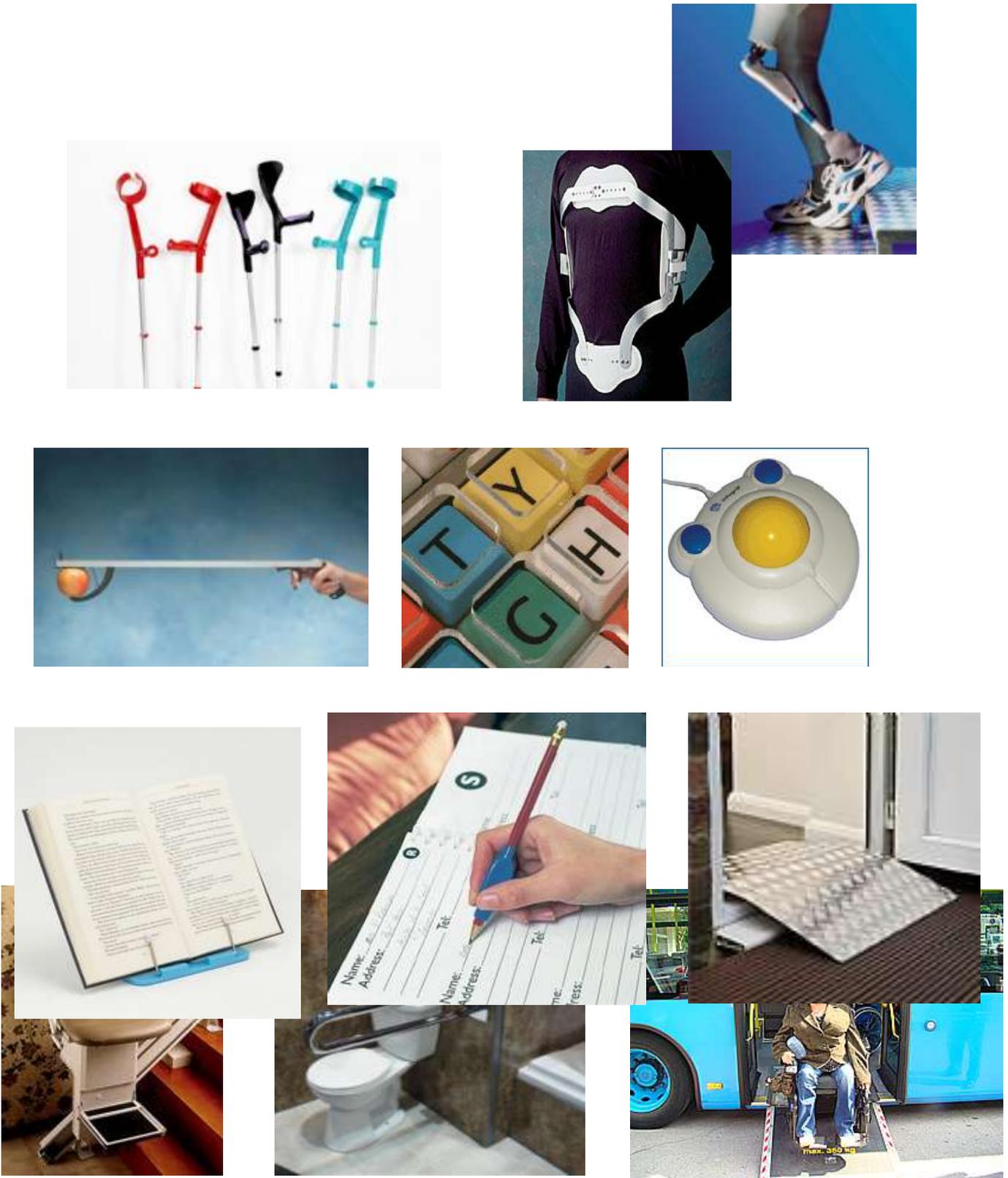
attack, etc.), pain, fatigue, difficulty concentrating, special life style, diet, etc. Their energy levels are often reduced and they frequently experience difficulty walking, standing, or sitting for extended periods of time. There is a possibility of anxiety, depression and other, even more severe, psycho-emotional disorders. The occurrence of these symptoms can make it difficult to pay attention in class, to complete assignments outside the classroom (researching literature, writing seminar papers, etc.), and it can prevent one from being properly focused during exams.

## RECOMMENDATIONS

In accordance with the nature of **motoric impairments** (difficulties with movement, handling objects, etc.), it is necessary to ensure physical accessibility for those suffering from them by adapting the space (read more in the handbook *Physical Accessibility*), so that they can achieve the greatest possible independence in performing their activities and communicating with other people. It is also necessary to ensure access to equipment and facilities that should be adaptive, that is, it is necessary to ensure the use of *assistive technology*. This term stands for assistive, adaptive, and rehabilitation devices used by people with disabilities, but it also refers to the process of selecting, getting accustomed to, and using such devices. Assistive technology devices include (Disability Rights Network 2010):

- power and manual wheelchairs, canes, crutches, walkers, and standing devices;
- augmentative communication devices (speech generating devices), voice amplifiers, speech recognition devices;
- other medical equipment, such as patient lifts and incontinence supplies;
- orthotics and prosthetics;
- accessibility adaptations: lifts, grab bars, lever doorknobs, etc.;
- special equipment to help people work, study, and engage in recreation: enlarged computer keyboards, “mice”, telephones, sports equipment, etc.;
- accessibility modifications in the community, such as public transportation (ramps, etc.).





**Figure 8.** Assistive technology (These photographs show some of the devices used by people with motoric impairments: a wheelchair, a walker with wheels, a mobile patient lift for lifting and moving a person, crutches,

a spinal brace, a long arm gripper for handling objects, an addition for the keyboard for the accurate selection of keys, a computer mouse with a large track ball, a vertical book holder, a pencil grip, a threshold wheelchair ramp, a mobile stair lift, metal grab bars next to the toilet, a bus ramp for wheelchairs)

In the context of studying at a university, physical accessibility and the possibility of using assistive technology refer to:

- a) accessibility adaptations and assistive devices in teaching spaces, classrooms, offices, and libraries;
- b) accessibility adaptations and assistive devices that students use in their daily activities (student accommodations, bathroom facilities for personal hygiene, eating facilities, etc.);
- c) accessibility adaptations and assistive devices in other places (university administrative facilities, sports facilities, student common areas, etc.).

It is also necessary to understand and have tolerance for current subjective states that students with motoric impairments may find themselves in (anxiety, depression, and more severe psycho-emotional disorders – read more in the handbook *Psychosocial Needs and the Support System*), and which may make it difficult to pay attention in class, to complete assignments outside the classroom and may prevent one from being properly focused during exams.

**When it comes to people with chronic diseases**, it is essential to understand the objective nature of the disease, as well as to accept the individual and their subjective characteristics and reactions to the disease. In addition to needing a particular kind of psychological support (read more in the handbook *Students' Psychosocial Needs*), these people also require support, help, and understanding in the performance of their academic activities.

They may arrive late to class due to sudden onsets of symptoms such as vertigo or a drop in physical strength on their way to university. In some cases (e.g., after having surgery), the student may need a special type of chair or some kind of holder for books and notebooks if the student cannot sit and has to stand. Such students may have to be given more time to take an exam and/or should be given time to rest. During his or her time at the university, the student may experience an epileptic seizure. Table 1 describes the procedure for how to take care of someone in such a situation.

**Table 1** How to assist a person having an epileptic seizure

- Stay with the person.
- Do not restrain the movements of the person having the seizure.
- Protect the person from getting injured – remove all hard objects in the vicinity. Put something soft under the person’s head. Unbutton all tight clothes the person is wearing.
- Carefully position the person on his/her side – do this as soon as possible in order to make it easier for him/her to breathe.
- Do not force anything into the person’s mouth.
- Establish communication so that you can know if the person has regained consciousness.
- Comfort the person.
- Do not give the person water, medication or food until s/he has completely recovered.
- After the convulsive seizure, the person should be left lying on his/her left side. Do not forget that there is a small likelihood that the convulsions will be followed by vomiting before the person fully recovers. For this reason, his/her head should be turned to the side so that the vomited contents can leave the mouth without being aspirated into the lungs. Stay with the person until s/he is fully recovered.
- It is necessary to get emergency medical assistance if the seizure lasts for more than 10 minutes, if the person stops breathing, if there is a series of seizures in a short timeframe, and if the person does not regain consciousness between two seizures

An important role may be played by fellow classmates – student assistants who act as liaisons between students with disabilities and the university during their absence from class, by conveying information, tutoring, bringing the required literature to the student, etc. What may also be important is e-learning, which allows one to obtain the current information on a given course, as well as meet some academic obligations with the help of e-mail, videoconferences, etc. (read more in the handbooks *Information Access* and *Teaching and Outcome Monitoring and Evaluation*).

When it comes to both motor skills disorders and chronic diseases, depending on the nature and current status of the given disorder or disease, students may be absent from classes and other academic activities. The periods of absence may be short, and a justification for the absences should be provided in some way. During certain treatment stages, students may not be able to perform their academic activities for longer periods of time (e.g., certain phases of chemotherapy, serious traumatic conditions, acute attacks, etc.). In such cases, it can be presumed that students will not be able to make up for the missed lectures, exercises, and other academic obligations by themselves, and their student status may be temporarily suspended. Article 15 of the Ordinance Regulating Undergraduate and Graduate Studies at the University of Zagreb ([www.unizg.hr](http://www.unizg.hr)) states that the student’s obligations may be suspended “*during an illness that for a longer period of time prevents him or her from successfully meeting his or her obligations*”. The Ordinance Regulating Undergraduate Study Programs of the Faculty of Education and Rehabilitation Sciences of the University of Zagreb (Article 41; [www.erf.unizg.hr](http://www.erf.unizg.hr)) states that obligations may be suspended “*due to a continuous illness*

*lasting for at least three months during the academic year.”* Also, according to the Ordinance Regulating Undergraduate and Graduate Studies at the University of Zagreb (Article 25; [www.unizg.hr](http://www.unizg.hr)), it is possible to transfer to another study program “*if the transfer is necessary due to a serious illness.*”

## CONCLUSION

The very decision of a person with some form of physical disability to continue his/her education at the university level may be viewed as a personal act of overcoming one's disability, but also as an act of negating some prejudices that still shape the general opinion about people with disabilities. As has already been stated, even greater than the impairment and/or the disease itself is the hindrance to satisfying one's need for social inclusion, which is presented by the environment, i.e., people without disabilities. Within the context of studying in the system of higher education, this environment may be characterized by inadequate physical accessibility, the unavailability of content and materials necessary for fulfilling one's academic obligations, and the lack of tolerance for and understanding of the objective and subjective factors associated with disabilities on the part of the university staff and other students. Changing such an unsupportive environment into a supportive one is crucial to enabling students with disabilities to have a good quality of life, that is, to achieve maximum independence and usefulness in the community. Specific accommodations in the environment, classes, and other aspects of studying will provide physically disabled students with an equal opportunity to meet their academic obligations and obtain an equivalent professional identity.

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### **Glossary:**

Autoimmune response of the body – a negative reaction of the immune system to the cells of the same organism

Bizarre movements – unusual and purposeless movements (usually involving the face, arms and legs)

Hyperreflexia – exaggerated reflex movements

Immunotherapy – a therapy that regulates the organism's immune system

Incontinence – an inability to control urination

Luxation – joint dislocation, separation of joint parts (when the head of the bone is outside the joint capsule)

Myelin sheath – a sheath that surrounds nerves and facilitates the transmission of electric nerve impulses

Orthoses – devices that support the functioning of certain body parts (e.g., a brace for knee stabilization)

Paralysis – complete inability to move parts of the body, usually arms and legs

Plegia – partial inability to move parts of the body, usually arms and legs

Primitive reflexes – unconscious body movements that are exhibited by newborns and that disappear with time, but which in some disorders (cerebral palsy, neurological disorders) may exist and/or appear at a later age as well

Prostheses – devices that replace certain body parts (e.g., an artificial hip)

Relapse – the return of a disease

Spasticity – contractions of muscle groups that make movement difficult

Tremor – involuntary trembling of the entire body, a limb, or other muscle groups due to rapid, alternating muscle group spasms

## **DYSLEXIC STUDENTS**

*Gorana feels that she has always had problems with reading and writing – ever since she started school. While talking about experiences from her schooling, she mostly recalls unpleasant moments. She needs additional encouragement to “retrieve” and remember beautiful experiences, as well as those in which she was successful.*

*She was the slowest reader, especially when reading speed was measured, and she often made mistakes. She would read a word by heart and everyone would laugh . . . She was one of the worst students in her class and, as a result, was not very popular, although she studied hard. When she was about to enter secondary school, she knew that she was good at drawing, so she picked a school which required a lot of technical drawing. She was good at it and had good grades in such subjects, which, along with a lot of effort and struggling to tackle everything else, helped her to make it through secondary school. Towards the end of school she realized she might be dyslexic. A language teacher asked her to read aloud, and it was a catastrophe: everyone laughed again. Namely, she still kept mixing the b’s and d’s while reading, along with all sorts of other things. Basically, she did not understand what she had read, as had happened many times before. This was especially prominent when she tackled new material. Usually she was not able to take notes, and her spelling was terrible. With English, things were even worse: the words she could spell correctly can probably be counted on the fingers of two hands. But she can communicate and talk quite well. She always studiously Xeroxed or copied her friends’ notebooks. One day, she saw all of her symptoms listed on a poster as signs of dyslexia and went to get assessed. After the assessment, she was given the right to take an adapted graduation test. That, she says, saved her. She was able to enroll in college. Today she is a student, which takes a lot of effort . . . but she no longer has to listen to other people’s laughter.*

The study of dyslexia began approximately two hundred years ago. Due to numerous insights and descriptions of dyslexia, theories about its causes and the understanding of its effects, it is safe to say that we know a lot about the condition, although the functioning of dyslexic persons is much less understood and accepted (Raduly Zorgo 2010).

In the last twenty years there has been increasing talk about dyslexia in Croatia, and it has become the object of many scientific studies and specialized interest (Pašiček 1991; Lenček 1994; Lenček, Ivšac & Kraljević 2010; Lenček 2010). Insights about dyslexia are being developed within the scope of speech therapy, which is within the scope of education and rehabilitation sciences, and dyslexia has become a narrow field of work for speech therapists. As it is a very complex phenomenon, many other experts are involved in the process of recognizing, assessing, counseling, and treatment – psychologists, neurologists, special education therapists, pedagogists, teachers, etc.

When asked what dyslexia is, everyone seems to know something about it, but in most cases, their descriptions are neither correct nor clear enough. The majority of people define it as “some sort of problem with reading and writing”. They ascribe several different characteristics to dyslexic people. The following generalizations can be made about their descriptions:

- Views differ tremendously: the continuum is made up of “a scale” of claims ranging from those about dyslexic people being stupid, lazy, and not being able to understand anything, to claims that dyslexic people are exceptionally talented and intelligent.
- Descriptions vary due to different levels of knowledge and insight, as well as due to different attitudes or experiences.
- They can extricate common characteristics which point to so-called weaknesses – problems with reading and writing
- Reading is extricated as the basic problem, while writing and problems with writing are connected to dysgraphia.

### **Defining dyslexia**

The word 'dyslexia' comes from Greek, like many other medical and scientific terms. The literal meaning of the word *dyslexia* is difficulty (dys) with words or language (lexis). The name points to the fact that dyslexia is not only connected with reading, as is usually thought, but includes other aspects of language as well. Dyslexia is a language-based difficulty, and to understand it one needs to become familiar not only with the common features of all

languages, but also with the specifics of language and writing. Dyslexia does not present itself equally in all languages/scripts (Mann 2000; Veii and Everatt 2005; Landerl 2001; Saiegh-Haddad 2005; Everatt et al. 2004; Everatt and Elbeheri 2008; Smythe et al. 2008).

The definitions of dyslexia have changed with respect to the insights of scientists and experts, but parts of some are still present today.

The World Federation of Neurology (1968; taken from Critchley 1970) offers a list of so-called *exclusion criteria*, which mostly define what dyslexia cannot be and is not, and not what dyslexia is: *Dyslexia is a disorder characterized by difficulties in learning to read despite conventional instruction, adequate intelligence, and sociocultural opportunities. It is based on cognitive difficulties which are often of neurological origin.*

The criteria of normal intelligence, lack of sensory and motor difficulties, conventional instruction, and good sociocultural opportunities remain the basis for future definitions. Newer definitions seek to include causes and descriptions of different forms of dyslexia. The following definitions are most commonly cited:

**International Dyslexia Association – IDA, 2002** ([www.interdys.org/FactSheets.htm](http://www.interdys.org/FactSheets.htm))

*Dyslexia is a specific learning disability which is neurological in origin. It is characterized by difficulties with accurate and/or fluent word recognition, decoding and writing. These difficulties result from a deficit in the phonological component of language which is unexpectedly bad in relation to other cognitive abilities and the provision of usual classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience, which can affect vocabulary and background knowledge.*

**British Dyslexia Association – BDA, 2008**

(<http://www.bdadyslexia.org.uk/whatdyslexia.html>)

*Dyslexia is a specific learning difficulty which mainly affects the development of literacy and language skills related to it.*

*It is present from birth and its effects are current throughout life in different forms. It is characterized by difficulties with phonological processing, rapid naming, working memory,*

*quick processing and automation of skills which do not match up to an individual's other cognitive abilities. Conventional teaching methods do not yield good results, but the effects of dyslexia can be mitigated by specific intervention, including the application of information technology and supportive counseling.*

The definition of the **European Dyslexia Association (EDA, 2007)** is the most common in Europe today. It is widely accepted because it takes other difficulties and definitions into account, as well as the need to be applicable to different languages.

