

**OPEN INNOVATIVE RESOURCES FOR DISTANCE LEARNING**



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# TRAINING PROGRAMME

**Topical area II: Universal Design in the distance learning in the context of needs of learners with diverse educational needs**

**Module II.**

**Methods: descriptive, presentational, practical exercises**

**Subject: Assistive technologies in the distance learning**

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# 1. INFORMATION ABOUT THE TRAINING

## 1.1. The name of the training

### **Assistive technologies in the distance learning**

## 1.2. Training needs analysis

Due to the current epidemic situation connected with the SARS-CoV-2 virus causing the Coronavirus disease, the distance mode was introduced to school education in many European and Non-European countries. Society was disturbed by feelings of fear and insecurity connected with the lack of knowledge concerning the course of the disease, the speed of virus transmission, and the role of children and teenagers in this process (initially, it was assumed that they are asymptomatic virus carriers who can transmit the virus to the elderly people in their families). Hence, the authorities have concluded that in-person schooling is too dangerous. As a consequence, the situation became very unusual and difficult for students, parents, and teachers. Although distance learning was practised before the pandemic, it has never been implemented on a global scale. The students with special educational needs, as well as their parents and teachers, found themselves in an exceptionally difficult situation, as they have lost access to expensive specialised didactic aids and assistive technologies that supported their functioning at school.

Nevertheless, as K. Koch (2017) writes, teachers are not prepared to use generally available assistive technologies. Frequently, they are not aware of the fact that they can significantly accommodate the learning process of children and teenagers with special educational needs with the use of a computer with a microphone and a camera and generally accessible software. They also do not know how to adjust their didactic materials so that they could be more universal in use (Koch, 2017). Thus, taking into consideration recent events connected with distance learning, the idea to train teachers, students in the programmes connected with education, and support teachers for students with special educational needs in terms of using the assistive technologies in distance learning seems to be well-based. Such knowledge and skills may allow educators to unify the standards in the education environment by implementing proper technologies, which is especially important in the context of inclusive education and universal



design. Although it is not possible in every situation, it enables all the students to gather experiences, which is crucial in the development of their socio-economic skills (Fiszer, 2016; Myck-Wayne, Ramirez, 2014).

Even if it is assumed that similar circumstances connected with the pandemic will not appear in the next decades, it is worth mentioning the benefits of distance learning. As A. Potera (2021) points out, in distance learning, there is a possibility to adjust the pace of work to the needs of students (online classes can be recorded and replayed on demand), students do not need to overcome the architectural barriers (what is particularly important for some of them), as well as they are able to boost their independency and organisational skills in learning. Also, it is relatively easy to adjust the teaching methods to the individual needs of students. Thus, distance learning seems to be a good option not only in exceptional circumstances but also as an element of everyday education. To make distance learning available for students with special educational needs and possibilities, the teachers should possess a number of competencies, including these connected with IT technology (Mikulski, 2017)

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Fiszer, A. (2016). Nowe media jako narzędzie usprawniające życie osób niepełnosprawnych. *Studia Krytyczne*, 2/2016, 161-174.

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## 1.3. Learning objectives

### Main objective

The main objective is to equip training participants with knowledge concerning assistive technologies and their use in distance learning for students with special educational needs, as well as to develop their competencies for implementing the selected technologies.

### Detailed objectives

#### Training participants shall:

##### in terms of knowledge:

- define the notion of assistive technologies;
- differentiate between assistive technologies and assistive services;
- know the classification of assistive technologies according to their technological advancement (low/mid/high);
- know the stages of analysis of the needs of students with special educational needs in terms of assistive technologies;
- enumerate the examples of assistive technologies;
- know the main principles of cooperation with parents of children and teenagers with special educational needs;
- list threats connected with overusing assistive technologies.

##### in terms of skills:

- be able to analyse the needs of students with SEN in terms of assistive technologies;
- be able to adjust the setting of Windows for the needs of people with disabilities;
- be able to search low tech solutions that can be applied at home;
- be able to set and explain the principles for cooperation with parents in distance learning;
- be able to adjust the learning materials to the needs of students in distance learning.



### **in terms of attitudes:**

- understand the need to develop their own competencies when it comes to the use of IT tools and search for solutions for particular problems occurring at their work;
- understand the need for using assistive technologies in the process of equalising the chances of children and teenagers with special educational needs;
- be creative when it comes to searching for simple solutions when it comes to adjusting various objects/tools to the needs of people with disabilities;
- be aware of the role of parents of children and teenagers with disabilities in the process of education, especially when it comes to distance learning;
- be aware of the barriers and difficulties in distance learning for students with special educational needs.

## **1.4. The target group of the training**

The training is intended for academic teachers, primary and secondary school teachers, students preparing to work with children and adolescents with special educational needs, as well as post-graduate students who are willing to increase their knowledge and skills connected with the use of assistive technologies in distance learning. The target group of the training are also people who want to gain knowledge about the use of assistive technologies in teaching learners with special educational needs.

## **1.5. The form of training implementation**

To ensure favourable learning conditions and time for performing tasks, the training should be implemented in groups including 12 to 18 participants. However, it is possible to implement the training in smaller or bigger groups.

The training is designed to be conducted in the form of distance learning, with the use of the Moodle Learning Platform. Nevertheless, it can be also conducted in person, provided that each participant has access to a computer.

## **1.6. Duration of the training**

The training is intended for 6 didactic hours (45 minutes each). Additionally, the duration time shall be extended by two breaks, 15 minutes each.





## 2. THE TRAINING PROGRAMME

### 2.1. Learning contents

The learning contents focus on the use of assistive technologies, including the frequently used terms and definitions, classification of assistive technologies, as well as examples of tools, devices, and software that may facilitate the functioning of students with special educational needs, as well as the use of generally available software as assistive technologies.

The training is divided into three subject areas. The first of them focuses on the general information concerning assistive technologies (definitions, classification, examples), as well as the issues connected with the analysis of the needs of students with special educational needs, which is an inevitable element of the process of providing suitable support for them.

The second subject area is devoted to the possibilities of choosing the appropriate assistive technologies based on the outcomes of the initial diagnosis of needs. The participants shall learn about generally available and professional, high-tech assistive technologies, as well as the possibilities to adapt popular tools and devices for assistive technologies.

The third subject area includes practical and simulation exercises on using assistive technologies. During this part of the training, the participants, together with the instructor, shall look for ways to facilitate the use of IT tools in distance learning. Moreover, this subject area includes hints on how to cooperate with parents if the student is not able to participate in online classes on his/her own.



## 2.2. Training schedule

Subject area	Duration time
Assistive technologies – definitions, classification, and the needs of students with SEN in terms of assistive technologies	1,5 h
Break	15 min.
Assistive technologies for students with special educational needs in distance learning, part 1: what are the needs of students with disabilities and which assistive technologies may help them in distance learning?	1,5 h
Break	15 min.
Assistive technologies for students with special educational needs in distance learning, part 2: how to use generally available technologies? How to cooperate with parents?	1,5 h

## 2.3. Didactic means and materials

### Didactic means and materials to be used:

- computer with the Internet connection
- Moodle Learning Platform
- the Internet browsers (Google and others)
- Windows 10 or newer operation system
- didactic materials (attached)



## 2.4. Teaching methods

- lecture
- discussion
- free association method
- explanation
- case study
- practical exercises
- simulation exercises
- brainstorming
- impressionistic method
- verbal expression method

## 2.5. Recommended references and Internet sources

- Assistive technologies for people with disabilities. European Parliamentary Research Service,  
[https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS\\_IDA\(2018\)603218\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/603218/EPRS_IDA(2018)603218_EN.pdf), accessed: 13.01.2022
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- [https://www.canva.com/pl\\_pl/](https://www.canva.com/pl_pl/)



- <https://classroomscreen.com/app/wv1/f2c9a72d-c825-41d0-b7d3-d5280c9da8d5>  
(<https://www.youtube.com/watch?v=1ltpwiQyEc4&t=6s>)
- <https://genial.ly/>
- <https://mir.org.pl/sprzet-dla-osob-niewidomych-i-slabowidzacych/produkty-dla-niewidomych-i-slabowidzacych/programy-dla-niewidomych-i-niedowidzacych/#:~:text=Programy%20dla%20niewidomych%20i%20niedowidz%C4%85cych%20i%20JAWS.%20Jaws,...%205%20Euler%20Science.%20...%206%20NVDA.%20>  
[0](#)
- <https://www.nimoz.pl/files//articles/147/Audiodeskrypcja - zasady tworzenia.pdf>
- <https://openboard.ch/download.en.html>
- <https://tablica.lekcje.live/>
- <https://www.tim-aac.com/>
- <http://www.wati.org/free-publications/assessing-students-needs-for-assistive-technology/>
- <https://www.youtube.com/watch?v=4D704SsOwi0>



## 3. LESSON PLANS

### 3.1. Assistive technologies – definitions, classification, and the needs of students with SEN in terms of assistive technologies

#### Detailed objectives:

- participants define assistive technologies and assistive services,
- participants classify assistive technologies and give examples of various technologies for people with diversified possibilities,
- participants develop their awareness of the needs of students with disabilities and students with diversified difficulties in school functioning,

#### **Task 1. Assistive technologies - associations**

##### **Didactic methods:**

- free association method
- discussion
- explanation

**Duration time:** 30 min.

##### **Didactic means and materials:**

computer with the Windows 10 or newer operation system and the Internet connection, Moodle Learning Platform, didactic materials (1 & 2)

##### **Course of training:**

1. Participants log into the Moodle Learning platform, module II in the Big Blue Button service: Universal Design in the distance learning in the context of learners with diversified educational needs
2. The instructor greets participants and gives the subject of the training.



