

Interreg



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# INFORMATICS

Information and  
communication  
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UNIVERSITY  
OF APPLIED SCIENCES  
UPPER AUSTRIA



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# Contents

1. Didactic means, aids, multimedia	2
1.1. Didactic aids	2
1.2. Teaching aids	3
1.3. Multimedia	4
2. Didactic technique	5
2.1. Multimedia didactic means	5
3. Modelling. Definition. Theoretical models.	7
4. Appearance of visualization	9
5. The role of image in culture. Teaching using an image.	12
6. Media communication. Social communication: verbal, non-verbal communication.	13
7. Media education as defence against the negative effects of media communications.	15
8. Photos, its history. Digital Present and Future.	17
9. Film, its history, development and future. Film technology.	19
10. Audio media, their history, present and future.	21
11. TV World in History. Analog and digital.	24
12. Multimedia in the mirror of time. Philosophy of the media.	28

# I. DIDACTIC MEANS, AIDS, MULTIMEDIA

Information and Communication Technologies, ICT, in Czech IKT, includes all information technologies used for communication and information work.

Components of didactic techniques:

- These are DT devices (devices and technical devices for the provision of visual, auditory and audio-visual information). The main feature is absolute universality.
- Teaching aids (any appropriately processed curriculum), great specificity.

## I.I. Didactic aids

### 1. Original subjects and real facts

- natural products in the state of origin (minerals, plants, etc.), prepared (preparations, stuffings, cuttings, etc.)
- products and creations in the original state (instruments, works of art, etc.), modified (sets and sets of samples, cutting machines, etc.)
- phenomena and processes, physical, chemical, biological, social, etc.,
- sounds, real sounds, voice and musical expressions.

### 2. View and represent of objects and facts

- static, functional, modular, flat models, etc.,
- presentations presented directly (pictures, photographs, diagrams, etc.), presented through technical means (statically, dynamically, interactively, virtually, 3D, etc.)
- voice recordings.

### 3. Text aids printed or digital

- classical, working, programmed, interactive books,
- working materials, dictionaries, spreadsheets, task collections, atlases, etc.,
- additional and auxiliary literature and information sources.

### 4. Programmes and programmes presented (implemented) by technical means

- programmes, educational films, radio and television programmes, etc.,
- programmes, information, tutoring, repetitive, etc.

### 5. Special aids

- experimental sets, building kit etc.

## 1.2. Teaching aids

There are 2 aspects of assessing the correctness and suitability of the curriculum:

- **content point of view** - assesses whether the curriculum contained in the aid corresponds to the current level of the problem identified and is in accordance with the objective of teaching the given type of school - a matter of didactics of the given subject.
- **formal point of view** - solves the question of whether it is possible to present without difficulty to the pupils the aid given by means of DT (font size, appropriate size and form, etc.) - the subject of didactic technique.

The aid provides information:

- *Content* (related to the content submitted - concepts and relationships between them, etc.)
- *Interpretive* (shows how to work with the information provided).

The aid is very specific - it fully respects the given subject, the type of school, the year, the topic and the specific teacher.

The importance and function of teaching aids and DT means in teaching:

- Help raise the interest of pupils,
- Promote concentration of pupils,
- Promote consistency of attention,
- Motivational function,
- Lead both to learning curricula and working methods,
- Expand information opportunities in the process of teaching and learning,
- Facilitate mediation of difficult to verbally communicated subjects,
- Enable a more faithful understanding of the reality,
- Combine theory with practice.

Modernization of the teaching process:

It is not a mere introduction of modern DT resources into the teaching process, but the next sequence of phases.

- Modernization of content of teaching process,
- Modernization of teaching methods,
- Inclusion of modern DT means.

## 1.3. Multimedia

Are the area of information and communication technologies, which is characterized by the merging of audio-visual technical devices with computers or other devices.

A multimedia system means a collection of technical resources (such as a personal computer, sound card, video card or video card, camera, CD-ROM or DVD drive, relevant service software, etc.) that is suitable for an interactive audio-visual presentation. Since the early 1990s, the use of multimedia apps or multimedia software has been used to combine text, image, sound, animation, or movie data.