### **European Dyslexia Association – EDA, 2007**

(<http://www.dyslexia.eu.com/>)

*Dyslexia is a difference which makes acquiring and using reading, spelling and writing skills difficult. It is neurological in origin.*

*The cognitive difficulties which are in the background of these differences can affect organizational skills, abilities to calculate, as well as other cognitive and emotional abilities.*

*It can be caused by a combination of difficulties in phonological processing, working memory, rapid naming, sequencing, and basic skill automation.*

Dyslexia is, in essence, a difference in functioning, but the problem lies in the fact that societies mostly view it in the wrong way and do not ensure enough support for dyslexic persons to enable the acceptance of this difference and the overcoming of existing difficulties. Definitions most often lack detailed descriptions of the so-called weaknesses, and acknowledge the so-called strengths significantly less.

Weaknesses, or bad sides, like difficulties with learning how to read and write, slow reading and writing, and/or doing so with many mistakes, difficulties with understanding what is written, difficulties with written expression/organizing thoughts on paper, problems with writing, tiring in situations involving reading and writing, or weak literacy, are emphasized the most and are well known.

However, dyslexic persons have strengths, too, such as good visual potential, strong perception capacity, originality, creativity, the ability to solve problems intuitively, “artistic” ways of thinking, strong general comprehension capacity – which should be used in establishing support, everyday activities, and fulfilling academic obligations (Raduly Zorgo 2010; Everatt, Weeks & Brooks 2008).

Data about the frequency of dyslexia shows that it is present in 5 to 10%, that is, in 10% of the school population.

Data shows that, in some systems with very good support for students with disabilities, as many as 60% of students have specific learning difficulties, dyslexia being the most common.

### **Causes of dyslexia**

Most researchers agree that dyslexia has a neurobiological background, and more accurate definitions of the causes differ considerably concerning the level of explanations (Stein 2008).

A lot of data which has been collected through studies on chromosome analysis and the causes of dyslexia in twins, as well as through so-called family studies, is available about the genetic basis of dyslexia (Scarborough 1990; Fletcher et al. 2007; Smith & Gilger 2007).

Most studies focus on different forms of brain function deviation (Nicolson & Fawcett 2008). Some of these studies put emphasis on the role of the visual or auditory cortex, while others see the magnocellular system or binocular control difficulties as the main causes of dyslexia (Iles, Walsh & Richardson 2000).

By pointing out the role of the cerebellum and its importance for the automation of a range of skills, hence of reading and writing, some authors have linked the causes of dyslexia to cerebral deficiencies and reduced automation (Fawcett & Nicolson 2008).

Certainly one of the most commonly explained theories is the one about the lack of phonological processing, or the so-called theory of phonological inadequacy. According to this theory, the level at which the cause of dyslexia should be considered is linked to linguistic, that is, phonological processing, despite the fact that it is in the background of this inadequacy (Snowling 2000; Vellutino et al. 2004).

Today we know a lot more about the possible causes of dyslexia than we did only a decade ago. It is possible that the unknown facts connected to the brain functioning of dyslexic persons will be discovered and explained with the help of technological advances and more

extensive studies focused on discovering the reasons behind the occurrence of this complex phenomenon.

### **Legal basis**

Only a small number of European countries have passed or are attempting to pass legislation that ensures conditions for the acceptance of differences. In Great Britain there are several acts which ensure the rights of dyslexic persons (the Disability Discrimination Act – DDA 1995; the Special Educational Needs and Disability Act – SENDA 2002; and Disability Equality Duty – DED 2006). In the United States, a legislative solution to questions of dyslexic persons exists as well, within the document called Individuals with Disabilities Education Act (IDEA 2004).

In Croatia there is no single document.

Dyslexia is not recognized in legislative acts which apply to the pre-school system, that is, neither the risk of developing dyslexia nor preventive measures are mentioned.

The school system, in the Primary Education Act (*Narodne novine* 2003, no. 69), places the term *dyslexia* on the Orientational List of Types and Degrees of Disability within the Ordinance Regulating Primary Education of Pupils with Developmental Delays (*Narodne novine* 1991, no. 23, article 4).

The Secondary Education Act (*Narodne novine* 2003, no. 69) contains only the term developmental anomalies within the Ordinance on Secondary Education of Pupils with Developmental Difficulties and Major Developmental Handicaps (*Narodne novine* 1992, no. 86). Dyslexia can be listed in it as one of the difficulties.

After introducing the national graduation exam as the final requirement for secondary school, the Education and Teacher Training Agency created Instructions for the Conduct of National Graduation Exam for Examinees with Special Education Needs (November 2007), thus ensuring adaptations which enable dyslexic secondary school pupils to take this exam under conditions suited to their needs.

The term dyslexia is recognized neither in the Scientific Activity and Higher Education Act (*Narodne novine* 2003, no. 123; 2004, no. 174; and 2007, no. 2), nor in the acts of the seven Croatian universities.

The Office for Students with Disabilities at the University of Zagreb lists different kinds of disabilities and specific learning difficulties, such dyslexia and dysgraphia, in the description

of its activity, which enables students with these difficulties to address the Office for support or help.

Until 2009 (the start of the ISHEDS Tempus project – Identification and Support in Higher Education for Students with Dyslexia - 144878-TEMPUS-2008-UKJPGR) there was no data about dyslexic students, nor, considering the poor support in previous systems, did anyone know if there were any dyslexic students at Croatian universities. This was because there was no possibility to “register” as a dyslexic student.

This project, in addition to interviewing students at some constituent units of the University of Zagreb, helped recognize students who could be dyslexic, and enabled them to get assessed. Twenty-nine dyslexic students were found based on this assessment, and the process of identifying students with dyslexia is still under way.

In order to ensure the rights which equate the study opportunities of dyslexic persons to those of non-dyslexic ones, a draft of the Guidelines for Equal Study Opportunities for Persons with Dyslexia was drawn up. It was approved at a session of the University of Zagreb Senate on 18 January 2011. These Guidelines are a starting point for the creation of a support system for dyslexic students and for the work on enhancing the quality of study not only for dyslexic students, but for students in general. The work on improving the quality of study has been made easier by a previously established network of coordinators for students with disabilities at the University of Zagreb who are informed about the particularities of dyslexia. A draft set of Guidelines for the entire Republic of Croatia, that is, for all Croatian universities, has also been addressed to the Ministry of Science, Education, and Sports.

Support for dyslexic students includes the results of the ISHEDS project as well: an electronic version as well as a printed version of a manual intended for dyslexic students is available ([www.isheds.eu](http://www.isheds.eu), link Study Skills; *Dyslexia – A guide to independent learning for students and pupils*), as well as an electronic and printed version of a guide intended for persons giving support ([www.isheds.eu](http://www.isheds.eu), link Supporting Students; *Dyslexia – A handbook for persons giving support*).

Additionally, a self-evaluation test (Profiler) has been created in Croatian as part of the ISHEDS project, and this can be the starting point for recognizing characteristics which point to dyslexia.

### **Recognizing and assessing dyslexia**

In the last thirty years many tests and assignments have been developed that help us recognize dyslexia in children and adults (for an overview, see Reid 2003), as well as alternative models (Josh & Aaron 2008).

Recognizing and assessing dyslexia (often marked by the term diagnostics) is most often done at school age, because it is in this period that the so-called visible signs, especially those connected to reading and writing, become most prominent. Because of the difficulties linked to dyslexia, this is the age when numerous effects of the condition become apparent, often because of the children's failure at school and behavioral problems. It is in these situations that the children are often advised to get assessed. The effects of dyslexia affect not only the dyslexic child, but also the people in their surroundings, namely their parents primarily, but also their teachers.

School age is also appropriate for assessment because of the sufficient amount of school/formal instruction they have received, which can be the basis for spotting different kinds of deviations.

A speech therapist's assessment at school age should include data about the child's proficiency in language assignments (phonological, morphosyntactic, and semantic components of language), reading (techniques and understanding), and writing. It should also contain other data important for a speech therapist's assessment (e.g., the child's speech characteristics), as well as information from other experts (primarily from psychologists about the child's cognitive status, but also from other experts, along with comments from the school's teachers and associates). The entire profile should focus on strengths and weaknesses, so that the proper form of education and necessary adaptations can be defined. As a result of the assessment it is possible to recommend a form of education for a dyslexic child which can, in the Croatian educational system, be a regular form of education with an individualized approach (adaptations refer to methods and work practices, while the amount of teaching material remains the same), and, seldom, an adapted program (which would include quantitative and qualitative changes).

If dyslexia is assessed at pre-school age, as has occurred in some cases and as is frequently done in some European and American countries, the possibilities for developing some skills and abilities important for the acquisition of literacy, and for developing strategies which do not rely on reading and writing, could be significantly increased. Unfortunately, the risk of dyslexia is still rarely assessed in Croatia, but this situation could be significantly improved through general checkups which would include a speech therapist's assessment between the ages of 3 and 4, as well as before starting school.

It is not rare for dyslexia to go unrecognized until adulthood, that is, after finishing school, for example when the individual starts college, primarily with the help of self-evaluation and, then, expert assessment. According to some data, as many as 30% of students in advanced study programs are dyslexic ([www.isheds.eu](http://www.isheds.eu)).

The assessment of dyslexia in adulthood can be based on easily accessible self-evaluation questionnaires (one such questionnaire is available in Croatian, as well - [www.isheds.eu](http://www.isheds.eu), link Identification), after which, if there is suspicion of dyslexia, an assessment by experts can be made.

The assessment of dyslexia in adulthood is done by means of questionnaires which contain questions connected to the so-called case history of the individual, and which relate to signs that became visible during schooling (e.g., difficulties with learning the alphabet, reading and writing, copying from the blackboard, doing assignments with limited time), as well as questions relating to the person's present state.

These questions and assignments actually contain the characteristics of dyslexia in adulthood. Assessment tests and assignments for students mostly measure how they handle assignments which involve language, reading, and writing, but the questioning can cover other areas as well – e.g., visual perception, spatial orientation, and the like.

The assessment itself can also contain assignments connected to those aspects which form the basis of different theories about the causes of dyslexia (e.g., automation is questioned through assignments which interpret lack of automation as a reason for the occurrence of dyslexia, and the like).

In **Croatia**, the assessment of dyslexia in adults/students is based on knowledge from other countries, experiences from clinical work with the dyslexic population, and on knowing the typical characteristics of dyslexia in Croatian speakers. Based on these, assignments for the assessment of dyslexia in Croatian have been made (Lenček 2010; materials from clinical work and the ISHEDS Tempus project).

### **Characteristics of dyslexia**

The characteristics of dyslexia are not the same in all languages and scripts, and, additionally, they vary depending on age, level of education, and the weaknesses and strengths of the person. They also depend on the level of support and a number of other factors.

In adulthood, that is, in adult dyslexic students, the following characteristics can be present (Lenček 2010):

- continual presence of reading difficulties (switching, skipping and adding phonemes, syllables, words, and/or exceptional tardiness are present),
- a feeling of unease while reading aloud,
- a longer time period needed to read the page of a book compared to others,
- skipping a line while reading and/or repeating the same line,
- difficulties with understanding what has been read, especially more complex texts,
- repetitive reading in order to understand,
- difficulties with reading and understanding different schedules,
- problems with taking notes,
- difficulty finishing exams, essays, etc., in the time given,
- leaving out letters, parts of words, or entire words while writing,
- writing sentences that are unorganized, ungrammatical,
- difficulties with expressing ideas in writing,
- hardly legible handwriting,
- many spelling mistakes in writing,
- problems with finding/correcting their own mistakes in writing,
- delaying the writing of essays, seminar papers, etc., until “the last minute” (although this is a characteristic of many other students as well),
- difficulties with planning and structuring a written paper,
- failure in taking exams (especially written),
- difficulties with filling out written materials, e.g., different forms,
- uncertainty in defining left and right,
- disorientation on geographical maps and difficulties with finding their way in an unfamiliar place,
- confusion while presenting in front of others,
- difficulties with taking telephone messages and writing them down,
- problems with completing assignments by given deadlines,
- difficulty in planning for the completion of assignments within given time limits,
- unwillingness to provide quick/direct reactions and answers.

Not all characteristics are observable in all cases of dyslexia. Apart from that, the prominence of these characteristics can vary from very weak to very strong and frequent occurrences of some signs.

Since overviews and descriptions of the characteristics of dyslexia in adult/student age enumerate problems with reading, writing, organizing, and mathematics, some of the following characteristics and their combinations can help in recognizing dyslexia:

### ***Reading***

Problems with reading fluently and correctly. Dyslexic students often have to read the same text several times in order to understand it. Reading aloud is very difficult for them. Sometimes they have problems pronouncing words correctly, reading symbols, reading quickly, reading schedules, and so on. They often skip a line when reading from a blackboard or a presentation; they read more slowly in general than others, so they are often not able to answer questions from the end of the text because they have not read the content yet. It can be very straining for some dyslexic people to read from white paper because the whiteness of reflection makes it harder for them to perceive the letters. They tire especially when reading from a white or shiny surface.

### ***Writing***

Dyslexic students have difficulty putting things they can orally express down on paper. This is especially prominent when they are working *under pressure*. For example, dyslexic students will seldom show their real knowledge on written exams although they might have shown an admirable level of knowledge in earlier assignments (during exercises, seminars, and work throughout the year).

Essay writing is probably the biggest challenge, although strategies for overcoming this problem can be developed with appropriate training. Worried about how they will compose sentences and whether they will write words correctly, dyslexic students lose a lot of time checking what they have written. This makes the amount of written text significantly smaller. Sometimes a lot is written with many mistakes, and the written essay is sometimes incomprehensible or illegible. Writing correctly, applying orthographical rules and grammatically correct forms, using punctuation marks, and maintaining text congruity can be

very difficult for dyslexic students. If students are copying from a blackboard or a *presentation*, it is often visible that the assignment is very difficult, as is taking notes on what is being said at lectures. On the other hand, these students can be very active and exceptionally good at other tasks, such as discussions and group activities.

Filling out forms, completing and filling in parts of text, tables, or different recordings, as well as filling in data with unclearly divided lines can be unsolvable problems for dyslexic students.

Example:

Subject grade

Mode of presentation grade


Some dyslexic students will copy numerical assignments with great difficulty.

### ***Organizing***

Doing complex assignments or doing more simple assignments simultaneously (e.g., some laboratory assignments with multiple parts in which the order of ingredients and activities is very important) can be difficult for dyslexic students.

Completing assignments on time, memorizing dates, dealing with many different responsibilities (such as term paper due dates, results of exercises, dates of mid-term exams, exam sign-ups), and scheduling activities – all of these activities can at times be tremendously difficult tasks.

Due to difficulties with time management, dyslexic students are often late for lectures or exercises because they have memorized the wrong time, date, classroom number, tram or bus number, and the like. They sometimes do not sign up for exams on time; sometimes they do not realize how much time they need to solve a problem or assignment, or how long it takes them to prepare for an exam.

They often do not apply good time management strategies in order to complete all the assignments on a written exam. During oral exams it sometimes takes them longer to “process” questions – that is, to understand what is required of them as an answer.

### ***Mathematics***

Research (Chinn 2009) has shown that dyslexic persons can have difficulty performing simple mathematical operations although they are able to comprehend complex concepts. Dyslexic

persons sometimes have problems transferring and copying given numbers into mathematical operations and types of procedures. For example, an assignment contains the number 1069, and a dyslexic person copies down 1096 or 1609.

It is not rare for them to leave out or switch the positions of important symbols such as full stops and commas (2.345 = 23.45), brackets and minuses in front of a number, either in the process of writing down or copying an assignment.

### ***Trust and self-respect***

Many students have had bad experiences during their schooling. It can be difficult for them to admit they have difficulties, and/or they ask for help unwillingly. They sometimes lose self-esteem and have little self-respect. They are more prone to stronger feelings of failure and stress than non-dyslexic students.

Self-respect problems require an appropriate approach, support, and help (Burden 2008).

Any combination of the above signs can be a basis for conducting an assessment (diagnostics). Such an assessment, as mentioned above, is carried out by a **speech therapist**.

## **EXERCISING THE RIGHTS OF DYSLEXIC STUDENTS TO EQUAL EDUCATION OPPORTUNITIES – RECOMMENDATIONS AND SUPPORT (PART OF THE GUIDELINES FOR EQUAL STUDY OPPORTUNITIES FOR PERSONS WITH DYSLEXIA AT THE UNIVERSITY OF ZAGREB ([www.unizg.hr](http://www.unizg.hr); link Office for Students with Disabilities) AND OF THE DRAFT GUIDELINES FOR ALL UNIVERSITIES IN THE REPUBLIC OF CROATIA)**

In order for dyslexic students to exercise their right to appropriate forms of higher education, they must act on several levels:

### **A. ENSURING THE POSSIBILITY OF “REGISTERING”**

- When enrolling at the faculty/academy of a university or other institution of higher learning, students should have the opportunity to state that they have been recognized or assessed as dyslexic, or that they suspect dyslexia, on the university’s application form.