3. The instructor opens the board in the Big Blue Button service (slide 3., didactic materials 1) and asks participants to share their associations with the phrase “assistive technologies”. Detailed instructions are available in didactic materials 2.
4. Participants have 5 minutes to come up with their associations. Then, the instructor asks them to underline these connected with assistive technologies with a green marker, and these connected with users of assistive technologies with a red marker.
5. The instructor notes if associations of participants are connected with complex technologies, e.g. information technologies, or match the definition of assistive technologies. Moreover, the instructor should note who, according to participants, is the target group of assistive technologies to see if participants notice that although they have been created for people with disability, they can be used by everyone and constitute an element of universal design.
6. The instructor presents the official definition of assistive technologies (didactic materials 1) and the information concerning assistive services. He/she also presents the classification of assistive technologies according to the level of technological advancement.

## **Task 2. Can assistive technologies... be disturbing?**

### **Didactic methods:**

- discussion
- explanation
- brainstorming

**Duration time:** 30 min.

### **Didactic means and materials:**

computer with the Internet connection, Moodle Learning Platform, an Internet browser, didactic materials (1 & 3)



## Course of training:

1. The instructor encourages participants to take part in the discussion concerning assistive technologies. He/she presents the issues to be discussed:
  - Are assistive technologies used only by people with disabilities? If not, give examples of situations in which they can be used by everyone.
  - Which assistive technologies are most commonly used nowadays? Think of technologies on each level of advancement – low, moderate, and high.
  - The common use of assistive technologies – are there any dangers? If yes, what are they and what causes them?
2. Participants answer the abovementioned questions. The instructor collects and orders their answers. At the end of the discussion, he/she summarises the participants' answers and draws their attention to the most important issues (they are included in didactic materials 3).
3. The instructor divides participants into three groups and asks them to browse for examples of solutions on different levels of technological advancement. The examples should belong to different groups: technologies facilitating the functioning at school or school skills; technologies facilitating hearing/visual perception; technologies facilitating independence and everyday functioning, technologies facilitating movement, and technologies facilitating communication. Duration of the group work: 10 minutes.
4. The instructor encourages participants to present their examples of assistive technologies in the given categories:
  - a) low assistive technology:
    - facilitating school skills (writing/drawing);
    - facilitating perception (visual/hearing);
    - facilitating movement;
    - facilitating communication;
    - facilitating independence and everyday functioning;
  - b) mid assistive technology:
    - facilitating school skills (writing/drawing);
    - facilitating perception (visual/hearing);
    - facilitating movement;





- facilitating communication;
  - facilitating independence and everyday functioning;
- c) high assistive technology:
- facilitating school skills (writing/drawing);
  - facilitating perception (visual/hearing);
  - facilitating movement;
  - facilitating communication;
  - facilitating independence and everyday functioning.

First, participants share their ideas. After that, the instructor presents his/her examples, which are available in didactic materials 1 (multimedia presentation).

5. The instructor summarises the exercise. Participants may assign the same examples of technologies with different categories. It is important to explain, that the boundaries between the categories are fuzzy and there is no “official list” of assistive technologies, and the classification was introduced to facilitate the systematisation of them. Moreover, thanks to the awareness of the demand for particular devices/objects from a given category, it is easier to estimate the costs of providing assistive technologies for a given student. Furthermore, it is worth mentioning that technologies that were considered to be very advanced and hard-to-reach several years ago, may be commonly used nowadays.



## Task 3. Assistive technologies in working with students with special educational needs

### Didactic methods:

- explanation
- practical exercises
- discussion

**Duration time:** 25 min.

### Didactic means and materials:

computer with the Windows 10 or newer operation system and the Internet connection, Moodle Learning Platform, didactic materials (4 & 5)

### Course of training:

1. The instructor presents the task to participants:

Imagine an ordinary day of a student in one of the lower grades of primary school. How does he/she prepare for the day at school? What does his/her way to school look like? Does he/she go to school alone, or is he/she escorted by someone? What happens when he/she enters the school? What does he/she have to do? Do the parents/guardians help the student with tasks like changing clothes or preparing for classes? How does the student get to the classroom? Is he/she collected by the teacher/another employee from the changing room? What kind of tasks does he/she perform during classes (e.g., reading, writing, using a computer, playing with friends, etc.)? What does the student do during breaks? Does he/she go home on his/her own, or is he collected by a parent or someone else?

2. The instructor divides participants into three or four groups and asks them to describe “a student’s ordinary day at school”. Participants can use the exemplary plan of the day (didactic materials 4). Participants have 10 minutes to fill in the first and the second column of the table (didactic materials 5). Exemplary answers:



What happens?	What does the student do?	What are the possible difficulties?	How to help the student? What would facilitate student's functioning?
The student leaves the house.	The student collects the course books he/she needs today and leaves on his/her own.		
The student is on his/her way to school.	Walking from home to school takes around 10 minutes. On the way, the student needs to cross a very busy street where there are no traffic lights. On his/her way to school, there are also steep stairs without a ramp or a lift.		
The student enters the school.	There are steep stairs leading to the entrance to the building, as it is located in the basement. The lift on the other side of the building leads directly to the changing room, but you need to press the button and wait for the caretaker to unlock it.		
The student needs to change in the changing room	The changing room is spacious, and every student has a locker that can be opened with a traditional key.		



3. When participants complete the task, the instructor asks them if they have any questions or comments. He/she explains the problematic issues to participants. The next task is to fill in the remaining columns of the table. The first group analyses the situation of the students with visual impairment (blind or dim-sighted), the second group – the situation of a student with hearing disability (deaf or hard of hearing), the third group – the situation of a student with a mobility disability, the fourth group – the situation of a student on the autism spectrum. Time for performing the task – 10 minutes.
4. The instructor asks participants to share their thoughts on the task. What is the level of difficulty in conducting the analysis? Which elements were particularly difficult? What difficulties do they notice in the schools they work at (especially from the perspective of a student with a disability)? Are there any accommodations for students with disabilities in schools they went to/work at/serve internships at? Are there any assistive technologies implemented in these schools?
5. In the end, the instructor summarises the task.

## Task 4. Conclusions

### Didactic methods:

- open-ended sentences

**Duration time:** 5 min.

### Didactic means and materials:

didactic materials 6

### Course of training:

1. The instructor reads the open-ended sentences and participants finish them (didactic materials 6).

## 3.2. Assistive technologies for students with special educational needs in distance learning, part 1: what are the needs of students with disabilities and which assistive technologies may help them in distance learning?