## 2. DIDACTIC TECHNIQUE

Didactic equipment (DT): devices and technical devices for the provision of visual, auditory and audio-visual information.

- Prerequisites for the use of teaching means / DT /:
- Thorough analysis of the lesson: determining the structure and center of gravity of the lesson.
- We select knowledge to clarify the learning aids necessary.
- We will derive the technical form of the aid and its inclusion in the lesson from its function in the process of learning the given knowledge.
- Evaluation of the relationship between the teaching aid used during the lesson and the materials available to pupils for their own home preparation (in textbooks, notebooks, etc.) Is it sufficient to use the aid during the class or is it appropriate for pupils to be available for homework preparation?

### 2.1. Multimedia didactic means

Multimedia - systems for technical elements for interactive audio-visual presentation; Allow the user to work with several types of media (media): text, image, sound, computer graphics and animation, video, and interactivity between the system and its user. I.e. Multimedia is characterized by the following features:

By text ? Audio-visual ? Image ? Animation ? Video ? Interactivity ?

**Interactivity may include various options:**

- the user selects content, combines its parts,
- the user influences the pace at which the multimedia system presents information,
- the user exchanges information with the system (e. g. by question-answer)
- the user controls the process by which the system presents information,
- the user inserts the content of the system, compares it, etc.

**Multimedia didactic means – e. g.:**

- educational software (e. g. interactive multimedia DUMs), multimedia presentations, multimedia recordings of teaching - e. g. video lectures, didactic computer games,
- Learning Management System (LMS): planning, creating, presenting and managing content as well as suitable environment, with tools for both LEKTOR and CLIENT and their mutual communication (e. g. Moodle).

## **Distribution of didactic techniques (depending on which human senses we use when using DT):**

- Visual aids - it affects Vision.
- Auditory Techniques - it affects Hearing,
- Audio-visual Techniques – it affects Vision and Hearing at the same time,

## **Hypermedia and hypertext didactic means:**

- Hypertext - a text composed of blocks of words or symbols electronically linked by paths (electronic lines) in an open and still unfinished texture structure (network).
- Hypermedia - A digital resource that includes active links not only to texts, but also spreadsheets, animations, pictures, audio, video.
- Hypertext and hypermedia didactic resources - Digital resources containing hypertext and hypermedia elements. They are in the form of a network in which the main lines of the text are interconnected
- Text lines and media elements that develop, complement, illustrate, the main text. The learning subject proceeds in these networks in a unique, individual, unpredictable way.



### 3. MODELLING. DEFINITION. THEORETICAL MODELS.

The term "model" is used in different contexts. This term means:

- Mathematical and mental approaches to the problem,
- Didactic means.

In the spoken language, the term most often means:

- The original pattern of something created;
- A prototype, such as a car model;
- The ideal pattern we want to implement in a particular activity or function, such as the model of a perfect teacher;
- The structure of what is in our interest, such as the model of the school;
- In art, it is a thing or a person to be painted, carved.

The ideal model is a display of the phenomenon under investigation, which may contain hypothetical explanations and can help verify the correctness of the hypothesis. Ideal models that are associated with a particular theory are called theoretical models. Material models are existing objects whose properties permit the reconstruction of the structure or the essence of the subject being studied or the course of the process.

These are simplified and distorted reproductions of ideal models and can therefore be recognized as "model of models". Before the material model arises, it must exist in the scientist's mind as a certain idea, that is, as an ideal model. It follows that models are in their original form abstract concepts that can later be rendered in a concrete way. For scientific and educational purposes, the most important are those models that are linked to the creation of new knowledge.

#### Theoretical models

They can perform the following functions:

- To pass on information to the client about the theory and its interconnection with relevant experimental data;
- To familiarize clients with concepts in the field of the theory and to develop the ability to use models to solve given problems;
- Verify the model with experimental confirmation or denial of assumptions based on it in order to familiarize clients with the scope and conditions of its use;
- Verbalize the model, which leads to the formulation of the assumptions of the relevant theory.



Models can be divided into static and dynamic:

- **Static models** - mostly folding and made in cut, perfect image and faster understanding of the function.
- **Dynamic models** - they are models that imitate movement and function.

**Simulators** - these are models of real objects, devices, etc., which can be prepared and perfected for the use of real devices.