- Students who have not stated that they are dyslexic at the beginning of their studies can do so at the beginning of every academic year through application/enrollment forms which should contain the possibility of expressing their suspicion of dyslexia, as well as the possibility of registering assessed dyslexia, even if this fact was not stated upon their initial enrollment.
- Every student who does not have evidence of their assessment (a speech therapist's report and opinion) from a period prior to the commencement of study should be assessed by a speech therapist at the level of the system defined by the university (the University of Zagreb recommends that this be done at the Centre for Rehabilitation of the Faculty for Education and Rehabilitation, or at the Student Counseling Centre, that is, by specific speech therapists based on the place where the student lives and studies) in order to exercise their rights as dyslexic students.
- University constituents (faculties, departments) are obliged to organize support and adaptation for dyslexic students (with the help of coordinators, persons who will be additionally educated and who are employees of the faculty or department), and to attend to the implementation of such adaptation.
- University constituents will, in cooperation with the coordinator for dyslexic students, ensure the implementation of support for dyslexic students, giving special care to the possible ways of monitoring their their work and testing them in an appropriate manner.

## **B. ADAPTED TEACHING METHODS**

- Dyslexic students are allowed to audio tape lectures without additional/special approval. They may use the tapes for personal needs only. Students should let the teacher know about using taping equipment in advance.
- They are allowed to use a computer to take notes during lectures.
- The teacher should make the material used in lectures available to dyslexic students before the lecture itself (e.g. through web pages, e-mail, or administrating written material).
- A summary of what will be taught, as well as a summary of each unit, makes it easier to follow classes for all students, especially dyslexic ones.
- Presentations should not contain too much text. It is helpful to use backgrounds and text color which create a clear contrast (e.g. cream background and dark blue letters).
- The teacher should use diagrams and mental maps along with text whenever possible.

- The spacing between lines should be 1.5 or double, and units should be divided into smaller subsections.
- “Sans serif” font types like “Arial” or “Comic Sans” should be used.
- Special attention should be paid to font types which are not suitable for some prints and symbols (e.g., in chemistry, mathematics, and some other areas – similarities between the number **1**, capital **I**, and lower-case **l**), where other font types could be used (e.g. Book Antiqua), or emphasizing some symbols by bolding them, thereby avoiding the mixing and switching of symbols.
- The text should be justified only on the left side because this enables easier management and following a line.
- Writing down new terms separately (e.g., on a backboard or in a separate attachment to presentations, lectures, or materials which can be copied/handouts).
- Whenever possible, use pastel-colored paper for photocopies/handouts.
- In materials used for exercises or task solving – clearly separate the instructions and put them in the order in which the student is expected to do the assignment or exercise, so that it is easier for them so self-monitor their work.
- Materials written in capital letters help students with more complex forms of dyslexia.
- Enabling the deadlines for turning in papers to be extended up to 25% in relation to other students.

### **C. EXAMS**

- Every written paper should be graded according to the specific characteristics and needs of dyslexic students.
- Teachers should grade exams and papers by the following criteria:
  - Focusing on the accuracy and clarity of arguments, and not the manner of expression,
  - Ignoring spelling and grammatical mistakes and the manner of expression as long as communication remains efficient,
  - Evaluating the actual knowledge of dyslexic students; the grade should reflect the level of familiarity with the core of the topic discussed,
  - Enabling the students to express themselves in a way which they find most suitable (e.g., writing in capital letters or writing on a computer).

- Dyslexic students should be given **at least** 30% more time for exams and tests (including practical exercises).
- Short and quick written tests and similar evaluations should be avoided.
- Oral instead of written questioning should be used whenever possible.
- Multiple choice methods of questioning which relate to similar content should be avoided (e.g., “Choose a word which describes a given situation – break - brake...”).
- In written exams, avoid copying assignments and writing answers down on separate sheets of paper, that is, on separate forms, especially forms with multiple choices such as below:
  1. A B C D
  2. A B C D...
- In exams which contain essays as a means of evaluation, consider possibilities for other kinds and manners of taking the exam.
- In especially difficult cases, consider the possibility of evaluation which is not based on exam-type forms (presentations, exercises).
- In subjects in which orthography is of great importance, such as foreign language learning, it is absolutely necessary to extend the time limit significantly (at least 50%) so as to enable checking and correcting what was written and finding spelling mistakes. Additional corrections should be acknowledged.

#### **D. SUPPORT**

Support for dyslexic students refers to both support in manpower and support through using information and communication technologies.

##### a) SUPPORT PROVIDERS

The university should ensure conditions for providing support to dyslexic students with the help of the activities of every constituent (faculties, departments) and the activities of coordinators for dyslexic students. Coordinators for dyslexic students are people who will, through education, acquire additional knowledge from the area of dyslexia, and are employees of a specific constituent (faculty, department). All activities which are undertaken, and are connected to dyslexic students, should be based on a speech

therapist's assessment, as well as on an assessment of the student's activities and needs.

Work can include support in the area of:

- Reading skill and strategy
- Taking notes
- Learning and repetition technique
- Testing technique
- Time management
- Essay planning
- Essay writing – structure and organization
- Oral presentations: individual and/or group
- Using computers for text processing
- Skills for finding information and using sources

It is especially necessary to acknowledge the need for psychological help.

#### b) SUPPORT THROUGH USING INFORMATION AND COMMUNICATION TECHNOLOGIES

- ensuring that information and communication technologies are available to dyslexic students (computers, computer programs)
- allowing portable computers to be used in class, and, according to the teacher's decision, during exams.

#### **PROCEDURES**

- The knowledge that a student has dyslexia, which has been diagnosed during an assessment at the designated location, is strictly confidential.
- A student who “registers” has the opportunity to exercise the rights of dyslexic students at the level of their faculty/department.
- The exercising of student rights is the responsibility of every university constituent and coordinator for dyslexic students at a faculty or department.
- Individuals responsible for assessment are obliged to give a report and opinion for individual students.

- The student is obliged to fill out forms which enable “registration”, and to contact the coordinator for students with disabilities and give them the assessment if they seek adaptations and support.
- Every dyslexic student should have the opportunity to exercise adaptations during their studies, according to recommendations from a speech therapist and the guidelines.
- The responsibility to notify a coordinator about their needs before any of their work gets graded lies with the student.
- The student may exercise these rights if they choose to use adaptations (if they register).

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## GLOSSARY

**Adapted program** – An adapted program includes adaptations in the sense of changing the amount and content of teaching material with respect to the student’s needs; methods, and practices should follow the same needs.

**Cerebellum** – Part of the brain located behind and below the cerebrum.

**Cognitive difficulties** – difficulties which can occur in different segments of cognitive function, for example, in phonological awareness; processing speed can be viewed as an aspect of cognition (Wolf et al. 2000).

**Conventional teaching methods** – those which rely on reading, writing, and the approach/style of learning such material mostly by the “left hemisphere” of the brain.

**General comprehension** – that which is based on comprehending units and which relies on the activities of the right hemisphere of the brain with a delayed overview of parts.

**Individualized approach** – A teaching approach that relates to the adaptations towards the student which include the application of different methods and work practices – qualitatively different methods and practices in teaching and activities towards the student – while the amount of teaching material (content) remains the same.

**Phonological processing** – a kind of linguistic processing; it includes phonological naming (tested through, for example, rapid naming tests), phonological awareness (tests like syllable recognizing, recognizing and producing rhymes, first phoneme awareness, awareness of some phonemes in a word), and **phonological working memory**.

**Phonological working memory** – a type of memory which includes the central executive component and two subsystems: the visual-spatial component and the phonological loop; it enables “mutual execution” of assignments while some facts are retained and then used in the assignment (often tested by, for example, repeating numbers in reverse order).

**Sequencing** – following *sequences*- a line/series, temporally or spatially defined.

**Text congruity** – compatibility between parts of a text: agreement between words in sentences (with respect to gender, number, case, etc.), and agreement between sentences in paragraphs and the text as a whole.

## **STUDENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)**

*Ivan is 30 years old. Due to his learning difficulties, he requested to talk to a psychologist. He is stuck in his third year of education at a desired university. He still hopes somehow to finish his studies, although he is slowly losing hope. His parents are discouraged and are talking him into getting a job because they cannot support him anymore. Luckily, his university is in his hometown, so he does not have to pay rent. He occasionally does part-time jobs, but does not want to accept serious offers because he is afraid it would distance him from his university education. He has no particular interests or activities. He has been withdrawing into himself more and more, and he hardly spends any time with his friends because he thinks they all belittles him because it is taking him such a long time to finish his university education. He says he never studied much during elementary and secondary school, but he would always have A's and B's because he would "remember everything from class". He often skipped homework. He was restless, but not that much; his behavior was not problematic, nor did he have any troubles with his peers. He thinks he was very restless as a child, but he is not sure. He thinks he had a session with a psychologist as a child but does not remember what the diagnosis was, except that he had a high IQ. His difficulties began when he started university because he could not remember all the things from class anymore and he began to notice that he was drifting away during lectures, and he often got bored. Sometimes, he could not sit through a whole lecture. He found studying difficult because there was a lot of material, and he did not understand what was important. He could not find his way around texts, and he would have to read each one several times before understanding what they were about. He tried studying with a group of friends from the university, but he could not keep up with them, and he found the discussions too noisy; he could not concentrate nor understand his notes (which were incomplete). With great effort, he managed to pass the exams from his first and second year, but he could not go on. He passes an exam from time to time. He is frustrated because he wants to finish his university education. He understands the material he has to learn, but he is not good at organizing or planning. He read on the Internet about the symptoms of attention deficit and he seems that he might have that disorder. In that case, he hopes that either someone who can teach him how to study might be able to help him. Another possibility would be to try medicines.*

Ivan from our example still did not do all the diagnostics, but he probably has attention deficit hyperactivity disorder (ADHD), with which he was, unfortunately, not diagnosed during his childhood. Not being diagnosed is a problem because people who suffer from ADHD do not understand what is wrong with them so they cannot find the support they need and they often set their sights high, which leads to various difficulties (often mental as well).

**Attention deficit hyperactivity disorder (ADHD)** is one of the most common neurodevelopmental disorders in children and adolescents. It manifests itself as a developmentally inappropriate level of inattention, excessive activity and impulsivity, and it makes self-direction, planning, and behavior organization difficult (Barkley 2000; Strock 2003; Gardner 2002).

Scientific descriptions of ADHD first appeared in 1902 in the works of Still, a doctor from England, who described 43 impulsive British children with significant behavioral problems caused by a genetic dysfunction, and not by poor upbringing, who would today be diagnosed as children with attention deficit hyperactivity disorder. Since then, several thousands of scientific papers dealing with the nature, etiology, and treatment of the disorder have been published (Strock 2003, Barkley 1998).

### **Manifestation**

The disorder affects children, adolescents, and adults (Wassertein et al. 2001; Barkley 2000; Barkley 1998).

Problems with poor inhibition (hyperactivity and impulsivity) arise in children three to four years old, while inattention problems are noted later, when children are five to seven years old, when demands for concentrated, quiet, and attentive behavior are greater – preparing for school, going off to first grade (Barkley 2000; McGoey et al. 2002).

Along with frequency differences, the characteristics of the disorder differ in girls and boys as well. Boys are more frequently hyperactive, while girls have more difficulty sustaining attention. That is why girls' difficulties are noted later, which is the reason why they are not treated in time (Gaub 1997; Biederman 1998).

The older the person is, the ratio between genders is smaller. As far as adults are concerned, the disorder affects males and females in roughly equal percentage. Hyperactivity decreases, but there are difficulties with organizational skills, planning and meeting obligations, especially if a person goes from a structured secondary school environment to an unstructured university life. Employed people have difficulty in time management; they are

often late in completing work. For this reason, they tend to choose jobs that are more dynamic, and they change jobs more often (Jurin, Sekušak-Galešev, 2008).

## **Etiology**

There is still no unequivocal answer to what causes ADHD. There is simple etiology only in a small group of children with this disorder. For everyone else, the problem is much more complex and encompasses various factors (Barkley 2000; Strock 2003; Gardner 2002).

According to recent research, the cause is a biological difference in the function of the central nervous system, which is the result of heredity or unfavorable factors during pregnancy, labor, or after the child was born.

Possible causes of ADHD, listed in the pathogenesis of the disorder, are differences in brain structure, in its electrical activity, and in the brain's "connections" between the two hemispheres and especially a lack of neurotransmitters (especially dopamine and norepinephrine) in brain connections between the basal ganglia and the prefrontal cerebral cortex. The final result is the inability to sustain attention, and poor control over impulsivity (Comings, Gade-Andavolu & Gonzales 2000; Dum, Li & Strick 2002; Robbins 2000; Stuss & Knight 2002; Quist, Barr & Schacher 2003).

## **Making the diagnosis**

It is hard to make a diagnosis before the age of four or five, because the characteristic behavior of younger children is more variable, and they are also not required to sustain attention and control their behavior for longer periods of time (McGoey et al. 2002; Barkley 2000; Barkley 1998; Strock 2003).

Still, ADHD diagnoses are made most frequently when the child starts school, or when s/he starts fifth grade, because these are the periods when children face the greatest adjustment requirements (Sekušak-Galešev 2004).

The diagnosis is made based on the clinical picture, according to the criteria from the International Classification of Diseases (MKB-10/ICD-10) made by the World Health Organization (World Health Organisation 1992), and according to the DSM-IV classification (1994).

The symptoms of the disorder are almost identical in both criteria.

According to the Diagnostic and Statistical Manual of Mental Disorders by the American Psychiatric Association - **DSM-IV** (1994), the disorder is called **Attention deficit hyperactivity disorder** (ADHD). There are three types of the disorder:

- **Attention deficit hyperactivity disorder, combined type**

This type is diagnosed if six or more symptoms of inattention and six or more symptoms of hyperactivity-impulsivity last for more than six months. This is also the type most common in children and adolescents.

- **Attention deficit hyperactivity disorder, predominately inattentive type**

This type of the disorder is diagnosed if six or more symptoms of inattention and less than six symptoms of hyperactivity-impulsivity last at least six months.

- **Attention deficit hyperactivity disorder, predominately hyperactive-impulsive type**

This subtype of the disorder is diagnosed if six or more symptoms of hyperactivity-impulsivity and less than six symptoms of inattention last for six months. However, inattention can be a significant problem in this type of the disorder as well.

In the European **ICD 10** classification (1992), the description of the disorder is under the section “**Hyperkinetic disorders**” and is called “**Disturbance of Activity and Attention**”. It is described as a group of disorders which are characterized by an early start (in preschool, usually before the age of five), a combination of excessively active, poorly controlled behavior traits with significant inattention and a lack of persistence in tasks which require cognitive effort and are permanently present and prevail in situations in which that is inappropriate.

According to the set criteria, in order for the diagnosis to be made, one type of the disorder must be present for six months in at least two environments (family, school, kindergarten, theatre, and other such institutions).

Hereafter, the symptoms of childhood ADHD will be described, because if the disorder is not diagnosed before adolescence or adulthood, the symptoms then might be very similar to some mental disorders, so the diagnostics must also be based on childhood symptoms.

The diagnosis of attention deficit hyperactivity disorder is made by a team. Education and rehabilitation professionals-rehabilitators, speech therapists, teachers, caregivers, child psychiatrists, pediatric neurologists, psychologists, and pediatricians all participate as necessary.

Difficulties with ADHD are manifested with different intensity in different situations. Changes in behavior and symptoms of ADHD are typically worse in situations in which a longer attention span or mental effort are required (e.g., group situations – learning in class, playing with other children) or in situations which lack appeal, dynamics, something new (e.g., listening to the teacher, reading or writing long texts, and in adulthood this includes monotonous and mind numbing jobs). There are less or no difficulties if the child is guided by their parents or other adults in terms of their activities schedule, their studying, consistency in relationships, and a stable and peaceful environment. The same thing happens with interesting activities – on the playground, while playing computer games, in one-on-one interaction with an adult (learning assistance, at the psychologist's and doctor's office, etc.), or when the child is often rewarded for appropriate behavior.

That is why there are various assessment lists in diagnostics which help parents and teachers assess the child's behavior in school and at home, and in this way, information which is hard to obtain in the process of individual diagnostics is obtained (DSM 1994; Rief 1998; Jurin & Sekušak-Galešev 2008).

## **Characteristics of ADHD**

### **Hyperactivity**

Hyperactive behavior varies depending on age and developmental stage. Although all kindergarten and preschool children are characterized by active motor behavior, the situation with children who suffer from this disorder is different: they are constantly in motion and all over the place. They run back and forth, they run across rooms (and through the entire house, or kindergarten), they “have already exited before they enter”, they jump on or climb up the furniture, and they have difficulties with leisure activities – especially when in a group (listening to a story, drawing) (McGoey et al. 2002; Barkley 2000).

With school children with ADHD, the difficulties are manifested in somewhat different ways. They cannot remain seated for a long period of time in the classroom, they fidget or sit on the edge of the chair, they often get up, walk across the classroom, and constantly ask other children and their teachers questions. They spin objects, tap with their hands, and excessively shake their feet and legs. They often get up and leave during meals, while watching television, or when doing their homework. They often talk excessively (Barkley 2000; Barkley 1998).

As children mature, the symptoms of hyperactive behavior usually become less noticeable. In late childhood and early adolescence, the signs of excessive motor activity are less common, and they can be brought down to fidgeting or a sense of irritability and restlessness.

With adolescents and adults, the symptoms of hyperactive behavior turn into a feeling of restlessness and into difficulties with performing quiet leisure activities (they might have problems finishing school and keeping their job; they generally avoid professions which limit spontaneous motion) (Wells et al 2001; Wasserstein et al 2001).

### **Impulsivity**

Impulsivity is present due to difficulties with inhibiting (blocking) reactions. Such children have difficulty choosing the most proper behavior in a given situation and planning future events. For this reason, it is hard for them to delay fulfilling their wishes, to resist momentary temptation. As a result, they engage in potentially dangerous activities without thinking about the possible consequences, so their behavior often results in accidents.