### Detailed objectives:

- participants know the guidelines for the analysis of the needs of students in terms of assistive technologies;
- participants know how to prepare an audio description;
- participants are able to analyse the needs of a student in terms of assistive technologies in in-person and distance learning;
- participants are able to indicate the difficulties of students with disabilities in distance learning;
- participants can prepare an audio description of objects, pictures, and sculptures applying the presented guidelines;
- participants list examples of assistive technologies that facilitate the functioning of students with disabilities in distance learning;
- participants understand the need to search for solutions in terms of assistive technologies for students with disabilities in distance learning;

### **Task 1. Analysis of the needs of students with SEN in terms of assistive technologies in distance learning**

#### **Didactic methods:**

- explanation
- case study
- brainstorming
- discussion

**Duration time:** 45 min.



## **Didactic means and materials:**

computer with the Windows 10 or newer operation system and the Internet connection, Moodle Learning Platform, didactic materials (7-9)

## **Course of training:**

1. Participants log into the Moodle Learning platform, module II in the Big Blue Button service: Universal Design in the distance learning in the context of learners with diversified educational needs
2. The instructor greets participants and gives the subject of the training.
3. The instructor discusses „The guide on making decisions concerning assistive technologies” (didactic materials 7). He/she describes the stages of analysis of the student’s needs in terms of assistive technologies. He/she underlines that in order for the analysis to be successful, the detailed criteria should be determined. This kind of analysis is easier if the teacher knows the student, his/her environment, and the situation at school.
4. The instructor divides participants into four groups and assigns one case to be analysed by each of them (didactic materials 8). Students presented in the didactic materials attend one of the lower grades of primary school. Suddenly, they have to adjust to distance learning. The estimated duration of learning in the online mode is 4 weeks, but the situation is changing quickly and they do not know how long they will have to stay at home. The participants’ task is to analyse the case of a given student and try to choose the best assistive technologies for him/her. Participants do not have to use professional vocabulary describing given software or devices. Nevertheless, they should be able to assess the areas in which the student may need assistance and how to provide it, e.g. the blind student has textbooks in braille but does not have a braille printer, so he/she cannot print additional learning materials at home. Hence, he/she should be provided with the audio recordings of additional learning materials or the screen reader.



5. Representatives of each group sent the outcomes of their work to the instructor. He/she uploads the materials in module II and shares them with all participants. Representatives of each group present the outcomes of their work. They should focus on the needs of the student and assistive technologies that could facilitate their participation in distance learning.
6. The instructor writes down the difficulties of the discussed students in distance learning (exemplary categories of difficulties are included in didactic materials 9). The collected details will be used for practical exercises in the next part of the training.

## **Task 2. How to show a picture to a blind or dim-sighted child?**

### **Didactic methods:**

- explanation
- practical exercises
- impressionistic method
- verbal expression method
- discussion

**Duration time:** 45 min.

### **Didactic means and materials:**

computer with the Windows 10 or 11 operation system and the Internet connection, Moodle Learning Platform, didactic materials (10-13), several sheets of paper and crayons

### **Course of training:**

1. The instructor presents the guidelines for creating an audio description of pictures/objects, paying particular attention to selected elements (didactic materials 10 – the bolded parts). The guidelines were prepared by the Culture Without Barriers Foundation (source in the didactic materials 10). Duration time of this part – 12 minutes.
2. Participants listen to the audio description of one of the most famous paintings in the world (didactic materials 11). They need to guess what is the title of that painting and

who created it. The instructor encourages participants to join the discussion: Did they know about the details of the picture before listening to the audio description? Is audio description useful for people without visual impairments?

3. The instructor divides participants into four groups. The first and the second group prepare the audio description of the picture from didactic materials 12. The third and the fourth group prepare an audio description of the painting from didactic materials 13. Time for the group work – 15 minutes.
4. Representatives of each group read the prepared audio descriptions out loud. The rest of the participants try to imagine the described picture. Then, the instructor shows the described pictures to all participants. He/she asks them to answer the questions: Was it easy to imagine the described picture? Which elements of the description facilitated or obstructed imagining the picture? Then, the second and the fourth group present their descriptions, whereas the first and the third group try to imagine or draw the described pictures. In the end, the instructor asks the questions: What difficulties may occur in preparing an audio description? What are the benefits of audio description of a student with visual impairment? Time for this part – 8 minutes.





### 3.3. Assistive technologies for students with special educational needs in distance learning, part 2: how to use generally available technologies? How to cooperate with parents?

#### Detailed objectives:

- participants describe the difficulties of students with disabilities connected with distance learning;
- participants are able to adjust the Windows operation system to the needs of students with various disabilities (visual, mobility, hearing);
- participants know how to cooperate with parents in distance learning;
- participants are able to provide arguments for engaging parents in the distance learning process of students with SEN.

#### **Task 1. The functions of the Windows system that facilitate the work of students with SEN**

##### **Didactic methods:**

- explanation, giving instructions
- practical exercises

**Duration time:** 35 min.

##### **Didactic means and materials:**

computer with the Windows 10 or newer operation system and the Internet connection, Moodle Learning Platform, didactic materials (15)

##### **Course of training:**

1. Participants log into the Moodle Learning platform, module II in the Big Blue Button service: Universal Design in the distance learning in the context of learners with diversified educational needs
2. The instructor greets participants and gives the subject of the training.

3. The instructor asks participants about the accessibility options they use on their private computers. Participants write their answers in the “shared notes” section. The instructor summarises the participants’ answers and comments on the possibilities of using generally available software.
4. The instructor asks participants to read the instructions on how to adjust the accessibility features of the operation system (didactic materials 15) and then configure their own computer so that it can be used by a person with visual impairment, a mobility disability, with a hearing disability, or with limited manual abilities.
5. The instructor discusses the task with the participants. They answer the questions: What functions did they adjust and how did they facilitate using the computer? How to use accessibility features to facilitate distance learning for students with disabilities? (The instructor mentions that participants can provide students and their parents with instructions on how to adjust accessibility features on the computer that they use in distance learning.)

## **Task 2. Adjusting devices and objects to the needs of children and teenagers with disabilities – the use of technologies with a low level of technological advancement**

### **Didactic methods:**

- case study
- brainstorming
- discussion

**Duration time:** 25 min.

### **Didactic means and materials:**

computer with the Internet connection, Moodle Learning Platform, an Internet browser, didactic materials (9 & 15).



## Course of training:

1. The instructor chooses the examples of difficulties and needs of students with special educational needs that may require the use of assistive technologies with a low level of technological advancement from Task 1 on the 3.2 section of the training (didactic materials 9).
2. The instructor writes the selected notions, e.g., maintaining good body posture during online classes, on the board. Participants share their ideas on how to cope with this issue, e.g., to work on wide body posture if the child sits unstably, tilt the screen so that the child sees better, etc. Participants need to come up with as many ideas as possible. They analyse the proposed solution after brainstorming. Then, the instructor introduces the next notion to be discussed. Ideas for solutions are included in didactic materials 15.
3. The instructor encourages participants to discuss the possibilities of implementing the proposed ideas in distance learning and the conditions for doing so, e.g. cooperation with parents.

## Task 3. Parents in distance learning – unwanted spectators or essential assistants?

### Didactic methods:

- discussion
- explanation
- case study

**Duration time:** 30 min.

### Didactic means and materials:

computer with the Internet connection, Moodle Learning Platform, didactic materials (8, 16).



## Course of training:

1. The instructor presents the definitions of the words “work”, “cooperation”, and “help” (didactic materials 16). Then, he/she asks participants to answer the question: Does the teacher work with, cooperate with, or help the parents? Give examples of situations.

Participants should notice various elements of relations between teachers and parents, pointing out that these elements should interchange, but cooperation should play the dominant role. Although teachers and parents are not equal in this relation, especially when it comes to professional knowledge and skills, parents frequently are “experts on their own children”. They have wide knowledge and experience on the functioning of their children in different conditions, as well as their needs and possibilities.

2. The instructor presents general guidelines for cooperation with parents (didactic materials 17). He/she encourages participants to discuss the presented guidelines: Why are they important? What are the consequences of disobeying them?
3. The instructor presents the last principle of cooperation, inspired by solution-focused brief therapy. He/she encourages participants to join the discussion on how this principle can be applied in work with students with special educational needs. The instructor asks participants to give examples from their own experiences as teachers/students.



# DIDACTIC MATERIALS

**Topical area II: Universal Design in the distance learning in the context of the needs of learners with diversified educational needs**

**Module II.**

**Methods: description, presentation, practical exercises**

**Subject: Assistive technologies in distance learning**

**Author: Małgorzata Brodacka, PhD**



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## 4. DIDACTIC MATERIALS

### 4.1. Didactic materials – 1

#### **Assistive technologies – definitions**

Assistive technology (AT) is any device, software, or solution that aims at maintaining or increasing the capabilities of a person with a disability (Chimicz, 2021, Duplaga, 2011). Assistive technologies can be not only ready-made products (e.g., braille slate, hearing loop) dedicated for people with particular disabilities, but also objects prepared, adjusted, or modified by their users or their parents/guardians, such as adjustable polymer clay handles correcting the grip, tactile pictures prepared with the braille stylus (Campbell, Milbourne, Dugan and Wilcox, 2006).

#### **Assistive technologies – device and services**

The term “assistive technologies” was introduced into American legislation in 1965 (Duplaga, 2011). It can be divided into two categories:

1. assistive technology devices (in terms of objects, devices, and systems used to improve or increase the functional capabilities of people with disabilities);
2. assistive technology service (any service that directly helps a person with a disability to choose, obtain, and use an assistive technology device) (IDEA, Chimicz, 2021).

Although services connected with assistive technologies are not mentioned in the documents provided by European Commission (Access to Assistive Technologies in the European Union, 2018), the appearance of this term in American documents is worth noting. Indeed, they facilitate the analysis of the individual needs of each student and the choice of appropriate technologies both in in-person and distance learning.



According to IDEA, assistive technology services include (Chimicz, 2021):

1. evaluation of individual needs of the student with a disability (including the evaluation of the functioning of a child in his/her environment), providing assistive technology devices for children with disabilities; selecting, designing, and the maintenance of assistive technology devices;
2. using therapies and other services with the use of assistive technologies such as online sign language translator, using technologies to develop social skills of children on the autism spectrum, coordinating educational and therapeutic efforts with the use of assistive technologies;
3. training or technical assistance for children with disabilities (and, if needed, their parents/guardians) in terms of using assistive technologies,
4. training or technical assistance for specialists working with people with disabilities, employers or other individuals who provide services connected with the employment of people with disabilities, and people who are substantially involved in major life functions of children with disabilities.

### **Classification of assistive technologies**

The term “assistive technologies” refers to a highly differentiated group of objects, tools, devices, and systems, and includes technologies ranging from low to high level of advancement, such as high-tech solutions. Thus, assistive technologies are divided into three categories, according to the level of technological advancement:

1. **Low Assistive Technology** – devices and objects used by different groups of users without knowing that they can be classified as assistive technologies. These technologies are frequently used by well-developing children for learning new skills (e.g. correcting handles for pens/pencils that are used when children learn how to write). They are inexpensive and simple to use, and the users do not require training before exploiting them.



2. **Mid Assistive Technology** – devices that need a power source and simple electronic or mechanical devices. They are more complex than low assistive technology, and the users usually need a short training before exploiting them.
3. **High Assistive Technology** – devices or equipment that have digital or electronic components. Their users need training before exploiting them. Most of them are hard-to-reach because they are very expensive. However, due to technological development, some of them become generally available and easily accessible.





## 4.2. Didactic materials – 2

### Instructions to the task “Assistive technologies – associations”

Write your associations with the term “assistive technologies” on the board, put them in brief points. You can put both definitions of assistive technologies, and the ideas on who uses them and when.

After five minutes (or after participants entered over a dozen ideas and they do not add any new ones for a while), the instructor says: Now use the green marker to underline ideas defining assistive technologies, and the red one to underline ideas concerning their users.

**Information for the instructor:** This exercise aims to learn the knowledge and opinion of participants concerning assistive technologies and make them aware of the fact that:

- assistive technologies are frequently used by people without disabilities as well;
- assistive technologies are not only high-tech equipment and software but also simple objects that can be easily adapted for the needs of particular users.

Usually, the associations are connected with high assistive technologies or highly specialised equipment such as electric wheelchairs, braille printers, hearing aids, and specialised computer software. People with disabilities and the elderly are most commonly listed as users of this kind of technology.



### 4.3. Didactic materials – 3

The summary of the discussion should include the following information:

- Assistive technologies are intended mainly for people with disabilities or other limitations resulting from various difficulties (elderly people with mobility problems, people with injuries resulting from accidents or other events who need to use assistive technologies temporarily). However, as assistive technologies are comfortable and easy to use, they are commonly used by other people for learning new skills or even performing everyday activities.
- Generally available assistive technologies or solutions implemented in assistive technologies are used, for instance, in the GPS applications in which drivers can use voice search that is safer than typing the destination. Assistive technologies are also used to facilitate the learning of a particular skill. For example, corrective handles for pens or special writing tools used to be used only by children with manual difficulties, or abnormally increased or decreased muscle tone, whereas nowadays they are commonly implemented by teachers in kindergartens and lower grades of primary schools. Moreover, many everyday objects that were intended as assistive technologies are used on daily basis, for instance, the jar opener used to be exploited mainly by people with decreased muscle tone, and cups designed for people with the neurodegenerative disorder are now exploited as cups for small children that they can use on their own. Haptic technology (in which touch is the main channel of communication with the user) is used not only to help blind people to move around but also to increase safety on the roads, e.g., by preparing tactile road surface markings that draw the attention of drivers.
- Assistive technologies are beneficial for all users as they facilitate their functional capabilities. Some people use them not because they need them, but because they are comfortable. However, the overuse of some assistive technologies may be harmful. For instance, children should not fully or even partially resign from learning to handwrite and substitute it with typing or voice transcription. According to the research, handwriting is not only useful in communication without high-tech solutions, but also influences the ability to organise thoughts, and enhances focus and memory (Wilson, 1999). The overuse of some technologies facilitating the development of manual skills may be



harmful for the proper development of the child. For example, using the walking frame for children to learn how to walk is not as beneficial as people used to think (<https://www.martik-med.pl/knowledge/5-powodow-dla-ktorych-nie-warto-uzywac-chodzиков/> accessed: 30.12.2021). To sum up, it is crucial to remember that assistive technologies should be used responsibly and according to one's needs. It is worth noting that assistive technologies should support people with disabilities and not fully substitute their own functional capabilities. For instance, a dim-sighted person should be encouraged to use his/her visual abilities as much as they can, and not look for a technology that would fully substitute this sense.



## 4.4. Didactic materials – 4

**Exemplary schedule – 2nd grade** (it is recommended to use a typical schedule for students in the country in which the training is implemented that includes typical school subjects and activities).

### 2<sup>nd</sup> grade

Main teacher: Małgorzata

	Monday	Tuesday	Wednesday	Thursday	Friday
1 8:00 – 8:45	Group 2 Information Technology	Physical Education	Integrated Learning	Integrated Learning	Physical Education
2 8:50 – 9:35	Integrated Learning*	Integrated Learning	Integrated Learning	Integrated Learning	Integrated Learning
3 9:45 – 10:30	Physical Education	Integrated Learning	Integrated Learning	Integrated Learning	Integrated Learning
4 10:40 – 11:25	Integrated Learning	English	Religion	Integrated Learning	English
5 11:45 – 12:30	Group 1 Information Technology	Integrated Learning			Religion
6 12:40 – 13:25					
7 13:30 – 14:15					
8 14:20 – 15:05					

\* Note: In Poland, in lower grades of primary school, the general education subjects (e.g. reading, writing, mathematics, general science) are not strictly determined in the schedule for students, but they are included in it as “integrated learning”. The teacher decides when to conduct a class concerning the particular subject area.

Source: [https://zs-siedliska.pl/plan-lekcji-20172018/plan-2-sem-2018-2019\\_strona\\_04/](https://zs-siedliska.pl/plan-lekcji-20172018/plan-2-sem-2018-2019_strona_04/), access: 04.01.2022



## 4.5. Didactic materials – 5

Table for the group work

<b>What happens?</b>	<b>What does the student do?</b>	<b>What are the possible difficulties?</b>	<b>How to help the student? What would facilitate student's functioning?</b>



## 4.6. Didactic materials – 6

### Open-ended sentences:

1. Before the training, I didn't know that assistive technologies...
2. When it comes to assistive technologies, it surprised me that...
3. As for assistive technologies, I think that I know...



## 4.7. Didactic materials – 7

### Assistive Technology Decision Making Guide

Area of concern: .....

Student's abilities/difficulties	Environmental considerations	Tasks
<p>What are the abilities/difficulties of the student in the area of concern?</p> <p>e.g.: the case of a dim-sighted student (in in-person learning)</p> <ul style="list-style-type: none"> <li>• what are his/her possibilities of the functional use of the sight?</li> <li>• what kind of font does he/she prefer?</li> <li>• what kind of contrast is best for him/her?</li> <li>• what kind of sight corrective aids does the student use?</li> <li>• does the student have access to crucial information concerning his/her safety at school (e.g. evacuation plan)?</li> <li>• what are his abilities/difficulties when it comes to cooperation with other students?</li> <li>• how can the student take notes?</li> <li>• etc.</li> </ul>	<p>What features of the environment affect the functional capabilities of the student in the area of concern?</p> <p>e.g.: in the case of a dim-sighted student it is worth considering:</p> <ul style="list-style-type: none"> <li>• how staircases, doorways, and various obstacles are marked</li> <li>• implemented colours and contrasts between them</li> <li>• where does the student sit in the classroom (close to or far away from the natural source of light)</li> <li>• lighting</li> <li>• how didactic materials are presented</li> <li>• the quality of course books (e.g., the paper they are printed on, the font, the contrast)</li> <li>• available technology,</li> </ul>	<p>What tasks should the student perform? What are your expectations towards him/her? The main assumption is that the expectations towards the student with a given type of difficulty should be as same as towards other students. The goals should be the same for all students, and the only difference is the way of achieving them.</p> <p>The goals should be goal-oriented and measurable, e.g.</p> <ul style="list-style-type: none"> <li>• the student will write an essay on his/her own the student will be able to describe the differences between...</li> </ul> <p><b>Narrowing the focus</b></p> <p>Here you can describe the detailed goals and particular tasks that frequently appear in your lessons. This way it will be easier to focus on finding the right solutions for them. These should be tasks and goals that are the student's priority.</p>