They often don't follow instructions, they start conversations at inappropriate times, they interrupt others excessively, they harass others, they grab other children's things, they touch things they are not supposed to, they fool around, others may complain they cannot get a word in edgewise, etc.

Internalizing speech is also important for directing and controlling one's own behavior. With children who are impulsive and hyperactive, internalizing speech is not developed in accordance with their developmental age. Because of this, children with this kind of disorder do not use this tool when controlling and directing their own behavior (Barkley 2000; Gardner 2002).

Symptoms of impulsivity can lead to conflicts in family, school, and interpersonal relationships, especially during adolescence.

Impulsivity is often accompanied by **emotional instability**, which is manifested as:

- low frustration tolerance;
- outbursts of anger;
- social withdrawal (isolation, seclusion);
- blaming others for your own problems and
- hypersensitivity to criticism.

Children with symptoms of hyperactivity and impulsivity are particularly sensitive to a lack of organization and chaos in their environment, and to excessive amounts of social stimuli. They don't know their way around and poorly control their behavior in unclear and unstructured situations. Excessive demands, pressure, and stressful situations intensify their restlessness and poor concentration, which is most obvious towards the end of their education or in disagreements between their parents or between their parents and their school (Mikluš-Kos et al. 1993; Barkley 2000).

On the other hand, the influence of the social environment can affect children in an extremely positive, stimulating, and encouraging manner; it can help them mobilize their strength to overcome their learning and behavioral difficulties.

The influence of the environment on the intensity of the disorder can explain to some degree why most of the children are restless in one environment, such as school, while they don't seem excessively restless in other environments.

It is also noted that positive life changes, as well as a peaceful and structured family environment, can ease restlessness in many children with hyperactive behavior.

When assessing a child's hyperactivity and impulsivity, it is important to assess their environment – a lot of adults are extremely annoyed by the restlessness of a hyperactive child, while others have more patience and tolerance. This applies both to parents and teachers, so it is important to know what they consider to be a normal amount of motion and what their patience level is.

### **Attention deficit**

Symptoms of attention deficit are not easily noted; they can be attributed to other causes, especially if the child is not hyperactive or impulsive. Difficulties are noted in the following ways:

- Children with attention deficit often have difficulty sustaining attention in tasks or when playing;
- They often do not seem to listen when spoken to directly;
- They often do not follow through on instructions and fail to finish their school work, chores, or duties in the workplace (but not due to oppositional behavior or failure to understand instructions);
- They often have difficulty organizing tasks and activities;

- They fail to pay close attention to details or they make careless mistakes in their schoolwork, work, or other activities;
- They often avoid, dislike, or are reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework);
- They often lose things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools);
- They are often easily distracted by extraneous stimuli;
- They are often forgetful in daily activities;

Symptoms of inattention are not easily noted in preschool-age children, because smaller children are presented with fewer requests for lasting sustained attention. However, the difference can be noted by careful observation, because their attention can usually be sustained in various situations. For example, an average two- or three-year-old child can sit with an adult and view picture-books or sit in a group and listen to a short story. (Barkley 2000; Passolt 2002).

With school-age children, symptoms of inattention affect their work in class and their overall school performance. The child often does not copy from the blackboard properly, turns around to talk to other pupils in the classroom, does not write down the things s/he has for homework, forgets when to come to class on days when the schedule is different, forgets to bring money for a show or for lunch, etc. If a child with an attention disorder does not have their teacher's support in the classroom, they cannot attend class properly, regardless of their average or above-average intellectual abilities, and their wish to be successful is often not noted, so the child receives a label, such as spoiled or lazy (Barkley 2000; Passolt 2002).

One problem in the child's family life is often the need for constant help with homework. Parents expect a certain level of independence and self-direction, which the child cannot achieve. Parents and teachers are often confused by the situation in which the child can tell right from wrong, knows what it is necessary to do in a certain situation, apologizes for his or her mistake and promises not to repeat it, but fails to keep that promise.

The problem arises due to this very characteristic of the disorder. The fact that the child does not do something does not mean they do not know how to do it (Gardner 2002; Barkley 2000).

Difficulties with sustaining attention, hyperactivity, and impulsivity also include reactions which are often not recognized or accepted as a part of ADHD, which is the reason why people around children with ADHD make requests that are inappropriate and simply too demanding (Fowler 1994). These are, for example, poor competence in problem solving, behavior inconsistency, mood swings, emotional hypersensitivity, low tolerance level, and difficulties with achieving long-term goals.

The difficulties with self-control and self-direction that people suffering from ADHD have are not their choice; these problems are the result of their neurological condition. People with ADHD know how they are supposed to behave and generally know what is expected of them in a certain situation, but the problem arises when they have to inhibit certain behaviors in order to conform to what the situation requires.

Many specialists today consider ADHD not to be a disorder which relates only to three key symptoms, but that the role of **executive functions**, whose development is significantly delayed in children with this disorder, must be taken into consideration (Barkley 2006). Self-control and self-direction stem from the executive system. Executive functions depend on the ability to inhibit reactions.

There are three types of inhibition:

- (1) motor inhibition, which blocks the need to act;
- (2) sensitivity to errors, by which we change our behavior if we see that what we are doing is wrong;
- (3) interference control – when we think, i.e., use executive functions, we have to “protect” them from extraneous stimuli so as not to interfere with our thinking process. This explains why children with ADHD are not always inattentive, anytime and anyplace.

According to Barkley (2006), the stimuli interfere only with those activities which include using executive functions, and when thinking and planned behavior is called for.

When people suffering from ADHD do something that does not include using executive functions, extraneous stimuli will not bother them any more or less than anyone else. This is the reason why they can play on the computer for hours, while learning is very problematic. It is important to stress that the difficulties with executive functions are just a developmental delay, that they are not completely absent. People with ADHD can do it, just not as well as they should, when their age and developmental stage is taken into consideration.

Difficulties are noted in the following executive functions (Gardner, 2002, Barkley, 2006):

**(1) Working memory:** a mechanism of storing information which is actively processed while being used (e.g. memorizing a telephone number until you are done dialing it). Verbal and spatial information is stored.

Working memory has the following components:

- I. a central executive component, which coordinates information from two storage systems
- II. a visuo-spatial sketchpad, on which visual information is stored in spatial form from the visual sensory register or long-term memory (a picture is created based on verbal information);
- III. a phonological loop, which stores verbal information in acoustic form that we keep active through vocal or subvocal repetition.

This cognitive activity affects our behavior as well, and it consists of “re-living” past events within and using that information to plan future behavior. Our psychological sense of time, the feeling we have of time passing by, also stems from this executive function. This sense helps us anticipate future events in planning the future. ADHD delays the development of this function, so it causes difficulties in the sense of time. People with ADHD live in the moment, “now”; they often cannot predict future events and direct their behavior accordingly. This explains why people suffering from ADHD do everything at the last minute, are always late, etc. (Jurin & Sekušak-Galešev 2008).

**(2) Internalization of speech:** ADHD delays the development of internalizing speech by 30–40%, a consequence of which is forgetfulness in daily activities, moving from one unfinished task to another, difficulty with following through on instructions and following rules. The internalization of speech is the basis for accepting social rules and moral behavior, and it assists the working memory. People with underdeveloped capacities for internalizing speech cannot understand what they read unless they read it silently and maintain the obtained information long enough in order for them to get their meaning (this is not a reading difficulty, but a working memory difficulty). They cannot maintain the information in their memory long enough to be able to understand its meaning (Barkley 2000).

The internalization of speech is responsible for emotional self-regulation. Children with this disorder express their feelings more, so a problem arises with negative emotions whose expression they cannot control. As their behavior is not led by internalizing speech,

they impulsively express emotions the second they appear, which has negative effects on their relationships with their peers (Kutcher 2002; Pfiffner 1998).

**(3) Emotional self-regulation and arousal level:** This refers to the ability to channel and adapt the intensity of one's emotions according to the situation. People with ADHD have difficulty channeling their emotions so as to preserve behavior which leads to a certain goal. This results in a deficit in intrinsic motivation. Every behavior directed towards a certain goal, towards the future, all planned behavior, requires intrinsic motivation. People with ADHD have no difficulties when doing activities which are intrinsically motivating for them. The problem arises with activities that are not. That is why motivation must be derived from the environment. As long as they are rewarded for their behavior, they will keep on behaving in the same manner. The problem arises when there is no reinforcement (Barkley 2006; Kutcher 2002). Barkley (2000) believes that people with ADHD have motivational deficits.

It is important to stress that ADHD does not affect knowledge. It is not a lack of a certain skill or a learning difficulty. ADHD interferes with knowledge performance, and not with knowledge in itself. The executive system has the main role in applying the obtained knowledge (Gardner 2002; Barkley 2006).

### **Additional difficulties**

ADHD is often accompanied by additional difficulties, i.e., they come jointly.

Below are listed the most common of these difficulties:

- **Poor school performance** – learning difficulties: probably the most significant condition that accompanies ADHD is one form of learning disability or difficulty. Around 40 to 60% of children suffering from ADHD have difficulty learning in school, and others have difficulties with time limitations and the amount of text they can write or read. They can fail, or be in the special education program. They get lower grades, and they drop out of school more often (in secondary school). Although their intellectual abilities are usually average (or above average), the achieved level of education can be lower, and professional achievements poorer than their peers' and poorer than is expected according to their intellectual abilities. This condition often leads to conflicts with authorities in the school and in the family, because the inability to adequately dedicate themselves to tasks which require sustained mental effort is often seen a sign of laziness, a poor sense of responsibility, and opposition.

- **Specific learning disabilities** are caused by a disorder of one or more of the basic psychological processes, including language comprehension and the use of spoken or written language, which can be manifested in a poor ability to listen, think, speak, read, write, or calculate (these abilities are underdeveloped in comparison to the overall intellectual potential of the individual). It is believed that 15 to 20% of children with ADHD have specific learning disabilities, and probably around 50% of children with specific learning disabilities have ADHD.

- **Speech and language development disorders** (e.g., cluttering) – although it can sometimes be hard to tell whether a specific problem is the result of a language disorder or ADHD.

- **Developmental delay in other areas** (e.g., problems in motor coordination and fine motor skills) – the child has sloppy handwriting, writes slowly, cannot copy everything from the blackboard, etc., so resistance to working in class might appear.

- **Relationships with adults** are often poorly socially inhibited, often with a lack of normal dose of caution and aloofness.
- **Difficulties in relationships** with family members.
- **Low self-esteem** – most children with ADHD have this problem.
- **Mental and psychological disorders** – e.g., 45-50% of children with ADHD have at least one additional mental disorder. The most common are oppositional defiant disorder (59%) and conduct disorder (25%). There is data on the frequent presence of mood disorder, anxiety disorder, and communication disorder.
- **Tourette syndrome** – multiple tic disorder. Children have physical tics (winking, repetitive nose and mouth movement, etc.) and vocal tics (coughing, throat clearing, sniffing, barking, etc.). Attention disorder often appears before the tics do.

## Schooling

Students with ADHD can be successful in elementary and secondary school if the demands are individualized according to their difficulties, that is, their needs.

Individualization is done in accordance with the current legislation. According to the new Law on Upbringing and Education in Elementary and Secondary Schools (2008), pupils with ADHD are in the same group as pupils with learning disabilities, behavioral problems, and emotional problems.

Individualization most commonly applies to examination style (oral exams, smaller units, adjusting the print in written assignments or study materials, shortening the tests, extending the time limit, or taking tests in two parts), behavior in class (inability to copy everything is not sanctioned, previously planned movement and leaving class is allowed) and carrying out their tasks (homework can be brought later on without sanctions, etc.). If a student has multiple difficulties, individualization applies to all the difficulties. Validation and grading is done in accordance with the individualized approach. By introducing national exams and the state graduation exam, the National Center for External Evaluation of Education published the Instructions for National Graduation Exam Conduct for Examinees with Special Educational Needs (November 2007), which specified the accommodations for students with attention deficit hyperactivity disorder, so they could take the exam under conditions that were adjusted for them as well.

### **Diagnosing the disorder in adolescence and adulthood**

With adolescents and adults who have not been diagnosed in childhood and school-age, diagnosing ADHD may be a problem. The listed diagnostic criteria are adequate for smaller children and school children, but anamnestic data on the early development and behavior of people who are now adults is often not available, and symptoms of ADHD may be similar to some mental disorders.

That is why it is extremely important for the diagnostician, when diagnosing an adult, not to rely solely on his own evaluation of the current difficulties of the person who supposedly has the disorder, nor is an observation of current behavior sufficient, but data on early and pre-school development must be requested. This is exactly the reason why symptoms of ADHD in pre-school and early school-age are described in such a detailed manner.

### **Characteristics of ADHD in adolescence and adulthood (students)**

ADHD is significantly different in adulthood than in childhood. Difficulties appear in the following areas (Brown 2005):

### **Problems with concentration and focus**

Adults with ADHD often have difficulty staying concentrated and focused on daily, “mundane” activities. For example, they are easily distracted by irrelevant sounds and images; they quickly go from one activity to another because they quickly get bored. Symptoms in this area are sometimes overlooked because they do not bother the environment as much as the symptoms of hyperactivity and impulsivity, but they can be as disturbing. Symptoms of inattentiveness and difficulties in concentrating include the following:

- “Shutting off” in the middle of a conversation without being aware of it;
- Extreme distractibility, problems with attention which make it impossible for them to keep up with the situation or the contents;
- Difficulties in paying attention or focusing, e.g., while reading or listening to others;
- Difficulties completing tasks, even ones that seem simple;
- A tendency not to spot details, which leads to mistakes or unfinished work;
- Poor listening skills, difficulties in recollecting conversations and following instructions through.

### **Hyperfocus**

As opposed to the difficulties in focusing on tasks which they do not find interesting, there is a tendency to be “absorbed” in tasks which they find stimulating and rewarding. This paradoxical symptom is called hyperfocus. It is considered to be a strategy of coping with distraction – a way of shutting off the chaos. It can be so strong that a person becomes forgetful, or does not notice anything going on around him/her. For example, they can be so immersed in reading a book, watching TV, or working on the computer, that they completely lose track of time and neglect other activities they should be doing. Hyperfocus can be an advantage if it is channeled into productive activities, but if it is uncontrolled, it can also lead to difficulties in school, work, and interpersonal relationships

### **Lack of organization and forgetfulness**

The life of an adult with ADHD is often chaotic and out of control. It can be extremely difficult for them to stay organized and finish what they have started – e.g., choosing which

information is relevant to the current task, setting priorities among their obligations, completing tasks and obligations on time, and time management. The most common symptoms of lack of organization and forgetfulness are the following:

- Poor organizational skills (their home, office, table, and automobile are extremely messy);
- A tendency to put off and stall things;
- Difficulty starting and completing work (obligations, projects);
- Being chronically late;
- Often forgetting appointments, obligations, and deadlines;
- Constant loss or misplacement of things (keys, wallets, cell phones, bills);
- A tendency to underestimate the time needed to complete tasks.

### **Impulsivity**

People having problems with impulsivity can have difficulty inhibiting their behavior, comments, and responses. They react before they think, or without thinking about the consequences. They can interrupt others, blurt out comments, and rush through their tasks without reading instructions. They find it extremely hard to be patient. They are often thoughtless and engage in risky situations:

- They often interrupt others and speak at the same time as others;
- They have poor self-control;
- They blurt out rude and inappropriate thoughts without thinking;
- They are prone to addiction;
- They react suddenly or spontaneously regardless of the consequences;
- They often have difficulty behaving in a socially acceptable manner (e.g., sitting quietly during a long meeting)

### **Emotional difficulties**

A lot of adults with ADHD have great difficulties controlling their emotions, especially anger and frustration:

- They often have a sense of failure;
- They have low frustration tolerance;
- They are easily excited and upset;

- They are irritable and have frequent mood swings;
- They have trouble staying motivated;
- They are hypersensitive to criticism;
- They have explosive outbursts of temper;
- They often have low self-esteem and a sense of insecurity.

### **Hyperactivity or restlessness**

With adults suffering from ADHD, hyperactivity can be the same as with children. They can be full of energy and always in motion. However, the symptoms of many adults with ADHD become weaker and internalized as they grow up. Hyperactivity includes the following characteristics:

- A sense of inner restlessness, excitement;
- A common feeling of boredom;
- Racing thoughts;
- Difficulty sitting quietly, constant fidgeting;
- A constant need for excitement;
- Talking excessively;
- Doing a lot of things at once.

### **Higher education and students with attention deficit hyperactivity disorder**

Global research has shown that people with diagnosed ADHD on average have two to three years less formal education than their peers. For example, only 15% of students with ADHD finish undergraduate or graduate studies in comparison to 50% of other students. Academic failure is mostly due to the characteristics of the disorder (stated in the previous chapter), which make student life very challenging. Students with ADHD do not have a familiar support system like family members, peers, and teachers anymore. The structure of higher education and the independent, unstructured way of life are full of noise, mess, and distractions. But most of all, students in higher education are expected to be independent and able to make plans and be organized (Reilley 2005). It turns out that poor organizational and planning skills, an excessive workload, reading difficulties, concentration and attention difficulties, an inability to read fast, the need to read something several times in order to understand it, and poor note-taking and writing skills in general are all responsible for low

academic achievement. Frustration, bad self-image, either poor social skills or too much socializing, delaying obligations, and problems with concentrated and sustained work on a task are all frequently present.