<b>Solution generation: Tools &amp; strategies</b>	<b>Solution selection: Tools &amp; strategies</b>	<b>Implementation plan</b>
<p>Here you should write all the possible solutions for the student. The list of solutions should be created by the team consisting of people working with the student on daily basis. You can use brainstorming to collect the solutions. At this stage, it is crucial to think of as many solutions as possible, even if they are not perfect.</p>	<p>Here you should collect the selected solutions that will be suitable for the student according to his/her possibilities, difficulties, and character features. At this stage, you should discuss all the proposed solutions and make some adjustments if they are needed</p>	<ul style="list-style-type: none"> <li>• Required assistive technology devices/software/services (If and how to use the equipment that you already have? How to adjust it? What is the cost of it?)</li> <li>• The date of the implementation of the plan</li> <li>• Duration of the “pilot” part of the implementation of the plan (You should take into consideration that both teachers and students have to learn how to use some of the new technologies)</li> <li>• The person responsible for the implementation of the plan</li> <li>• Formulating measurable goals and criteria for achieving them, so that you can assess the choice of technologies (When do the chosen technologies fully meet the expectations? What are the criteria for assessing if the technology was chosen properly and does not need to be amended?)</li> </ul> <p><b>Follow-up plan</b></p> <p>What are the next measures and who is going to take them?</p>

Source: <https://www.okabletech.org/wp-content/uploads/2019/10/WATIDecisionGuide.pdf>

Comments/hints: author’s own elaboration based on: <https://www.pathstoliteracy.org/technology/wisconsin-initiative-wati-assessing-students-needs-assistive-technology> ; accessed: 09.01.2021





## 4.8. Didactic materials – 8

### Case 1 (group I)

An 8-years-old girl is a student at an inclusive primary school. At the age of 3, she was seriously injured in a car accident. As a consequence, she suffers from cerebral impairment of sight. The girl has the functioning capabilities of a dim-sighted child.

- Her vision changes according to her physical condition and well-being. If she feels good and is well-rested her visual acuity is estimated as 0.1 (what she sees from a distance of 1 meter is what others see from a distance of 10 meters). When she is tired and feels unwell, or when she has to focus on something for a long time, her visual acuity decreases, and it is estimated as 0.08 (what she sees from a distance of 8 meters is what others see from a distance of 100 meters).
- She prefers sans serif fonts and the contrast white letters on the red background or the reversed one. She prefers vivid colours. She cannot see blue and green properly.
- It is easier for her to notice objects that are in motion, or to notice objects when she is in motion, e.g., when she sways.
- She requires more time for visual reaction (so-called visual latency), her latency period is usually from 5 to 10 seconds. It may be also longer if she is tired, annoyed, or overstimulated.
- Her visual perception in the lower visual field is disordered. She needs to find the right angle to be able to see some objects, e.g., the keyboard.
- She has difficulties when she is looking at complex compositions, e.g. if the object she observes is located on a patterned background. Her visual perception is better if she looks at objects on a plain background.
- She has difficulties with perceiving visual and auditory stimuli at the same time – she focuses on hearing perception, as it is easier for her. Moreover, she has difficulties with combining visual stimuli with motion, e.g., grabbing objects, drawing, and writing.
- She has difficulties with recognising faces – they are too complex for her. To recognise faces, she needs characteristic elements, e.g., vivid lipstick, original hairstyle, or hair accessories (e.g., an orange headband).
- It is easier for her to see objects on the backlit background.



The student can use optical aids (magnifying glasses), but she cannot hold them and move them along the text at the same time. She can read the printed text (in the moments when her visual perception is better). She can read letter by letter and synthesise words. Reading is a big effort for her. After an activity that involves the use of sight, she needs a break with an activity that does not require visual perception. Her mathematical skills are developed quite well. The student cannot write by hand, but she can read the handwriting of her peers (provided that it is big and legible; however, she has problems with reading handwriting that does not follow the calligraphic norms).

When it comes to cognitive functioning, the student is within the normal range. However, the methods and forms of conveying and testing knowledge applied to her should be selected carefully and reasonably. The student has a good main, short-term, and long-term memory. She has rich passive and active vocabulary. She understands the meaning of words and uses them according to the situation.

The student has access to her own computer. She does not have the adjusted computer keyboard. She has got a monochrome printer which is used by her parents to prepare learning materials for her.

The student likes animals (especially chickens) and nature. She enjoys simple computer games that do not require extensive use of visual perception and quick reactions, e.g., finding similar elements, matching animals to their voices, and designing clothes for pets. She recites poems and sings very well.

The student is very ambitious and persistent. She is active during classes and participates in them willingly. She likes spending time with her peers and contacts them actively. She is liked by other students.



## Case 2 (group II)

A 7-year-old boy is a student in the first grade in an inclusive school. He was diagnosed with moderate bilateral conductive hearing loss. He uses a cochlear implant. He can speak, but sometimes it is hard to understand his speech. The student has problems with understanding speech if the speaker is far away from him (in the classroom, the inductive loop is used). The boy does not socialise with other students during breaks, as his hearing is obstructed because of the noise. He has difficulties understanding the tone and emotional aspects of speech. When he watches videos/cartoons, he needs to use headphones. He has problems understanding long questions and instructions. These difficulties are partially compensated with a good pace of reading and reading comprehension of the text in Polish, but he still requires a lot of practice. In the classroom, he requires methods based on visual presentation, as he has problems with following the contents of the lesson if it is presented only in the oral form.

The student has problems with handwriting. He confuses similar letters and has difficulties with “listen and write” activities.

In conversation and to understand the instructions, it is important for him to look at the face of the teacher/other students.

The student speaks unwillingly. He is ashamed to use speech and he substitutes it with gestures, especially if they are enough to convey meaning. He is distanced and shy when he interacts with his peers. He does not engage in playing with his colleagues willingly.

The student is talented in the field of graphic arts. He is very imaginative, and he has well-developed spatial awareness. His drawings and sketches are high-quality pieces. He is interested in trains and various machines.

The student has a computer with a microphone and headphones. Additionally, he has got a colour printer.



### Case 3 (group III)

A 9-year-old girl is a student in the third grade of primary school. She is a person with a mobility disability caused by hemiplegic cerebral palsy. The right side of her body, which is affected by the disorder, is spastic. The left side of her body is more operational, which causes the forced left-side lateralisation. The student moves around on her own with the use of crutches, but it requires a lot of effort. She cannot use the stairs on her own. She can sit down on her own and stand up supporting herself by the desk or the crutches. She has difficulties with changing her body positions. To maintain the proper body posture while she is sitting, she needs a special chair.

The student is able to hold her head in a proper position. However, when she has to focus on something, her head tilts to the right. The mobility of her right-side body is limited, both when it comes to active and passive mobility. The active mobility is decreased on the left side of her body, the passive mobility is proper there.

The student is quite independent when it comes to activities of daily living. It is difficult for her to button or unbutton a shirt or put socks on. She is able to put on other pieces of clothes on her own. Although it takes a lot of effort, she is unwilling to be assisted. She is able to eat on her own.

When it comes to school skills, she has problems with performing manual tasks. She attempts to handwrite capital letters with her left hand, but it is difficult for her due to her decreased mobility and forced left-handedness. She can use the computer mouse very well, but using a keyboard is problematic for her. Due to the problems with manipulating objects, she has difficulties with activities connected with observation. To observe objects, she needs them to be put on a stable surface. She is good at reading, both when it comes to print and the handwriting of her colleagues. The student is also good at mathematics. She works slower than her peers, but she always finishes the tasks.

The student communicates verbally. Her speech is correct, although there are some articulation mistakes.

The student has access to the computer. She can use a mouse (with the settings adjusted for left-handed people).



## Case 4 (group IV)

An 8-year-old girl is a student in the first grade of an inclusive school. She is a person with a moderate intellectual disability and Down syndrome.

The student has major problems in communication. To communicate with others she uses gestures and, for half a year now, a book for alternative communication by MAKATON Language Programme. She can count the elements of a set up to five and she understands cardinal numbers. She can compare objects according to one feature: size, shape, and colour, and order them according to this feature. She cannot order elements of a set. She recognises several letters. She can recognise her name in writing, as well as the names of her mother, father, and sister. She enjoys listening to stories and willingly answers questions concerning their content.