According to an international legislation, students with ADHD have the right to support during their university education, but their own engagement is expected in developing individual learning skills. It is also the student's obligation to declare that s/he has a disorder, to attain a valid evaluation report which confirms this, and to fill out the required documentation (<http://www.rcpd.msu.edu>).

### **ACCOMODATION IN HIGHER EDUCATION**

According to the existing laws (e.g., the Anti-Discrimination Law 2008) and the rights they were given during elementary and secondary school, students with attention deficit hyperactivity disorder should exercise the right to support in their further education as well.

#### **Prerequisites for exercising the right to support and accommodation**

1. The student can exercise the right to accommodation only if s/he contacts the authorized person at the faculty with valid documentation. Some faculties have a coordinator for people with disabilities. In that case, the student contacts him/her. If the faculty does not have a coordinator, the student has to contact the Dean for Academic Affairs.

- **The documentation** includes the evaluation reports which are obligatory and specific if multiple difficulties are in question

#### **OBLIGATORY**

- Evaluation report from a psychologist
- Evaluation report from a speech therapist
- Evaluation report from a psychiatrist

If the difficulty is diagnosed during early schooling, documentation for exercising the right to accommodations in taking state graduation exams can also be enclosed.

In other cases, the documentation must not be over a year old.

Evaluation reports must accurately state the following:

- Which areas are affected by the difficulty and how this is reflected on learning, class participation, and taking exams, and for which period the accommodations are requested;

- The recommendation for accommodation must be enclosed with the evaluation report (It can be a part of the evaluation report).

2. If the student suspects they have ADHD, and they have not yet been diagnosed, they should contact their coordinator for persons with disabilities or the Dean of Academic Affairs who would direct them to the adequate specialist or institution (e.g., the Rehabilitation Center of The Faculty of Education and Rehabilitation Sciences of The University of Zagreb).

3. After the right to accommodation is asserted, the student should consult the Dean for Academic Affairs about the demands, and the competences the university provides, with the student's abilities taken into consideration. The student should also consider if they can meet those demands in spite of having the accommodations that would help them meet those demands, i.e. if they can gain the necessary competence.

4. If the student can master the teaching materials which help them gain competence for a particular faculty, they are required to consider the options for accommodation, i.e. the necessary prerequisites for mastering the curriculum with the teacher of the course when choosing elective courses.

### **ACCOMODATIONS**

A student with attention deficit can get accommodations for attending classes and taking exams.

#### **Attending classes**

##### **Student's obligations:**

The student is required to inform the teacher on the necessary accommodations at the beginning of the semester (or when they exercise the right to accommodation).

If the student has the right to a scribe or uses assistive technology for note-taking during lectures, it does not relieve them from the responsibility of attending classes and fulfilling other student obligations.

##### **The right to use technology:**

- Audio recording of lectures (the tapes can be used for individual purposes only);
- Using computers for taking lecture notes.

##### **Teacher's obligations:**

- Ensure the teaching material is available to students before the lecture (sent by e-mail or a printed copy);
- At the beginning of the lecture concisely state the contents and the objective of the unit (students with ADHD direct attention more easily when they know the contents and the objective in advance), which also helps other students;
- When making PowerPoint presentations the teacher must take *attention deficit* into account: do not use too much text, present only relevant information, use larger text without decoration, 1.5 or double-spaced, incorporate images and graphics when possible, with no extra details;
- New terms, definitions, symbols, etc. must be highlighted and separated (e.g., on a separate slide);
- Give shorter tasks and give tasks more often (compared to other students);
- Give one-on-one tasks to students with ADHD;
- Vary in intonation and the way of presenting the material during lectures to avoid monotony;
- Maintain eye contact and be sure that the student is attentive and understands the instructions;
- Important information must be repeated several times;
- While preparing for exercises, the sequence of steps, the protocol of the procedure, etc., must be listed (depending on the type of the exercise), and if the teacher deems it necessary, a short oral exam could be organized before the exercise (due to planning, organizational, and directed attention difficulties), which could be a problem while doing some exercises.

### **Accommodations and procedures for taking exams**

**Student's obligation:** at least a week before each exam, they must remind the teacher of the need for accommodation and arrange the way it will be carried out. This advanced notice is necessary for the teacher to be able to prepare the exam material or arrange a different classroom, the assistance of a reader, a scribe etc., according to the student's needs.

### **Accommodations teachers can carry out:**

- Whenever it is possible, give priority to oral examination, or combine oral and written exams;
- In written exams, questions must be written in a simple and large font (e.g. Arial, 14 pt.), and questions should be clearly separated by large spacing, with enough space for an answer (because people with ADHD mostly have sloppy handwriting);
- Writing answers on a separate paper or protocol must be avoided (the student may mix up the question order due to attention deficit, which extends exam time);
- Requirements for the copying of questions (or mathematical tasks, for example) must be avoided, because attention deficit may easily lead to copying errors, and it also lowers the student's attention level;
- *Extended time:* The time and place of the exam must be previously arranged. Generally, it is enough to extend time by 50%;
- *A separate room* must be previously arranged with the teacher. It must be insisted on that the exam be taken in the same building, and the teacher must be reminded a few days earlier by e-mail. If the student cannot arrange this on their own, they must contact the coordinator or the Dean for Academic Affairs;
- *Reading assistance:* Reading assistance is provided by the coordinator or the teacher: the text is read without giving any interpretation or explanation. It is advised that this kind of assistance is given by a younger teacher or a teacher and a senior student, but always as a pair. It is the student's responsibility to ask for assistance in reading.
- *Writing assistance (scribe):* Writing assistance (a scribe) is provided by the coordinator or the teacher: the scribe must write exactly what the student dictates, without any comments on the accuracy. The student must check what is written, i.e., that exactly the things that they dictated are written. As with reading, it is advisable that this kind of assistance is given by a younger teacher or a teacher and a senior student, always as a pair. It is the student's responsibility to ask for a scribe.
- If the student takes the exam on their own, and their handwriting is illegible, the student must read the exam to the professor before grading.

### **Advisory work**

Except with accommodations in attending classes and exam organization, the student with attention deficit hyperactivity disorder must be given advisory assistance, which can be given to them within the student advisory center or the advisory center for students with disabilities which exist at some universities or their components. These centers may differ in form depending on the resources of each individual institution of higher education; some institutions may simply employ a teacher who acts as a tutor or mentor. It is important that the person advising the student with attention deficit hyperactivity disorder is knowledgeable about the disorder but also has basic professional competence (as a psychologist, psychotherapist, rehabilitator, psychiatrist, etc.), because each student needs constant advisory input and needs to be “guided” through their university education. The following areas are those in which the student needs help most often:

*learning skills* (predicting the optimal time for learning, sticking to the learning schedule, learning how to learn, etc.), *organization* (organizing the space and time for learning, as well as ensuring the necessary material), *planning time for consulting with the teachers* (e.g., tutorials), *studying for exams, structuring, finishing tasks on time*, but also *social relations and personal development* ([www.addresources.org](http://www.addresources.org)).

Along with the need for support, students with attention deficit hyperactivity disorder are often highly competent, which is manifested when they do activities of great intrinsic motivation. Then, their creativity, inventiveness, imaginativeness, strong skills of negotiation or persistence (if they care about something strongly) and intuition are manifested. With proper support, they can be successful students and become extraordinary professionals in their fields.

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## GLOSSARY

**anticipation** – a mental state or process caused by the expectation of a stimulus, which usually facilitates detection, recognition, and/or reaction to the stimulus

**basal ganglia** – a group of neurons located deep in the cerebral hemispheres, close to the thalamus

**distractibility** – difficulty in sustained focus of attention on certain activities. It is especially manifested in some pathological cases (e.g., ADHD) when almost every extraneous stimulus changes the course of the person's activity, causing them to forget their original intentions and goals. The disorder is typical of frontal (prefrontal) cortex dysfunction

**dopamine** – a type of a neurotransmitter within the group of biogenic amines. It inhibits the activity of postsynaptic neurons

**emotional self-regulation** – the capability to channel and adjust the intensity of emotions according to the situation

**focus of attention (focusing)** – “the liveliest” part of a complex perceptive experience; the part of an objective situation or our experience on which we are particularly focused and concentrated

**inhibition** – the blocking, restricting of one psychological process by another

**intrinsic motivation** – motivation in which the need is a product of internal motives, and the pleasure is the result of the activity itself, or its meaning, and not of external reasons, e.g., a reward or fear of punishment

**neurotransmitter** – a chemical substance on a synapse which enables the transmission of information (nerve signals) from one neuron (presynaptic neuron) to another (postsynaptic neuron), or to a muscle or a gland.

**norepinephrine (noradrenaline)** – a type of a neurotransmitter within the group of biogenic amines which has a multiple role: it acts as a hormone and a neurotransmitter. It regulates sleeping and waking states and fight-or-flight responses.

**prefrontal** – located in the anterior section of the frontal part of the brain

## **STUDENTS WITH MENTAL ILLNESSES AND DISORDERS**

*Marko is 21 years old and is a third-year student at an engineering school with remarkable success in his studies. For the last six months, he has been feeling “kind of weird”: it seems as if nothing makes sense and that no one understands him. “It’s as if I’m talking in a foreign language. No one wants to talk with me, and even my own parents look at me strangely.” Although he was never very outgoing, he has now completely turned into himself. He still takes exams, and they are not a problem for him because “they are numbers, I know numbers, they have their own logic, which I understand, and I obviously can’t keep up with the human kind.” He spends a lot of time on making decisions concerning simple things, such as choosing what to wear. He feels good when he does not talk to anyone and when he is in his room solving math problems. He often forgets to eat, and if his parents did not bring meals to his room, he probably would not eat for days. His concerned parents talked Marko into going to the student health care physician, who directed him to a psychiatrist. But the young man refuses to have a psychiatric evaluation because he is afraid of the possible outcome. He is worried that the psychiatrist might “declare him insane and we all know what people think of crazy people. Imagine if someone at school found out that I went to a psychiatrist!?”*

This example from the practice of the Student counseling center shows the difficulties that mental disorders can cause. Students who suffer from mental disorders or illnesses endure significant emotional and social consequences, which can influence academic success. Since mental disorders affect a significant number of young people, it is necessary to know the basic features of these disturbances, as well as the ways in which teachers and other professionals can help in empowering students to realize their potential.

This chapter will present the needs of students who suffer from mental disorders and mental illnesses. After explaining the terms, data on the frequency of occurrence will be given. After that, the biopsychosocial model will be presented, which is considered to be adequate for explaining the occurrence and the course of these difficulties. This will be followed by a brief overview of the types of disorders that can have a significant unfavorable effect on academic success (anxiety disorders, mood disorders, schizophrenia, eating disorders, substance-related disorders, and self-injurious behaviors including suicide). The needs of students who have

mental disturbances are presented, as well as possible adjustments that can be made at the levels of the wider community, university, and school.

**Table 1** Terms that will be mentioned in this chapter

**Mental disturbances** – temporary states of emotional discomfort and/or tension, most commonly conditioned by environmental or physiological changes. For example, feelings of sadness and indisposition after failing an exam are a normal and temporary emotional state conditioned by a concrete external event. An example of temporary disturbances conditioned by physiological changes can be a state of temporary tension during the premenstrual period. They occasionally influence all people, and they do not have any consequences on a person's functioning.

**Mental disorders** – experience and behavior that differ from that which is usual; to the person and/or its environment, a mental disorder is a disturbance which impairs functioning. Such a disorder can be of limited duration and may not manifest itself in all segments of life. For example, a phobic disorder may prevent a person from flying in an airplane, while in other segments of their life there are no impairments. It is often possible that others do not notice the existence of a disorder because the person can hide difficulties in various ways, which causes additional exhaustion.

**Mental illness** – a condition in which the afflicted person shows signs of permanently impaired cognitive, emotional, and social functioning. Mental illnesses are different from mental disorders in their longevity and intensity. They are manifested in almost all aspects of a person's functioning and are independent of situations. They are often repeated, i.e., deteriorating phases interchange with "calm" periods (so-called remissions). An example is schizophrenia, an illness that affects young people, and which prevents a person from being able to fulfill their usual life roles. During the phases of deterioration, people in the environment almost always notice the signs of illness.

It is not easy, if at all possible, to distinguish mental disorders from mental illnesses because sometimes a disorder can significantly incapacitate the functioning of a person, while a properly treated mental illness may only be discreetly manifested. But we have decided to separate and distinguish these categories in order to emphasize the differences in duration and intensity. Mental illnesses, once they occur, are almost always permanent. Their treatment

requires medical care and medication. In some European countries they are treated as disabilities.

### Frequency of occurrence

Mental disorders are not rare in the general population. Epidemiological data shows that an average of 1 out of 4 people will suffer from mental disturbances during their lifetime, and 1 out of 5 will have difficulties that can be diagnosed as a mental disorder or illness (Davison and Neale 1998).

Mental illnesses most commonly have their first onset by age 24 (Hunt & Eisenberg 2010), which makes students a particularly vulnerable group. Besides biological and psychological maturation, students coming to higher education institutions encounter a whole range of new life challenges that can be extremely stressful. Beginning a new life role also involves mastering an entire range of new life and academic skills, from building relations with people who come from unfamiliar social surroundings, to engaging in deeper partner relationships, to acquiring practical skills connected with economizing resources, to acquiring new complex cognitive and metacognitive skills connected with mastering academic obligations (Jokić-Begić, Lugomer Armano & Vizek Vidović 2009). All these can be triggers for the onset of mental difficulties, which, if not recognized, can lead to academic failure (Kessler et al. 1995) or psychoactive substance use (Angst 1996; Weitzman 2004) and often have unfavorable effects on social relations (Kessler et al. 1998).

Data from universities worldwide show how the number of students with mental disorders has been increasing significantly (Hunt et al. 2010). There are several assumptions which try to explain this globally observed trend. According to one of them, it has to do with raised awareness for mental health care, which is why students seek help more often. Another assumption gives universities credit for being more open towards people with disturbances, while a third claims that it has to do with better professional care provided for young people with mental health problems, which helps them function at a level that allows college attendance and the fulfillment of academic requirements (Hunt et al. 2010).

Studies have also been conducted in our country for determining the frequency of mental difficulties which students encounter during their studies. Most students (about 75%) experience mild and temporary disturbances such as tension, anxiety, and uncertainty. A smaller, but still significant number (about 25% of students) suffer from permanent and severe psychological problems (Jokić-Begić et al. 2009).

Table 2 shows the expected frequency of occurrence of individual disorders based on international data because a system for the epidemiological monitoring of mental disorders unfortunately has not yet been developed in Croatia. This data can also be considered credible for our conditions because there are no significant differences in the incidence of disorders between different Western countries.

**Table 2** The expected frequency of occurrence of individual disorders in late adolescence and young adulthood

Disorder	Frequency of occurrence %	Gender characteristics
Anxiety disorders	10-20	Girls>Boys
Phobias	3.6	
Obsessive-compulsive	1.9	
Social phobia	3.6	
Mood disorders		
Bipolar disorder	1	Girls=Boys
Depression	10-15	Girls>Boys
Dysthymia	1.6-8.0	Girls=Boys
Schizophrenia	1	First onset of the illness by age 19 for 39% of boys and 23% of girls
Eating disorders		
Anorexia	0.36-0.83	Mostly girls
Other	4.2	Mostly girls
Substance-related disorders		
Alcohol		Boys>Girls

Drugs: marijuana	Boys>Girls
other drugs	Boys>Girls

#### Suicide

Attempted	2-4
Committed suicide*:	
boys	0.011
girls	0.004

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\*data for Croatia, 2002, HZJZ

### Causes of mental disorders and illnesses: biopsychosocial model

Since the late 1970s there has been a revolutionary turn in the understanding of the manifestation and preservation of health and diseases. From the traditional biomedical model, which assumes that health and illness are fully accounted for by biological factors, the so-called biopsychosocial model was developed (Engel 1977), according to which biological, psychological, and social factors are equally important for the development of disease as well as preserving health.

Let us consider the biopsychosocial model through the example of a female student suffering from anorexia:

*Marija went on her first diet at the age of 14. She wanted to lose weight. Indeed, she had put on some fat on her stomach and thighs during the year (biological level - the body of a girl in puberty stores more body fat for the production of the necessary level of sex hormones). Together with the other girls from her class she reads beauty magazines (social level - the omnipresent Western beauty ideal of a thin woman). Looking at her body makes her unhappy, she is ashamed of her appearance and she is highly motivated to make a change (psychological level - comparing herself with the imposed ideal leads to emotional tension and anxiety, and eventually to the decision for action). She is persistent in her diet, as in everything she does because she has high standards and expectations from herself (psychological level - perfectionism as a character trait is a vulnerability factor for the development of an eating disorder). After losing several pounds, she gets praise from her friends, who are even a bit envious (social level - praise from social environment has a corroborating effect on her dieting). Marija continues with her diet, but she also starts to*

*exercise. She has lost significant weight, and her body mass index indicates that she is underweight* (biological level - her weight loss results in a range of physiological and hormonal changes: she stops menstruating, her hair growth increases, her skin becomes dry and flaky, she loses concentration and is not capable of rational judgment). *Even though she sees she has lost weight, she is overpowered by an intense fear of regaining it. She is never relaxed and is obsessed with counting calories* (psychological level - the anxiety connected to every consummation of food and drink is so intense that it is “easier” for the girl to endure hunger than a high intensity of fear). *Her parents are worried and they make her change her diet* (social level - the social environment responds negatively for the first time, which now has a counterproductive effect). *Marija tries to reassure them, but she is actually hiding and throwing away food* (psychological level - conflict of motives because she is trying to reassure her parents while lying to them at the same time).