She suffers from decreased muscle tone, so she frequently changes her body posture to an improper one – she slouches or supports her body with an arm. It is easier for her to sit with her legs open or to sit on a chair with a sensory disc.

She does not perform many activities of daily living on her own. She demands help from others in dressing up and eating. Her level of independence is small.

She enjoys watching movies on a computer, but she cannot play them on her own. She requires help with using a computer.

The student can inform about her needs. She understands simple instructions. She cooperates with others willingly. She is keen on cooking; she likes helping her parents in preparing meals.



## 4.9. Didactic materials – 9

Exemplary needs of students in terms of assistive technologies that participants should indicate (or that the instructor should mention if participants do not do so):

- a possibility to adjust the font: its size and colour – text editors;
- a possibility to adjust the background;
- presentation of learning materials on a backlit background;
- a possibility to ensure a comfortable sitting position when working in front of a computer;
- keyboard adjusted to the needs of the student;
- screen/instruction reader;
- a possibility to use voice transcription or voice search;
- audio description of pictures or films;
- a possibility to prepare graphic arts pieces with adjusted techniques (e.g., tactile pieces);
- a possibility to observe students while they speak/the teacher when he/she conducts the class in the camera;
- combination of verbal and presentational techniques of instruction;
- using high-quality microphone and speakers;
- voice transcription;
- adjusting devices to the needs of left-handed people;
- using the computer and entering the text with the use of a computer mouse only, without a need to use the keyboard;
- system of alternative on-line communication;
- technologies that allow recording of the unusual behaviour of a child so that it can be analysed with his/her parents.

The underlined needs can be satisfied, at least to some extent, with the use of low assistive technology.



## 4.10. Didactic materials – 10

**HOW TO CREATE AN AUDIO DESCRIPTION** – general principles – source: a study by the Culture Without Barriers Foundation, [https://www.nimoz.pl/files//articles/147/Audiodeskrypcja\\_-\\_zasady\\_tworzenia.pdf](https://www.nimoz.pl/files//articles/147/Audiodeskrypcja_-_zasady_tworzenia.pdf), accessed: 10.01.2021; bolding by the author of the learning materials.

### 1. Before you start working, analyse the piece/object you are going to describe:

- When it comes to films and other audio-visual materials that develop in time, you need to watch the whole production before you start writing an audio description. If it is not possible, for instance, in the case of a TV series, you should at least learn the main idea of the producers. That will allow you, for example, to name characters properly. For beginners, it is very helpful to listen to the audio first, without watching. Thanks to that, it will be easier for you to understand the needs of the target group of an audio description.
- **When it comes to pieces of art, architectural monuments, exhibitions and museum exhibits, wildlife tourism trails, etc. the audio descriptor should not only familiarise himself/herself with the object to be described but also learn some crucial facts about it (theory, history, artistic technique, the concept of the artist/creator of the exhibition, the reading of the given piece, stories connected with it, etc.)**

2. **Describe what you see. Your description should answer the following questions: who, what, how, where, and when. You should avoid answering the question “why” unless it is necessary in order to avoid some misunderstanding.** In justified cases, you can resign from the straightforward description of a given piece in order to mention /explain its cultural codes, symbolics, and other artistic measures. This option is frequently used in the descriptions of pieces of graphic art and other stationary objects. Especially if the role of audio description is not only to faithfully describe the object to people with visual impairment but also to create a comprehensive guide that combines the description and facts.

3. **Follow the rule “top-down”, i.e., provide the general information before focusing on the details.** First, provide a short, general description that includes only the most



important pieces of information concerning the object/piece of art/film/etc. Then, move on to the details, ordered according to their level of importance.

- when it comes to films and other audio-visual materials, often you need to focus only on the general information, because the soundtrack does not allow you to insert more data. For instance, it is mentioned that the character is dressed like Marilyn Monroe but there is time to describe the details of her outfit. However, even though you need to make the audio description as short as possible, when there is more space in the soundtrack, you should insert some more details to stimulate the imagination of the audience.
- as for the stationary objects, you are not limited by the time, so **you can devote as much time as you need to the details. However, you should not overwhelm the audience with too many pieces of information.** The detailed description should be ordered properly. When describing a photo, a drawing, or a painting, you should use terms like the foreground, the middle distance, and the background. If the described object can be touched, the description can be like scanning: you can describe the details from left to right or from top to bottom. In other cases, you should introduce details gradually, building the full picture **logically, as if you were painting a picture or telling a story.**

#### 4. Describe in a way that stimulates one's imagination:

- choose the most accurate terms that have rich meaning. You should not use vocabulary that is very general in meaning. You can analyse the synonyms to choose the word that suits your description best. For instance: a house or: a building, a skyscraper, a block of flats, a brownstone, an apartment, a mansion, a cottage, a hut; to look or: to glare, to stare, to glance, to analyse, to view, to study, to admire, to inspect, to scrutinise.
- look for comparisons, epithets, or even metaphors. For instance: The shade of the lamp resembles a beautiful women's hat with a long veil. The veil is unusual because it's made of fringe and rings the whole hat (a part of the audio description of the Study in the Mazovian Museum in Płock). The mead flows on the laced





fingers of Kaśka and Uhorczyk. They stroke each other with their hands gilded with the mead (a part of the audio description of the film “Janosik”).

- use colours and words that describe the spatial arrangement of objects. However, you should avoid unusual or very specific terms, e.g., amaranthine or amber colour, or a “worm’s eye view”.
- if possible, avoid the phrase “you can see”. Use it only if it is necessary to form the point of view of the syntax. In other cases, saying that “you can see” something disturbs the coherence of audio description which, according to the definition, is the description of things that “one can see”.

#### **5. Try to be objective, i.e., do not evaluate, comment, interpret, or censor:**

- you should not include your own evaluation and opinion in the audio description. For example, if you describe a film character, do not say that they are physically attractive/unattractive, and do not use evaluative expressions. However, if the physical feature is important for the plot and you do not have time for a long description, you can write that the character is beautiful, handsome, or sloppy. You can use such expressions especially if the external look of the character is crucial. For example, Lucy Zucker in *The Promised Land* has been described as a “red-haired beauty”. The word “beauty” is used as a nickname rather than an epithet;
- do not name the emotions of characters directly if they can be understood from their facial expressions (e.g., a broad smile) or what they say and how they say it. If it is difficult to describe their facial expressions, you should combine the description of facial expressions and emotions (e.g., Peter’s face expresses fury.) Sometimes, because of the lack of time, you need to simply describe the emotions (e.g., Peter is furious).
- do not censor the graphic, violent, erotic, and pornographic scenes. Describe them faithfully, but do not provide too many details. However, you should not be too straightforward and use dirty language.



6. **You cannot be fully objective. Every audio description is subjective because it is a selection of material made by a particular person. It is connected with his/her sensitivity, experience, and cultural competencies. There is no one designated audio description of a given piece.** Different texts can be equal in terms of their form and content. What is crucial is that the description should be coherent and well-planned and take into consideration the needs and cognitive abilities of its audience.
7. **If the description is addressed to a particular group, e.g., children, you should adjust the text to their needs, expectations, and habits.** For example: Is it a great red snake with grey spots that crawled up the hill? It bends its body squirming between the plants. Now it is lying motionless – probably it is basking in the sun. Is it a huge viper?! Don't worry! When you came closer, you can see that the front wall of the building pretends to be a snake. It's long, thin, and wavy, and it's surrounded by different plants. Red scales turn out to be bricks, and grey spots – windows of different sizes. (a part of the audio description of a building of a school on Vincent Van Gogh Street in Warsaw).
8. **If possible, the audio description should match the film/performance/piece stylistically.** For instance: The militia officers enter. They wear loose jackets, leather coats, and cloth caps. They look suspicious. They move rhythmically and synchronously. They turn their heads rapidly, as if on command. They scan the surroundings. Their legs move rhythmically. They put their hand up – as if they were holding a pole on the bus. They adjust the caps and put the collars of their coats up. They leave. The hospital bed is brought on the rotary stage. Injured Stryd lies on it. The paramedic stands next to him. (a fragment of the audio description of the play entitled *Zły (The Bad)* in Zygmunt Hübner "Powszechny" Theatre in Warsaw).
9. Every audio description text should be edited and assessed by another editor, as well as consulted with blind and dim-sighted people.
10. Make sure that the audio description is a good-quality recording/ is read properly. To ensure the best quality of the audio description, you should hire a professional dubbing speaker who has good diction and intonation, and stresses properly. The voice-over should not draw excessive attention, e.g., it should not be overly dramatic. It is especially challenging to choose the right dubbing speaker for the live audio description in the theatre. This type of audio description is more difficult than recording in a studio.