The story of Marija can be continued and it is important to note how the interaction of all levels is present at every moment. A change in any system will lead to change in all other systems. The biopsychosocial model is applicable to all mental and physical conditions and deviations. In some disorders, the biological basis is prevalent (for example, schizophrenia), in some social factors are prevalent (for example, deviations in behavior as a result of poor life circumstances), but the three systems are always present. This is extremely important because it means that help provided within one system will certainly result in changes in the others. For example, the support that a schizophrenic student will receive from his teachers will certainly contribute to a better mental state and consequently to an easier course of the illness.

### **Mental disorders and illnesses**

Mental disorders are not rare; they affect a significant number of people. The following text will give very brief descriptions of the features of the most common and/or most serious disorders and illnesses that can manifest in students, their possible effects on academic success and their prognosis. Besides those mentioned, there are numerous other mental disorders that can also adversely affect the quality of life, but they occur less frequently in this age group and/or they do not influence academic success, and their description is beyond the scope of this handbook.

## *Anxiety disorders*

Anxiety disorders are the most common mental disorders. About 8% of the general population is affected by some form of anxiety disorders, but only a quarter receives help. Anxiety disorders are more common among women than men (although men seek help more often). They are present in all age groups, but rarely have onset after age 40 (except PTSD or anxiety caused by organic diseases) (Davison et al., 1998).

Anxiety is an unpleasant feeling of fear and apprehension. Anxiety is a state which manifests itself mentally, emotionally and physically. Mentally, there is a sense of danger and threat, and emotionally, there are intense feelings of fear, tension and “losing control”. Physical symptoms also occur, such as muscle tension, sweating, trembling, hurried breathing, “butterflies in the stomach,” headaches, back pain, irregular or accelerated heart rate, etc.

Anxiety is a normal and healthy reaction. Everyone experiences it in dangerous or disturbing situations, and it has a motivational effect on behavior. A range of physical changes that accompany anxiety in fact prepare the body for action and enable timely responses. Moderate anxiety is connected with best performances, while low or high anxiety adversely affects performance. Anxiety becomes a problem when it manifests itself when there is no real danger or when it lingers long after a stressful situation has ended.

Anxiety is the only or main symptom of anxiety disorders. These disorders have to do with an exaggerated state of arousal characterized by uncertainty, anxiety and fear (Davey, 2008).

Anxiety disorders include the following:

- **Panic disorder** is characterized by sudden and often inexplicable panic attacks. Common symptoms include heavy breathing, pounding heart, chest pain, sensations of shortness of breath and choking, nausea, dizziness, sweating and trembling, intense discomfort, sense of numbness, etc. A panic attack is an intense, but temporary sense of fear and anxiety; it usually begins abruptly and is relatively short. A person can become overpowered by a sense of detachment from oneself and a feeling that the surrounding world is unreal, a fear of losing control, going crazy or a fear of dying. Panic is accompanied by a feeling that something bad is going to happen. Panic attacks commonly occur with agoraphobia - fear

of anxiety attacks in places from which it might be difficult to escape (which is why such places are avoided).

- **Specific phobias** - people with specific phobias suffer from intense fear of a specific object or situation. The most common sources of such phobias are animals (e.g. snakes, insects, dogs), enclosed spaces, heights, flying, blood and receiving an injection. The intensity of fear is disproportional to a situation and the person often recognizes it as irrational.
- **Social phobia** is an intense and persistent fear of one or more social performance situations in which the person is exposed to other people or to possible scrutiny by them. The fear is recognized as intense and irrational. Due to this fear, the person often avoids social situations or else endures them with intense anxiety or distress. In some situations, social phobia can also cause a panic attack. This disorder has significant negative effects on a person's social life, academic activity, and quality of life. This disorder can have a particularly adverse effect on academic success because students suffering from a social phobia will avoid giving presentations and taking oral exams, postpone defending their thesis, etc.

**Table 3** People with social phobia are:

- worried about possible embarrassments and scared that their social environment might consider them anxious, weak, or stupid;
- afraid of public speaking, fearing that people will notice their trembling hands, shaky voice, blushing skin;
- likely to feel very anxious while conversing with other people, fearing that they seem unintelligible;
- likely to avoid eating, drinking, and writing in public, answering the telephone, which is commonly accompanied by symptoms of anxiety: accelerated heart rate, tremor, sweating, gastrointestinal problems, diarrhea, muscle tension, blushing (typical for social phobias), confusion.

- **Generalized anxiety disorder** - characterized by unspecified fear, anxiety, worry, apprehensive expectation, mental and physical tension, and hyperactivity of the autonomic nervous system. People with this disorder are overly concerned about their families, work,

health issues, and money. It is often said that this disorder is a free-floating anxiety that has not “stuck” to any specific content like with other anxiety disorders.

- **Obsessive-compulsive disorder** is an anxiety disorder in which the mind is persistently overwhelmed with uncontrollable thoughts and/or the person is forced to repeat certain acts. OCD has many various forms, but it most commonly includes repetitive thoughts and/or acts. Thoughts are most commonly intrusive, and the affected person generally recognizes that his or her actions are irrational. This is why people with OCD try to prevent the occurrence of these thoughts and performing these acts, but they feel unable to resist them.
- **Posttraumatic stress disorder (PTSD)** is the result of an extreme reaction to severe stress. It usually develops after exposure to traumatic events, such as watching another person die, the sudden death of a loved one, sexual abuse, or a natural disaster. The three basic manifestations of PTSD are persistent re-experiencing of the traumatic event, avoidance of stimuli associated with the trauma and emotional distancing from others, and psychological distress (sleep disorders, irritability and difficulty concentrating). This disorder is common among war veterans, although civil posttraumatic stress disorder developed after traffic accidents or aggressive assaults should not be ignored. Young people are often the victims of such experiences, and PTSD is very common among them.

*Do anxiety disorders interfere with academic functioning?*

Some disorders can severely influence academic functioning, while others might not even be noticed. For example, specific phobias that are not associated with school will probably not influence a student’s academic progress. On the other hand, a noticeable obsessive-compulsive disorder can completely disable a student in their studies. A social phobia can have particularly adverse effects, because an academic environment encourages all kinds of social interaction. A student who feels anxious in social relations can experience difficulties during oral exams, giving presentations, etc.

**Table 4** The intensity of anxiety, feared objects, and manifestations of disorders will determine the influence of the disturbances on the ability to fulfill academic obligations.

If anxiety is pathological, if the feared object is in some way associated with school, and if the student's behavior changes to marked avoidance, then the anxiety disorder will significantly influence academic success.

How can we discern normal anxiety from pathological anxiety? Anxiety becomes a problem when it occurs when there is no real danger or when it continues long after a stressful situation has ended. If anxiety affects everyday life to the extent that the individual avoids common activities because of fear, then we say that this is an anxiety disorder.

### *Prognosis of anxiety disorders*

If people with anxiety disorders are given adequate care, then their disturbances can be reduced and their quality of life significantly improved. *Adequate care* refers to an individualized approach, that is, assessment of the type and form of care that would give the best results. In general, psychotherapy (cognitive behavioral therapy) has shown to be best for treating anxiety disorders, which is combined with pharmacotherapy in more intensely manifested disorders.

### *Mood disorders*

Mood disorders are the most common psychiatric diagnoses. A quarter of the general population will manifest some kind of mood disorder during their lifetime (Davey 2008). A person's mood can be normal, low, or high (elevated). A person with normal mood shows an entire range of emotions over which he or she has control. People with a mood disorder in some way "lose control" of their emotions. Depressed patients have low moods, while manic patients have high moods.

Mood disorders are:

- **Depression** - besides low mood, depression involves a lack of emotional responsiveness; a loss of motivation, initiative, energy, and interest; feelings of guilt; changes in vegetative functions (sleep, appetite, sexual activity). Patients can also have thoughts of

death and may attempt suicide. If delusions and/or hallucinations occur, then this means that the depression is psychotic.

The incidence of depression (the number of new cases) has been constantly growing since 1915. According to the World Health Organization, depression is the fourth leading disability causing disease in the world, and it is estimated that by the year 2020 it will be the second leading disability causing people to seek medical attention (after cardiovascular diseases). Before puberty, the prevalence of depression among both sexes is equal, but after puberty, this disorder is more common in women than in men (Nolen-Hoeksema 2002). The prevalence of depression is from 10 to 25% for women and from 5 to 12% for men (Davey 2008). The age of onset ranges from adolescence to age 45, with a mean age of 27 (Kessler et al. 2002).

**Table 5** What is a depressed mood and what is depression?

Most people experience a state of sadness during their lifetime. Stressful events, such as the death of a family member or financial problems, can be the cause of depression, but sometimes people feel depressed for no apparent reason. A depressed mood, which is brief and temporary and/or accompanies stressful life situations, is a normal mood swing.

When does depression become a problem? Depression becomes a problem when it is more severe, prolonged, and influences everyday life. This more severe type of depression (“major depression”) usually has a wider scope of various symptoms besides the obvious depressed mood.

- **Mania** is a state opposite to depression. Symptoms include elevated mood (sometimes even irritability), stronger urges, racing thoughts, delusions of grandeur, and inexhaustible energy. Delusions (feelings of grandiosity, power, influence, innovation) and hallucinations can occur. Two-thirds of all patients have delusions. Mania is always a psychosis, even when delusions do not occur, because of its functioning outside reality. Mania is the most common feature of bipolar disorder.
- **Hypomania** is a state of elevated mood (and other manic symptoms), but it does not meet the criteria for mania.
- **Bipolar disorder** (formerly known as manic-depressive psychosis) is a state that consists of alternating periods of depression and mania or hypomania, and alternating periods of mania and normal mood. Bipolar disorder affects 1% of the adult population (Merikangar

et al. 2007). When a depressive episode alternates with a manic episode, this is classified as bipolar I disorder. Bipolar II disorder is defined as alternating periods of depression and hypomania. Bipolar disorders are equally prevalent among men and women.

- **Cyclothymia** is a mood disorder characterized by recurrent episodes of hypomania and mild depression present for at least two years. It is a mild, but more chronic, form of bipolar disorder. Mood swings can be noticed every few days. Patients with cyclothymia are not without symptoms for more than 2 months at a time (Davison et al. 1998).
- **Dysthymia** is a less severe type of depressive disorder where the person feels depressed most of the time for at least two years. People suffering from dysthymia feel sad and have low self-esteem, they cannot find pleasure in anything, they suffer from insomnia or hypersomnia, their concentration is poor, they cannot think clearly, and they withdraw from society. Although there are periods when people suffering from dysthymia feel good for days or weeks, most of them feel fatigue and the aforementioned symptoms of mild depression for months at a time, which significantly affects their capability for everyday functioning (Davison et al. 1998).

#### *Do mood disorders interfere with academic functioning?*

Mood disorders in general do interfere with academic success. Depressed students will have difficulties with concentration and memory. They will be dejected, think that studying is pointless, will not be encouraged by success, will constantly feel tired. If periods of mania occur, students with mood disorders will become mentally and behaviorally disorganized and will not be able to reach the necessary level of concentration for learning. It is possible that these students will behave unusually during classes, will interrupt the teacher repeatedly, and will seem restless. They will have difficulties in setting “borders”, behave uncontrollably, and have grandiose ideas about themselves and their capabilities. If a person has bipolar disorder, then these states will keep interchanging.

Cyclothymia and dysthymia will not necessarily affect academic success because these disorders are permanent and the person has “learned” to live with them. It is often noticed that people with cyclothymia make use of their hypomanic episodes of increased creativity and elevated energy for easily performing work tasks.

Although mood disorders generally have an unfavorable effect on academic success, we must not forget that they are often connected with creativity.

**Table 6** The connection between mood disorders and creativity

Many famous artists have had mood disorders. Some examples are Baudelaire, Blake, Byron, Dickinson, Balzac, Zola, Handel, Berlioz, Schumann, Tchaikovsky, van Gogh, Gauguin, and Virginia Woolf. This data was interesting to a group of scientists who tried to determine the link between creativity and mood disorders. Ludwig (1992, as cited in Verhaeghen et al. 2005) conducted an extensive study of 1,005 biographies of the most famous artists, writers, and other eminent individuals living in the twentieth century. His survey shows that psychosis, suicide attempts, mood disorders, and addictions are 2 to 3 times more prevalent in artists and writers compared to successful individuals from the fields of enterprise, science, and important social figures.

Scientists agree that more severe types of mood disorders prevent a person's creative behavior, but it appears that milder forms of these disorders can directly or indirectly affect the creative process. Hypomanic episodes provide energy, speed, flexibility, and fluidity of thought, while on the other hand, depressive states provide refinement, focus, purification, and organization of wild ideas from the manic episodes. Therefore, the fluctuation between these states gives the artist the experience of a wide range of human emotions, which facilitates and improves artistic expression and creativity.

However, we should emphasize the fact that it is not necessary to have a mood disorder to be a creative individual, and that the diagnosis of a mood disorder does not necessarily imply enhanced creativity in an individual. Even with artists with diagnosed mood disorders, it has been noted that their creativity is more closely linked with periods of mental sanity than with depressive or manic episodes.

### *Prognosis of mood disorders*

People with a mood disorder necessarily need professional help, and the withdrawal of symptoms and return to the normal level of functioning can be expected when they are properly treated. It should be noted that mood disorders are often accompanied by suicidal thoughts and intentions, and it is the responsibility of all who are in contact with the person with a disorder to try and help them by directing them towards seeking professional help.

There are several different psychological and biological treatments of mood disorders. On the basis of different models for explaining the causes of mood disorders, there are also different types of psychotherapy. Cognitive behavioral therapy, aimed at cognitive restructuring and getting the depressed person to participate in social activities, has shown to be the most effective therapy.

## *Schizophrenia and other psychotic disorders*

Schizophrenia is a mental illness that typically occurs in adolescence and young adulthood (between the ages of 15 and 30). Onset is somewhat earlier in men than in women.

Schizophrenia affects about 24 million people worldwide and about 19 thousand in Croatia (Begić 2010). The illness may appear abruptly, with numerous and severe symptoms, but also gradually and slowly, with no obvious symptoms. The most characteristic symptoms include delusions (false beliefs as a result of illness), hallucinations, and disturbed personality perception (depersonalization and derealization). There are also positive symptoms of disorganized thought and negative symptoms (social withdrawal, inability to develop emotion, lethargy).

It is said that people with psychotic disorders do not “test reality”. They live in their own, imagined, “different” reality.

The word schizophrenia usually causes fear and misunderstanding. Although media spread the idea that schizophrenic patients are a threat to society, this is not the case. On the contrary, a person with schizophrenia is more likely to become a victim of crime than a perpetrator.

Another misconception is that this term means split personality. Schizophrenia is an illness that causes changes in cognitive, emotional, and behavioral functioning, along with a high degree of personal distress, which is obvious to other people. A split personality is a very rare dissociative identity disorder and is not a schizophrenic or psychotic disorder.

Schizophrenic psychosis usually goes through several phases:

- *Premorbid phase* - period with no signs of illness, but there are significant features in behavior, such as withdrawal, asociality, submissiveness, shyness, anxiety, uncertainty, and hypersensitivity.
- *Prodromal phase* - period when non-specific symptoms and signs occur before psychotic phenomena. This is the phase of gradual deterioration, which can last for several years. If not in the premorbid phase, then it is during this phase that the person withdraws from society, shows indifference, apathy, and anxiety. The person is absorbed with unusual interpretations and compulsive and overrated thoughts. They are distrustful and suspicious, and show anger and rage. Symptoms which occur later are depression, illusions, compulsiveness, and eccentric behavior. Changes in vegetative functions (i.e., insomnia, eating disorders, sexual dysfunction) also occur. The transition from the prodromal to the active phase can be abrupt or can last several

days, during which a feeling of fear (agitation) that something horrible might happen occurs, and the person does not know what it is and cannot prevent it. Also, persistent insomnia further increases concern and anxiety.

- *Active (florid) phase* – This phase is characterized by the sudden onset of symptoms. These include delusions, distorted thoughts (and speech), hallucinations, and disorganized behavior. They interfere with the patient's functioning, and they are so prominent that they usually lead to hospitalization.
- *Chronic (residual) phase* – This period follows the active phase. It can sometimes occur after the first active phase and sometimes after years of deterioration and improvement in the course of the illness. This phase is characterized by disturbed functioning, permanent emotional change, and cognitive deterioration.

#### *Does schizophrenia interfere with academic functioning?*

During the active phase of the illness, the abilities necessary for studying are significantly impaired: the person is disorganized, unable to concentrate and memorize, tense, and restless. Therefore, they cannot pay attention to lectures or when studying. This phase often requires hospitalization, which makes regular attendance impossible. After the active phase, the clinical picture normalizes. Medication helps keep the symptoms under control, but it can also negatively affect concentration, which is necessary for highly intellectual work. After an active phase, the student will need several months to return to the level of functioning that will enable them to study, and even then, they will probably have difficulty organizing their time and obligations. It is important to emphasize that it is necessary to encourage the person to continue their medication even after the active phase in order to ensure a better prognosis of the course of the illness.

#### *Prognosis of schizophrenia*

The outcome of schizophrenia is difficult and thankless to predict because it depends on a variety of factors and many individual differences among those who are afflicted. There are usually three major prognostic outcomes:

- very good outcome - 20-30% of patients, after the first active phase of the illness, recover completely. Schizophrenic symptoms disappear or decrease to the extent that the person functions on all levels (emotions, relationships, family, work, and the like). Nevertheless, it is recommended that a patient with this form of schizophrenia continues with

medication, and over time it has been noted that reducing or ending medication often leads to a relapse of schizophrenic psychosis.

- moderately good outcome – This is when a schizophrenic patient partially recovers after an active phase of the illness. It occurs in 20 to 30% of patients (Sadock and Sadock 2007). Some schizophrenic symptoms remain in this phase, which interfere with various (but not all) functions. Thus, the patient is able to function on one level, but not on another. Academic and occupational functioning is often impeded. It should be noted that schizophrenic patients can often perform tasks which are not connected with the presence of other people. Those who have to communicate with other people at work will usually do so poorly and less often, which will make them professionally incompetent. But if their occupation is connected to independent, meticulous, slow work away from others, then they can work appropriately, successfully and extensively. So it is not uncommon that there are successful scientists who have been diagnosed as having schizophrenia. Nobel Prize-winner John Nash is an example of a person who managed to accomplish high scientific achievements despite his illness.
- chronic form – This is the worst and most severe form of the illness. Its symptoms constantly and significantly interfere with the functioning of all levels. The person will never be able to lead an everyday life as it was before the illness because it is impossible to return to the basic level of functioning. This form of the illness used to be almost regular. Medication has significantly reduced the number of such patients, but this been completely eliminated.

### *Eating disorders*

Eating disorders are characterized by severe disturbances in eating habits and behaviors.

There are two main eating disorders: anorexia nervosa and bulimia nervosa; both are defined by an overwhelming drive for thinness and the fact that people's own sense of value is strongly influenced by their body image perception (Lauri Korajlije 2009). Eating disorders occur most frequently among young women – up to 4% of adolescents suffer from some type of eating disorder.

It has been noticed that the occurrence of these disorders is influenced by upbringing, family relations and the social environment. An important role in their development (as in the case of no other disorder) is played by the media. Television shows, movies, fashion magazines, and

other periodicals promote the stereotype of thin and lean as beautiful and healthy. This is done on such a high scale that the ideal all young girls nowadays aspire to is the malnourished model. The formation of such an image of ideal beauty is surely not the cause of eating disorders, but it is a very strong supporting factor.

**Table 6** The influence of the media on the occurrence of eating disorders

The example of the influence of television media on the island of Fiji is almost incredible. Researchers from the Harvard School of Medicine investigated the eating habits of the island's inhabitants. In 1995, only 3% of 17-year-old girls reported they were dieting. That same year, satellite TV was introduced to the island. In 1998, 69% of 17-year-old girls were dieting, whereas 15% of them induced vomiting in order to maintain their body weight. Several years after TV was introduced to this area, the rate of anorexia among young girls became virtually the same as that in other countries (Becker 2004).

**Anorexia nervosa** – the cardinal symptom of anorexia nervosa is a drive for thinness and a fear of fatness. People suffering from anorexia eat small amounts of low-calorie food and avoid certain foods. They avoid food intake, but their appetite is intact, which is why they feel hunger, and they suffer because they are constantly tormented by imposing thoughts about and the desire for food. Among anorexic people, it is possible to distinguish between those who eat very small portions of food and never engage in inappropriate compensatory behaviors characteristic of bulimia, and those who occasionally binge and then induce vomiting or abuse laxatives and/or diuretics in order to prevent gaining weight (Lauri Korajlija 2009). Despite the loss of body weight which occurs as a consequence of these behaviors, anorexic people continue being displeased with their own body image and perceive themselves as being overweight. They often spend large portions of their time doing physical activity (such as going to the gym, jogging). Among the physical consequences, the most important are heart diseases (which can lead to heart failure and death), liver and kidney damage (which can also have deadly consequences), osteoporosis, and cessation of menstruation (a necessary prerequisite for the diagnosis of anorexia nervosa). Among the psychological consequences, the most important are the appearance of symptoms of depression (which can lead to suicide) and anxiety, extreme self-criticism, guilt and shame, strong feelings of loneliness and helplessness, reduced libido, and the abuse of psychoactive substances (Schwartz 2000). Anorexic people negate the severity of the condition they suffer

from. They do not acknowledge that they are underweight and very often minimize the severity of the physical consequences of starvation.

**Bulimia nervosa** – The most notable characteristic of people suffering from bulimia nervosa are recurrent binges (excessive, uncontrollable intakes of large amounts of food, usually high in calories, in a very short period of time). Research shows that during one binge episode, people intake between 3,000 and 5,000 calories on average (sometimes even up to 10,000 calories) and the episodes usually last approximately 1 hour (Kinder 1991). A binge is frequently (but not always) characterized by fast consumption: the food is swallowed quickly, without much chewing, and the binge continues until the person feels uncomfortable or even painfully full. People who binge know that their bingeing is “abnormal” and often feel disgust, helplessness, and even panic while eating, but they feel they cannot stop themselves. They are worried about their body weight, physical appearance, and body shape, which is why they induce vomiting. This usually occurs one year after the onset of the disease. Vomiting is induced mechanically (usually by hand) or by means of different substances. Laxatives, purgatives, enemas and diuretics are also used for the purposes of “purging”.

Vomiting can lead to electrolyte imbalances, metabolic changes, and weight fluctuation. It can also cause tooth enamel erosion and dental caries, as well as lead to the enlargement of the salivary glands, the inflammation of the esophageal mucosa, and the regurgitation of gastric contents. Among the psychological consequences, the most important are the occurrence of symptoms of depression and anxiety, difficulty with self-control (which often leads to abuse of and dependence on psychoactive substances, and a tendency towards impulsive behavior and self-wounding), frequent mood swings and irritability, as well as low self-esteem (Barlow and Durand 2002).

In the last several years, binge eating disorder has been identified as an eating disorder.

**Binge eating disorder** – people suffering from binge eating disorder often engage in eating to excess, which is accompanied by a typical feeling of not being able to control oneself during an episode, as well as by feelings of guilt and shame which occur after the binge is over.

These people often diet unsuccessfully, while their body mass index frequently indicates obesity (during a binge, they introduce a large number of calories into their body, which they do not try to reduce in any way, and this leads to weight gain) (Lauri Korajlija, 2009).

*Do eating disorders interfere with academic functioning?*

Eating disorders in themselves do not necessarily interfere with academic functioning. A frequent personality trait typical of girls suffering from eating disorders is perfectionism, which is why they try to be “perfect” in everything they do, including their education. They demonstrate rigidity in thought and persistency in achieving their goals. These traits are favorable for meeting academic demands, but are very unfavorable when it comes to changing attitudes towards their own body.

Anorexic girls negate the severity of the condition they suffer from. They do not acknowledge that they are underweight and often minimize the severity of the physical consequences of starvation (Lauri Korajlija 2009). It is the task of the wider community to act in prevention and clearly warn people about the dangers of dieting and the effects that the imposed models of beauty have on young girls.

### *Prognosis of eating disorders*

Anorexia nervosa is the most fatal psychological disorder. The mortality of people who have this disorder but are not receiving psychological treatment is estimated at a high 20% (Kronenberger and Meyer 2001). It needs to be reiterated that anorexia and bulimia nervosa cause many physical difficulties, and that the cause of death of those who have them is often attributed to cardiac arrest or kidney failure, rather than to eating disorders. Furthermore, another frequent cause of death of people with eating disorders is suicide.

Due to persistently refusing to acknowledge the severity of their condition and accept the fact that they have psychological problems, people with anorexia nervosa are often very resistant to therapy interventions. The therapy process for anorexia nervosa is divided into two main segments: on the one hand, the aim is to gain body weight and mitigate the physical consequences of starvation in order to avoid medical complications and death; on the other hand, the aim of the psychological treatment is to work on maintaining the ideal body weight in the long term, i.e. on helping people overcome their fear of gaining weight and getting them to accept their own body image such as it is. (Barlow and Durand 2002).

### *Psychoactive substance abuse*

Drugs and alcohol are substances people consume in order to improve their mood and change a certain physical or psychological state. A drug is any psychoactive substance (of natural or synthetic origin) people take when they want to achieve a desired change of a psychological or physical state, and which they can become dependent on (Jukić and

Hotujac 2006). The feeling of pleasure is intense but of short duration, because the consumption is often followed by a bad state of mind. The person can then feel the desire to take the substance again in order to recreate the feeling of pleasure. This turns into a bad habit which can eventually evolve into drug dependence.

The dependence can either be psychological or physical. *Psychological* dependence develops when people take drugs occasionally or continually in order to provoke a feeling of pleasure and comfort and avoid the feeling of discomfort. *Physical (metabolic) dependence* usually develops after prolonged drug abuse, and if the use of the drug is discontinued, the person develops *abstinence syndrome*. *Abstinence* or *withdrawal syndrome* is a series of symptoms and difficulties which arise after a person discontinues the use of a drug. The difficulties which arise can be extremely intense, and they include anxiety, sleep/wake disorder, tremor, and restlessness.

*Tolerance* is the phenomenon of an increasingly weaker response to drugs. It results in the need for a dose increase in order to achieve the same effects provoked by the initial dose. Psychoactive substance abuse causes various psychological disorders and behavior disorders.

**Table 7** Types of psychoactive substances

There are numerous groups of psychoactive substances: alcohol, nicotine, sedatives (opiates, barbiturates, benzodiazepines), stimulants (amphetamines, cocaine, caffeine), hallucinogens (LSD, cannabis), phencyclidine, and easily volatile substances (benzene, glue). The names of drugs and some expressions which can often be heard in everyday speech (slang) are enumerated below.

Name of drug	Slang expression
Heroin	H, gear, junk, smack, scag
Cannabis	Grass, pot, tea, weed, Mary Jane
Secobarbital, pentobarbital	Reds, red devils, yellow jackets, yellows
Cocaine, crack	Coke, Charlie, snow, rocks
Cocaine and heroin	Speedball
Amphetamine, methamphetamine	Speed, ice, meth
MDA and MDMA	Ecstasy, the dance drug, XTC, Adam

LSD  
Phencyclidine

Acid  
Angel dust

*Does psychoactive substance abuse interfere with academic functioning?*

Psychoactive substance abuse certainly has an unfavorable effect on academic success. Although “experimenting” with psychoactive substances is characteristic of adolescence and does not necessarily lead to dependence, every instance of drug abuse should be taken seriously. If a person stops taking drugs in time, the serious consequences that drug abuse may have on the health of an individual can be avoided. Teachers, as well as administrative and professional university staff, are obliged to react if they notice that a student is under the influence of psychoactive substances and/or if they have any knowledge about a student who abuses psychoactive substances to the point that they are developing a dependence. It is important to react because this shows care for a young person in need of help and it sends a message to students about the perils of this type of behavior.

*Prognosis of psychoactive substance abuse disorders*

If treatment is started early enough, if the therapy techniques focus on the causes of the dependence development, and if there motivation on the part of the student to change their own way of life, then the prognosis is very favorable. Reintroducing young people into the academic community, supporting them in their struggle against drug dependence, motivating them to achieve attainable goals, and helping them develop adequate strategies for coping with stress will assuredly contribute to the psychological stability and firmness which will prevent them from recidivating.

*Suicide and self-harm*

**Suicide**

Suicide is a tragic act. In a large number of cases, suicide occurs when an individual fails to overcome certain life problems and is consumed by a feeling of general hopelessness. At times, it is an escape from reality and an attempt to find nothingness and oblivion. In certain cases, because of the belief that the afterlife in the spiritual world is better, happier, and more pleasant than life on earth, suicide results from the aspiration towards a better and happier life. Sometimes people find refuge in suicide in cases of severe illness, disability, and other forms of suffering.

Whatever the motivation, suicide is an expression of suffering of the person who commits it. It has immeasurable consequences for the family, but also for society at large. Research shows that no other type of death leaves such emotional consequences on the family as suicide does (Davison et al. 2002). Family members are often overwhelmed for a long period of time by feelings of sadness, shame and guilt, which may trigger the development of deeper psychological disorders, including suicidal behavior.

On the global scale, the suicide rate, measured by the number of suicides per 100,000 inhabitants per year, amounts to 16. The number varies substantially from country to country. The 2008 data released by the World Health Organization show that in the first years of the new millennium the highest suicide rate was that of Lithuania (40), followed by Russia and Belorussia (35), Hungary (27), Slovenia (25), Japan (24), Finland and Estonia (20), France (18), Austria (17), China (in selected areas) (14), Germany, Sweden and Bulgaria (13), the USA (12), Canada (11), Italy (10), Portugal (6), and Egypt (5).

In Croatia, the suicide rate is between 19 and 20. In the last 20 years, the rate has shown a diminishing trend (in 1985 it was 22 and in 2004 19 per 100,000 inhabitants) (Habak-Žerjavić & Silobrčić Radić 2005). Men commit suicide 3 times more often than women. Women attempt to commit suicide 3 to 4 times more often than men.

There are an increasing number of suicides committed among young people between the ages of 15 and 19. The most commonly mentioned critical factors are isolation and passivity; the inability to take responsibility and gain independence; the pressure to succeed; and alcoholism and drug dependence.

A correlation has been established between socioeconomic status and suicide rate. The highest number of suicide attempts has been observed among people of lower socioeconomic status. Level of education does not influence the suicide rate, but there is a difference with respect to different professions. It has been established that among professionals, the most likely to

commit suicide are physicians, psychologists, and lawyers. Divorced people commit suicide more often than single and married people.

**Table 8** During the last several years, we have witnessed an increase in media attention given to suicide. At first, this appeared to be a positive phenomenon which could lead to the destigmatization of people committing suicide and their families, when in fact it has led to the destigmatization of suicide as an act, which has brought about an increase in the number of suicides. This phenomenon is known as the “Werther effect”. Its name originated from the events that occurred in 1774, after the publication of Goethe’s novel which inspired people to commit suicides similar to the one described in the book. A similar thing happened after the publications of *Anna Karenina*, Derek Humphry’s *Final Exit* in New York, and after the publication of the “manual” *Suicide, Instructions for Use* in France.

There are numerous myths associated with suicide.

One of the most harmful myth about suicide is the idea that people who talk about suicide do not commit it. People intent on taking their own lives away often seek help before committing the act itself, or they display signs which clearly indicate that they are preparing for their own departure. For example, they give away their favorite books or CDs, deactivate their social network profiles, and behave as if they were going away on a long journey. They often state bluntly that they are planning taking their own lives, but feel ashamed and misunderstood when people around them respond with comments such as “Don’t talk nonsense.” Numerous research projects have shown that people planning to commit suicide enounce their intentions and very often verbalize them to friends, colleagues, and family members (Davidson et al. 2002).

Another myth frequently associated with suicide is that it is committed only by people with mental illnesses or by extremely depressed individuals. This is incorrect. Approximately 50% of people who commit suicide have had no previous psychiatrically diagnosed disturbances. (Davidson et al. 2002).

It is also a myth that it is not good to discuss suicide openly with people displaying signs of being suicidal. Quite the contrary, those people should be asked openly whether they have a desire or intention to take their own lives away. The conversation should be open and

nonjudgmental, full of comprehension, and it should clearly show the interlocutor’s intention to provide all the help possible to the individual in question.

Other myths associated with suicide are listed in table 9.

**Table 9** Myths about suicide

MYTHS	FACTS
People who talk about suicide will not commit it.	People who attempt suicide or commit suicide speak openly about doing so prior to committing the act itself, or they express the desire to be dead.
Suicide occurs without any announcement.	Suicidal people usually give many warning signs about their intentions.
Most suicidal people are mentally ill.	Although suicidal people are profoundly unhappy, they are not necessarily mentally ill.
People who become suicidal at some point in their lives will remain suicidal for the rest of their lives.	Individuals who think about suicide are usually only suicidal at one particular point in their life.
Suicidal people have no doubts about dying.	Most suicidal people are indecisive about whether they want to keep living or not – which makes prevention possible.
Talking about suicide is dangerous and it encourages the person to commit it.	Quite the contrary. Not talking about suicide means giving up on trying to prevent it. Talking about the subject shows care about the problems of the particular individual.
A failed attempt at suicide should not be taken seriously.	Four out of five people attempted suicide at least once before succeeding. A failed attempt at suicide should be taken very seriously and help should be given to the

When young people talk about killing themselves, they actually want to draw attention to themselves.

When young people commit suicide, it is usually a result of impulsive behavior.

person in question.

Attempted suicide is a cry for help, which should be given to the young person.

For most young people who have attempted to commit suicide, it has been established that they had been thinking about it for a long time prior to committing it.

It is important to remember that the prevention of suicide never relies exclusively on professional help, but also on creating a general climate in which there is no unsolvable problem and no situation a person needs to go through completely alone. It is imperative to keep in mind that **suicide can be prevented**.

### **Self-harm**

For some, inflicting pain upon oneself is a way of relieving internal tension.

Girls and young women are especially inclined to self-harm. It is almost exclusively done stealthily and it is followed by a feeling of shame. Its aim is not to take one's life away; people do it solely for the purpose of relieving tension or out of the "need to feel alive". Most frequently, it occurs among people showing signs of emotional lability, among those who have bad family relations and have not developed mature ways of dealing with stress (Begić 2010.)

*Does self-destructive behavior interfere with academic functioning?*

In cases of self-destructive behavior, it would be better to ask the following question: to what extent does academic (dys)functioning encourage self-destructive behavior?

Suicide is almost always an act with which people want to "solve" a problem. In other words, it is an indicator that they had encountered a problem which seemed unsolvable. Academic demands can often appear unsolvable to young people, which can lead them to find refuge in this tragic solution. It is everyone's task, especially the task of the teaching staff, to show young people that there is always a solution and that suicide is never the right choice. It is also

the responsibility of teachers and other staff to create an atmosphere of cooperation at the university, as well as to give the students a feeling that there is always someone they can come to for help who will receive them with comprehension.