Sometimes, the dubbing speaker in theatre needs to adjust to unexpected changes on stage, e.g., the stage design, costumes, or the manner of playing. The audio descriptor also should take into consideration changes that may occur in theatrical performance. For instance, knowing that two different actors play the same role, and each of them does it differently, the audio descriptor should include both versions in the audio description. When it comes to an audio description of foreign movies with voice-over, it is important to choose dubbing speakers with distinctive voices, e.g., a man and a woman. Also, it is worth considering that some people with visual impairment prefer an audio description prepared in the speech synthesiser.

## 4.11. Didactic materials – 11

The MP3 file – a fragment of a cycle *Obrazy Słowem Malowane. Radiowe spotkania z audiodeskrypcją nie tylko dla najmłodszych: Renesans - audiodeskrypcja obrazu: "Mona Lisa" - Leonardo da Vinci (Pictures Painted with Words. Radio meetings with audio description not only for the youngest: Renaissance – Audio description of the painting Mona Lisa by Leonardo da Vinci.)*

The full recording: <https://www.youtube.com/watch?v=JY79pwBnYiE>, accessed:12.01.2022



## 4.12. Didactic materials – 12

A picture from a coursebook:



Source: <http://flipbook.nowaera.pl/dokumenty/Flipbook/Elementarz-odkrywcow-klasa-1-czesc-2/files/thumb/38.jpg>, accessed: 10.01.2022





## 4.13. Didactic materials – 13

„Girl with a Pearl Earring” by Johannes Vermeer



Source: <https://1.bp.blogspot.com/-KMgSO1SMgxg/TzlpFBgRAel/AAAAAAAAADo/tsujaZqZjkY/s1600/vermeer+dziewczyna+z+per%C5%82%C4%85.jpg>, accessed: 10.01.2022



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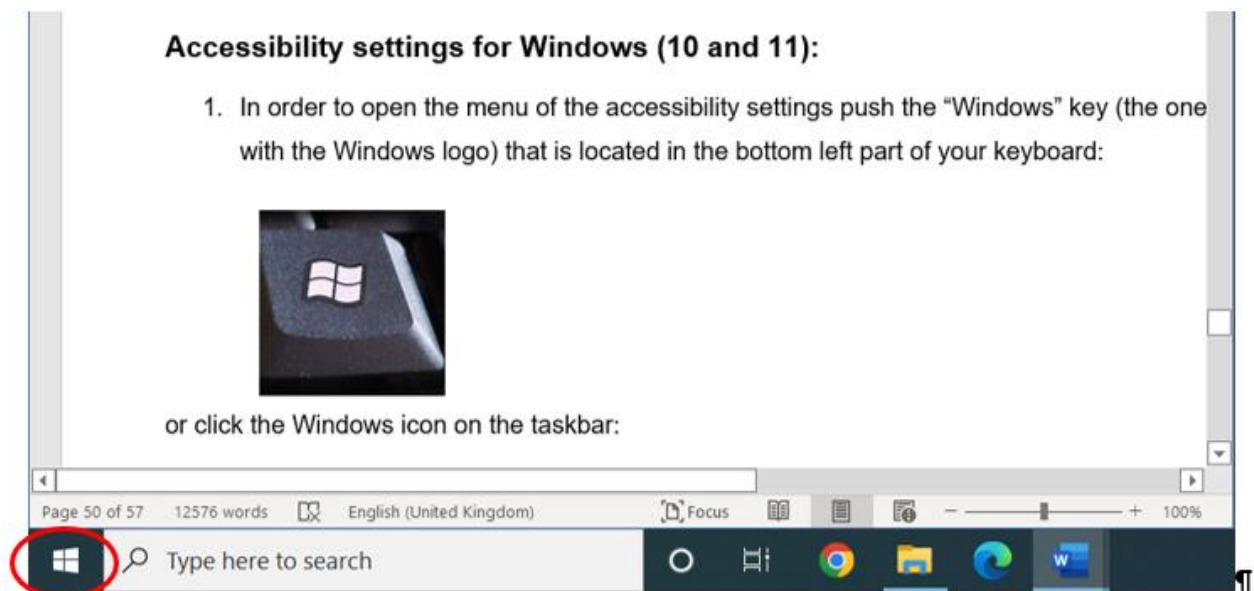
## 4.14. Didactic materials – 14

### Accessibility settings for Windows (10 and 11):

1. In order to open the menu of the accessibility settings push the “Windows” key (the one with the Windows logo) that is located in the bottom left part of your keyboard:

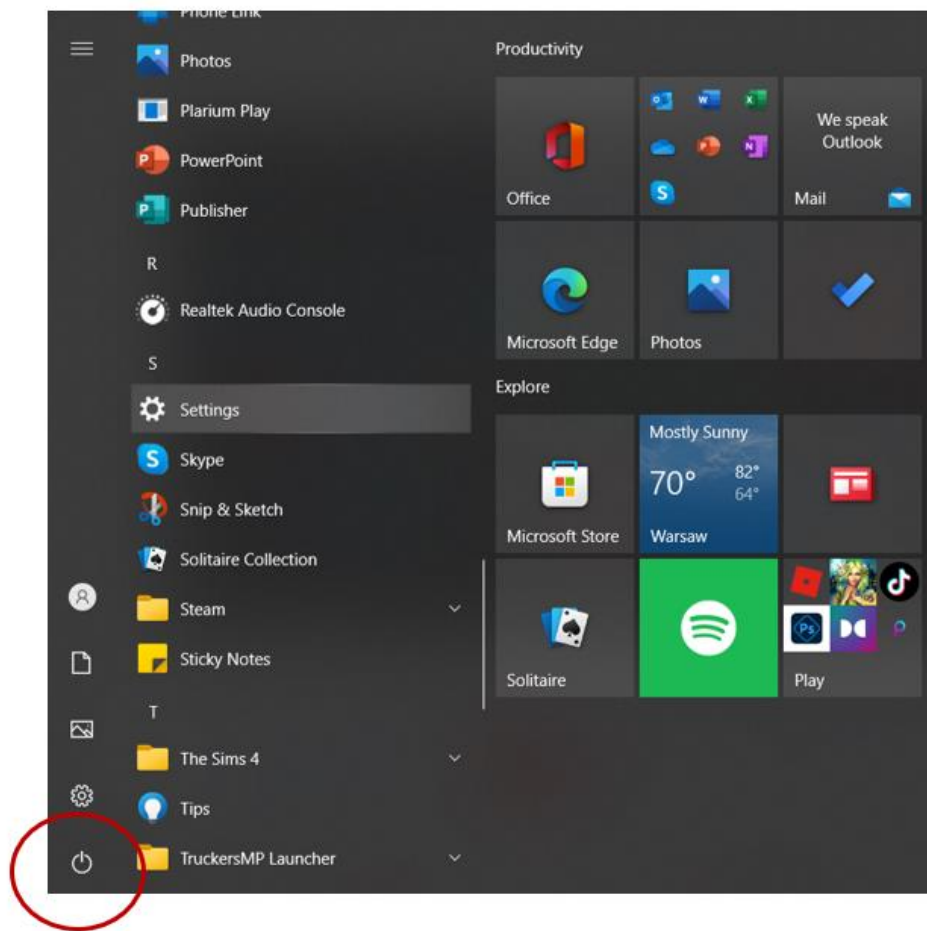


or click the Windows icon on the taskbar:

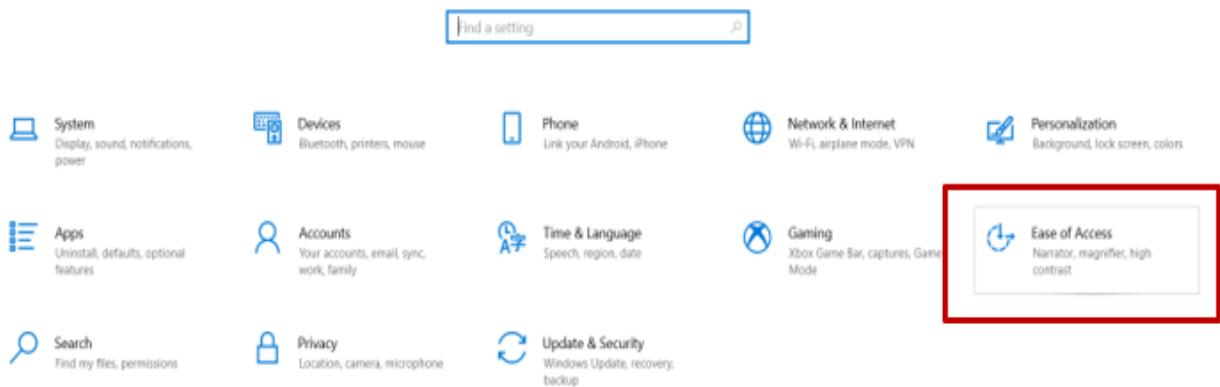
A screenshot of a document window. The document content is identical to the text above, including the heading "Accessibility settings for Windows (10 and 11):", the numbered instruction, the image of the Windows key, and the alternative instruction "or click the Windows icon on the taskbar:". Below the document content is a Windows taskbar. The taskbar includes a search bar with the text "Type here to search", several application icons (Task View, Edge, File Explorer, Chrome, Word), and the Start button (Windows logo) on the left. The Start button is circled in red. The document window's title bar shows "Page 50 of 57", "12576 words", "English (United Kingdom)", and a zoom level of "100%".

2. After you click the button or the Windows icon, choose the “Settings”.





3. After the menu opens, you can see the option “Ease of Access”.



In Windows 11, the icon looks slightly different, but its name is the same.



4. The accessibility settings are divided into sub-categories, depending on the needs of a user:

### **Vision:**

- **Display:** enables you to adjust the size of the font both for the Windows system and applications.
- **Visual effects:** enable you, for example, to turn on the transparency effect which increases the contrast between icons, or to turn off the shadow effect on the desktop.
- **Mouse pointer:** enables you to adjust the colour and size of the mouse pointer.
- **Text cursor:** enables you to change the text cursor, e.g. by adding a contrasting, coloured cursor indicator.
- **Magnifier:** enables you to turn on the magnifier before/after logging in. To do that, just click the Windows and “+” keys.
- **Colour filter:** enables you to turn on the grayscale, inverted or contrasting colours, according to the needs of the user.
- **High contrast:** enables you to change the colour of the text, hyperlinks, etc.
- **Narrator:** thanks to that option the text on the screen can be read out loud. The narrator can be turned on with the following key combination: Windows + Ctrl + Enter keys. You can also choose the voice of the narrator: male or female.

### **Hearing:**

- **Audio:** enables to turn on the option of showing the audio alerts visually
- **Closed captions:** enables you to adjust the closed captions: contrast, size.





## **Interaction:**

- **Speech:** enables you to use speech to save the text in the text file.
- **Keyboard:** enables you to turn on an option that allows you to use key combinations by pressing the keys one by one instead of all of them at the same time. You can also use a special setting to ignore the light pressing of the keys (useful for people with mobility disabilities). Here you can also open the keyboard on the screen that can be used with a mouse or joystick, or by touch on touchscreens.
- **Mouse:** enables you to set the use of the numeric keyboard instead of the mouse. Here you can also set the right mouse button as the main button (for left-handed people). You can also adjust the mouse speed.
- **Eye control:** this function is available if you connect the computer with the eye tracking device. It allows controlling the computer with eye movements instead of the computer mouse.



## 4.15. Didactic materials – 15

### **Solution ideas – low technologies**

**Adjust the background according to the needs of the student:** use the cover made of the coloured film; use coloured sheets of paper contrasting with the presented objects; put the coloured cover on the source of light.

**Present materials on a back-lit background/desk:** use a high-power flashlight and an opaque plastic pad – opaque plexiglass (put the pad in a stable holder and place the flashlight below it).

**Assure a comfortable sitting position for working on the computer:** use exercise balls for sitting (e.g. for children in kindergarten who need to move constantly); place a sensory disc or handmade cushion filled with marbles, beans, rice, etc., on a chair; place the chair backwards, with the seatback at the front – sitting with the legs spread widely may help some children to keep balance (e.g. in case of hypotonia); mount an additional desktop on the wheelchair; for younger children, use a high feeding chair; place a computer screen on a higher stand (it forces the user to raise his/her head, it is beneficial for people whose vision is disturbed in the lower part of the visual field).

**Adjust a computer keyboard for the needs of the student:** prepare handmade stickers with the use of yellow masking tape and a black marker; use electrical tape in different colours; use a permanent marker to mark different keys with a colour the user chooses; mark some of the keys with simplified shapes, which can be made of thin wire (that may allow a blind person to use the keyboard if they do not have the specialised one).

**Enable students to prepare artworks with tactile methods and materials:** use oil pastels instead of coloured pencils (they can be sensed under your fingers easily); use floss to mark the edges of the objects in the picture; use the hot glue gun to mark the edges of the objects in the picture; use the so-called puffy paint (exemplary recipe here: <https://mojedziecikreatywnie.pl/2016/08/rosnace-farby-przepis/>); use the braille stylus to mark the edges of the objects in the picture; use modelling paste to mark the shapes.



**Observe students when they speak/ make sure that you are visible to the students in the camera with a good contrast:** your background should be plain, and if your student uses lip-reading for better understanding, you can enhance it by using vivid lip makeup; if you use gestures, make sure the background for your hands is contrasting, e.g. wear dark clothes; use bright gloves to draw students' attention; these ideas can be also used by peers of the student with special needs, especially when speaking in front of the class or cooperating with this student.

**Enable both verbal and visual instructions:** use the print screen option to prepare a visual presentation of the stages of performing a task; use photos to present the stages of performing a task.



## 4.16. Didactic materials – 16

### **cooperation\***

1. working with someone to achieve something that you both want;
2. willingness to do what someone asks you to do;

### **work**

1. a job or activity that you do regularly, especially in order to earn money;
2. something that you produce as a result of doing your job or doing an activity;
3. a place where you do your job, which is not your home;

### **help**

1. things you do to make it easier or possible for someone to do something;
2. a person who is useful and makes it easier for you to do something;
3. advice, treatment, information, or money which is given to people who need it;
4. a part of a computer program that helps someone using it by giving additional information

\*As the definitions of the abovementioned terms might not fully translate into other languages, it is recommended to insert alternative definitions that function in the target language.

Source for Polish definitions: <https://sjp.pl/wsp%C3%B3%C5%82praca>

Source for English definitions: <https://www.ldoconline.com/>



## 4.17. Didactic materials – 17

### General principles of cooperation with parents

1. Consider parents to be experts when it comes to their child – they know how the child functions in the everyday environment (of course, they may be subjective, but the teacher needs to consider their point of view).

**Information for the instructor:** *if you treat the parent seriously, he/she feels respected, participates in classes more willingly, and is interested in the process of the child's development and areas in which he/she can enhance it. Subjectivity in seeing one's own child is natural. They result from the fact that it is very difficult to be objective when it comes to one's own child and usually, they are not an obstacle to teacher-parent cooperation.*

2. Try to look at the problem from the perspective of parents – what does it mean for them to hear that: their child does not manage well in the class, or their child has certain difficulties? How do they feel when you contact them? What is important for their child? etc.

**Information for the instructor:** *For teachers, therapists, and support teachers it may be obvious that parents are important in the process of education of their child. However, this situation may be stressful and difficult for parents. Sometimes they feel judged or they had bad experiences in their own school and that is why they avoid contacting the teacher. Thus, it is important to be able to take the parents' perspective and analyse their situation.*

3. Use the parents' language (but remember about the culture of speech)

**Information for the instructor:** *Parents of students with whom we cooperate/will cooperate may not have higher education, let alone a degree in pedagogy/psychology. The notions that we use while talking to other teachers, therapists, and other specialists may be too complicated for the parent. You should adjust the language you use to the intellectual abilities and language competencies of parents.*



4. Negotiate expectations and goals with parents, so that they can be accepted by both sides (at the beginning, you should expect less; later, it will be easier to negotiate more)

**Information for the instructor:** *Some parents do not want to cooperate with the teacher on a daily basis and in distance learning. They consider cooperation as doing something for the teacher, not for their child. Thus, it is important to appreciate parents' efforts. Also, you should not burden them with too many duties. You should introduce the learning materials and duties to the parents gradually. Similarly to the way you do it for the students.*

5. Use the parents' (and child's) resources to create solutions – everyone has some resources. The fact that the teacher turned to you might have a huge potential: *How did you manage to find time to come and talk to me with so many duties?*

**Information for the instructor:** *Getting to know parents and their resources is time-consuming, but also very beneficial for establishing long-lasting cooperation.*

6. Draw from the philosophy of Solution-Focused Therapy

**IF NOTHING IS BROKEN – DO NOT FIX IT!**

**IF YOU KNOW THAT SOMETHING WORKS – DO MORE OF IT!**

**IF SOMETHING DOES NOT WORK, DO NOT DO IT – DO SOMETHING ELSE!**

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