### *Prognosis of self-destructive behavior*

Self-destruction is always a sign that a person is in need of help. Providing help in time and enrolling the person in psychotherapeutic treatment will enable the development of more mature ways of coping with their academic and life demands.

### **Accommodation possibilities**

#### *Why is it difficult to have mental disorders and illnesses?*

Mental disorders and illnesses impair substantially the quality of an individual's life, as well as the quality of life of the people surrounding that individual (Markanović 2010). This arises partly from the very nature of the disturbances, which are accompanied by a high level of personal suffering, and partly from the reaction of the society which stigmatizes mental disturbances.

- Personal suffering - Mental disturbances are almost always accompanied by personal suffering (Markanović 2010). If we think back to a period when we felt tense, sad, dejected, or helpless, we will probably remember how at that time we were less satisfied with ourselves and our lives in general, how we were less effective at the work we were doing at the time and how much we needed the support of the people around us. When it comes to temporary and short-term mental disturbances, the periods of personal suffering and reduced quality of life are short-term. However, if the periods of mental disturbances are intensive and/or prolonged, as is the case with mental illness, the quality of life of the people with these disturbances is reduced. A reduced quality of life implies impaired cognitive, emotional and social functioning, i.e. the patients are not able to adequately fulfill their social roles. Recent research conducted in several countries of the European Community has shown that mental illnesses can have a substantially more negative effect on an individual's quality of life and capacity for work than chronic physical disabilities

and/or illnesses (ESEMeD/MHEDEA 2004). When it comes to students, mental disorders and illnesses can manifest themselves in academic failure, which may consequently lead to a deepening of personal suffering.

- The stigma of mental illness – Mental disturbances are almost always accompanied by stigmatization (Alonso 2009). In the modern Western world, mentally ill individuals are treated in a more humane manner than was the case in the past, and the pharmacologic and psychotherapeutic ways of treatment are far more effective today; however, the attitude towards mental patients is still deeply marked by prejudice (Jokić-Begić Kamenov & Lauri Korajlija 2005). It is believed that mental illnesses are a reflection of personal failure or “poor” genes. People with mental illnesses are perceived as dangerous and incompetent, to be blamed for their own illness, incapable of making their own decisions, childish, and irresponsible (Crisp 2000). Numerous prejudices have different consequences which are unfavorable for people with mental illnesses, and the most notable is discrimination. Coping with discrimination often leads the labeled individuals to lose their self-esteem and self-respect, to withdraw into themselves and isolate themselves voluntarily from society (Dinos et al. 2004). Recent research conducted in Croatia has revealed the existence of a widely accepted negative stereotype about people with mental illnesses (Jokić-Begić et al. 2005). Results have also shown the importance that knowledge plays in the battle against prejudice: the more people know about people with mental illnesses, the more positive their attitudes about these individuals and the higher their level of acceptance of them.

### ***What can be done on the level of the wider social community***

Mental disorders are very “democratic”; they occur among all races, nations, social classes, and professions; in both sexes; and at every age. To suffer from a mental illness is no shame, nor is it a sign of weak character; it is rather an interaction of biological, psychological, and social factors. Society is responsible for the dominant social climate and for the level of tolerance toward those who are different. The best that can be done on the level of the wider social community is to spread knowledge about mental illnesses by means of the media, public forums, and other forms of education.

### ***What can be done at the level of the university?***

For students, it is not easy to admit that they need professional help, nor to seek help from an expert. The stigma attached to mental illnesses is still strong and widespread. Mental health care continues to be considered unnecessary, that is, the prevailing opinion is that “mental disturbances are a sign of weak character.” It is assumed that mentally healthy individuals will spontaneously accommodate to the demands of the social roles they have adopted throughout their lives, including academic demands. The occurrence of difficulties is attributed to personal weakness and incompetence. Because of this, many students have a difficult time deciding to consult an expert in due time and thus prevent the development of deeper disturbances. Many students cope with their difficulties alone, frequently imprisoning themselves in a closed circle of unpleasant emotional states, decreased academic efficiency, bad social relations, and consequent helplessness which may result in deeper forms of psychopathology (dependences, mood swings, suicide).

Globally, there has been a trend of an increased number of students with mental disturbances. Researchers are now faced with the task of explaining this trend which is evident among university students all around the globe, whereas the task of administrative and professional services is to provide adequate care for their students. This does not solely imply professional care, but also accommodation at the level of course organization, as well as at the level of the organization of faculties and academies.

What should also be emphasized is the ethical dimension of organizing adequate care for students with mental disturbances. Research has consistently shown that disturbances occurring in adolescence almost always transfer into adult age (Rutter, Kim-Cohen & Maughan 2006). The university has certain qualities which make it stand out as a place where organized care for young people with mental disturbances yields particularly good results:

- It covers a large part of the young people's population because 70% percent of all high school students enroll at university (Jokić-begić et al. 2009)
- Academic studies are a period of adult age during which many activities are fulfilled within the same system – knowledge acquisition, career planning, and social relations, as well as medical, social, legal, and other forms of help
- Due to its educational function, a faculty/academy is suitable for acquiring, deepening and spreading knowledge about mental health and the best ways of helping people with mental disorders to grow stronger
- The university environment provides a unique framework for systematic engagement with mental disorders as one of the most important public health issues.

At European universities, as well as at universities around the world, psychological help is given to students in the form of psychological counseling centers which form part of the standard university care for students. At Croatian universities, some of the counseling centers operate on a very high level, whereas some are fairly neglected, that is, they are organized sporadically, at the level of individual faculties. It is the responsibility of universities to incorporate the students' mental health care into their strategic goals. Other goals should undoubtedly include raising awareness of the importance of caring for one's own mental health; making students more sensitive in recognizing mental difficulties which can then be dealt with effectively, thus preventing the occurrence of deeper disturbances; destigmatizing mental difficulties and the seeking of professional help; promoting self-help and the creation of a tolerant environment in which the timely provision of help will be enabled.

***What can be done at the level of the faculty/academy?***

It is important to recognize signs that point towards psychological suffering. The first to catch these signs will probably be faculty teachers, colleagues, friends, and family. They do not usually appear in isolation but rather in groups, and they represent a **change in relation to previous behavior** (for example: taciturnity in itself is not a symptom, unless it constitutes a change in relation to a person's usual behavior). If signs of mental disturbances are noticed, the student should be sent to counseling and/or to a physician.

Sometimes, students with difficulties and the people surrounding them will have a hard time determining whether they are dealing with mental disturbances or with normal and healthy reactions to increasingly difficult demands the academic environment is setting before the students.

**Here is a simple rule which helps determine whether a difficulty requires help (not necessarily professional): if people control their emotions and behaviors, they are probably going through certain adaptive reactions; if their emotions and behaviors control them, they are probably experiencing some sort of disturbance! These disturbances can be temporary and develop as reactions to an event, but with time they recede and the individual regains control. If the disturbances do not recede, the individual is probably suffering from a chronic difficulty.**

**Table 10 Practical advice**

<b>If students come seeking help for their mental state, it is advisable to:</b>	<b>If students come seeking help, it is not advisable to:</b>
<ul style="list-style-type: none"> <li>▪ talk to them without hurrying them</li> <li>▪ listen to them without judging</li> <li>▪ consider the difficulties from their point of view</li> <li>▪ enable them to feel safe</li> <li>▪ if the difficulties require professional help, send them to a student counseling center or to the student health physician</li> </ul>	<ul style="list-style-type: none"> <li>▪ solve all of their problems</li> <li>▪ take responsibility for their emotional states and behaviors</li> </ul>

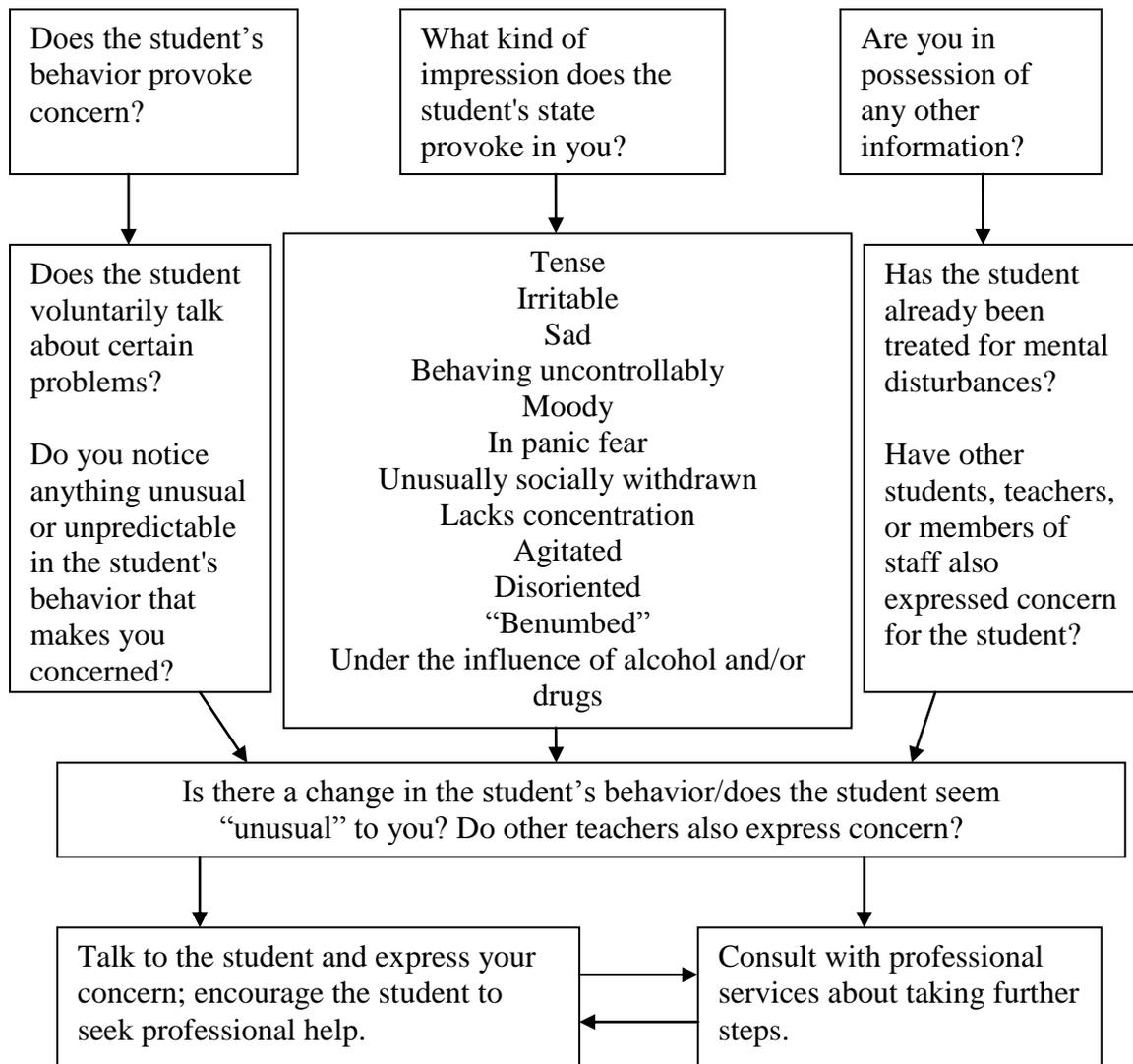
**Table 11** Indicators pointing to mental disturbances which require professional help

Area	Indicators
	<ul style="list-style-type: none"> <li>• decrease in quality of work</li> <li>• lower grades</li> </ul>

academics	<ul style="list-style-type: none"> <li>• absence from classes</li> <li>• negative changes in interaction with other students</li> <li>• unorganized assignments</li> <li>• continuous requesting special arrangements (different term paper deadlines and exam dates, etc.)</li> <li>• showing signs of helplessness, social isolation, despair, etc., in term papers and written assignments</li> </ul>
behavior in social contexts	<ul style="list-style-type: none"> <li>• weepiness, social withdrawal, taciturnity (in comparison to before)</li> <li>• irritability, hostility, aggressiveness</li> <li>• aggressive dependence on other people</li> <li>• expressing hopelessness and helplessness</li> <li>• expressing the fear that “something horrible is going to happen” without any clear external indicator</li> <li>• unnecessary and excessive concern about the impression one makes on others</li> <li>• openly talking about one’s issues: family, interpersonal relations</li> <li>• coping with extremely stressful or traumatic situations</li> <li>• characteristics which are otherwise present but have suddenly become overly accentuated (hyperactivity, manic behavior, etc.)</li> <li>• changes in everyday pace and habits (sleeping and appetite, constant feeling of tiredness, boredom, etc.)</li> <li>• clear signs of mental illness (hallucinations, delusions, etc.)</li> <li>• severe sleeping disorders – insomnia, waking up too early, nightmares, hypersomnia</li> </ul>
physical appearance	<ul style="list-style-type: none"> <li>• weight loss, being excessively underweight</li> <li>• not maintaining personal hygiene</li> <li>• severely disrupted normal physical appearance</li> <li>• constant tiredness</li> </ul>

	<ul style="list-style-type: none"> <li>• coming to class in a drunken or drugged state</li> </ul>
personal safety	<ul style="list-style-type: none"> <li>• preoccupation with thoughts about death</li> <li>• term papers containing expressions of suicidal intentions</li> <li>• “goodbye notes”</li> <li>• giving away things which have a personal, emotional value for the student</li> <li>• statements such as: “Maybe I’ll leave and never come back”</li> <li>• prolonged depressed moods</li> <li>• risky behaviors which can lead to fatal outcomes (walking on the railing of a bridge, etc.)</li> </ul>

How can one assess whether a student is in need of professional help?



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Glossary:

**alcoholism** – dependence on ethyl alcohol (ethylism); excessive consumption of alcoholic beverages leads to mental and physical deterioration of health

**anxiety** – a feeling of agitation, apprehension, fear, usually accompanied by symptoms of increased physiological arousal

**anorexia** – refusal to consume food, lack of appetite followed by a consequent loss of weight and a series of hormonal changes

**bipolar affective disorder** (BAD) – a mood disorder in which mania and/or depression alternate with states of euthymia; earlier denominations were *circular psychosis*, *manic-depressive episode*

**bulimia** – uncontrollable consumption of food

**cocaine** – an alkaloid obtained from the leaves of the coca plant, a psychostimulant which causes increased irritability, paranoia, disorders of eating, sleeping and concentration

**compulsive movement** – a *compulsion*, useless action or movement that people perform against their will

**cyclothymia** – a deviation from normal behavior, in the sense of alternating between states of euphoria and depression, which does not meet the criteria for the diagnosis of bipolar affective disorder

**delusional thought** – delusional idea, delusion, erroneous thought stemming from an illness which is not susceptible to dissuasion, the most severe form of content thought disorder

**depression** – a mood disorder dominated by dejection, low spirits, sadness, apathy, loss of interest, concern, feelings of guilt and inferiority, decline in instinctive dynamisms, social withdrawal

**depressive disorders** – disorders in which there is a manifestation of depressed moods

**hallucination** – a perception disorder (lat. *alucinare* – to prattle, lat. *hallucinari* – to be deceived), in which the patient believes a certain stimulus exists, although that stimulus is not really present; it can be linked to any sense (sight, hearing, touch, smell, pain, balance, etc.)

**hashish** – a preparation composed of resins obtained from the hemp plant

**heroin** – a depressor of the central nervous system, a derivative of opium; first it provokes an ecstatic state and increases self-confidence, after which it leads to drowsiness and sedation, it causes psychological and physical dependence

**LSD** – a hallucinogen that causes *psychological dependence* and a fast development of *tolerance*

**marijuana** – a preparation obtained from hemp leaves; compare with *hashish*

**obsession** – *a compulsive idea*, an idea which appears against the patient's will, the patient understands its illogicality and uselessness, but cannot resist it

**obsessive-compulsive disorder** – an anxiety disorder dominated by compulsive ideas and/or compulsive movements; it occurs in both sexes with equal frequency, in early adult age

**panic** – an intense feeling (attack) of fear

**posttraumatic stress disorder (PTSD)** – a delayed and long-lasting reaction to an extreme traumatic experience, with symptoms of increased arousal, reliving the traumatic experience and avoiding anything that might evoke the memory of the traumatic experience, both realistically or symbolically.

**psychoactive substances** – substances which alter psychological functions (mood, thought patterns)

**psychosis** – a psychotic state in which people do not test reality, show changes in thought patterns (*delusions*), perception (*hallucinations*), mood, orientation, and in the general perception of themselves and their surroundings

**schizophrenia** – a chronic psychosis which usually occurs in adolescence, with symptoms of disordered thinking, affect, *hallucinations* (usually auditory); the term was coined by E. Bleuler

## **CLOSING REMARKS**

With the text of this handbook, the authors' principal intent was to explain the specifics of the everyday functioning of students with disabilities and suggest some simple solutions which would make that functioning easier. Of course, it is clear that there are no "ready-made" solutions. What might function as a suitable accommodation for one student with a disability may not turn out to be appropriate for another. Nonetheless, many solutions presented here are universal and will make higher education more accessible not only to students with disabilities, but to all of your students. As for determining the solutions most suitable for individual students with disabilities, you can never go wrong if you ask them about it directly. Students with disabilities know best which accommodations would be optimal for them as individuals, whereas your task as their teacher is to determine whether those accommodations compromise academic standards, which is something you must never allow. I wish you all much success and satisfaction in your work!

Lelia Kiš-Glavaš