**Virtual computer models** - these are models that simulate some phenomena, objects, objects in three-dimensional or two-dimensional space.

Function of models, technical teaching resources:

- Basic functions: information, formative, instrumental.
- Didactic function: motivational and stimulating function, rationalization in relation to teacher and pupils, reinforcement of information repetition, systemization (incorporation of information in the system of previously acquired knowledge), control and control function.
- Ergonomic function: (the doctrine of relations between man and the working environment and the means of work that are most suitable for the working environment) managing: e. g. reducing unnecessary time for teachers and pupils, full use for teaching management, regulating your own learning pace according to dispositions and the state of the psyche.

#### ACHIEVEMENTS OF A NEW, DYNAMIC COMPUTER MODEL

The first and most important assumption is that the newly designed microscope model and its corresponding visual teaching aids are basically correct.

## 4. APPEARANCE OF VISUALIZATION

To view objects in the learning process, more interactive 3D models are currently being used, offering different viewing possibilities in varying degrees of detail, as opposed to 2D visualization, which is not sufficiently clear and does not fully reflect reality, and sometimes it happens that some processes modelled in the background, inadvertently merge together). 3D interactive models bring us closer to the real reality that we can see or examine in the real world with difficulties or it does no longer exist. The information obtained can then be associated with the "experienced" experience, remembering them better and "re-equipping" if necessary. In our paintings, we and our experience mirror us.

In the picture, it constantly creates an attractive force and mystery at the emotional level, which stimulates man to interactivity, social communication, and to create their own knowledge, knowledge structures, and critical assessment of information (Scruton, 2005).

### Means of visual technique

- for non-screened aids

prostředek DT	pomůcka (nosič informace)
tabule	pedagogická kresba
magnetická tabule	papírové materiály, předměty na feritech
flanelová tabule	pomůcky podlepené flanelem nebo na suchém zipu
plexitová tabule	pedagogická kresba
flipchart	pedagogická kresba
stojan nebo háček na tabuli	nástěnná tabule, obraz nebo mapa

Means of DTAid (information carrier) board Pedagogical drawing Magnetic board Paper materials

Objects on ferrite Flannel board Tools taped with flannel or on Velcro fastener Plexit board Pedagogical drawing flipchart Pedagogical drawing Stand or hook on the board Wallboard, picture or map

- for static projection

prostředek DT	pomůcka (nosič informace)
epiprojektor	pomůcka na neprůhledné podložce
diaprojektor	diapozitiv, diapás
zpětný projektor	pomůcka na průhledné podložce nebo velkoplošný diapozitiv

Means of DTAid (information carrier) EpiprojektorA tool on an opaque pad projector Slide, diabelt Overhead projector Aid on a transparent surface or a large slide

- for dynamic projection

prostředek DT	pomůcka (nosič informace)
filmový projektor	němý film, filmová smyčka

Means of DTAid (information carrier) Film projektor Silent movie, film loop

## Constructivism and visualization

In recent years, implementation of constructivism in both technical and multimedia, humanitarian and foreign language education.

The constructivist concept is referred to as the ideal pedagogical basis for visualization, ie for the visualization of reality perceived through visual receptors

Constructivist pedagogy puts the client at the centre of the learning process. Similarly, the visualization associated with the application of the principle of clarity assumes an independent client who can partly manage and organize his learning.

The traditional role of a teacher naturally changes – the teacher becomes a constructivist tutor, facilitator and guide.

Communication between actors should be encouraged and activated both by creating a pleasant atmosphere of open space for sharing opinions and by a suitable concept of group / cooperative or collaborative / work.

The main features of teaching can be considered the transition from transmission teaching, so-called "you -education" to self-evaluation, i.e. self-organization, self-determination, self-education.

## Media approaches

- Media Optimism - The optimistic reception of the media, considering the media to be a pervasive businessman. Transhumanism, Extropism, Singularitarianism, Techno-utopism.
- Media Pessimism - Critical opponents of media-optimistic directions pointing to the negative aspects of technological and media development, rejecting the merger of man and technology (media).
- Mediacism - too much reliance on the media. Belief in the fact that mankind will be able to fully control the technological media and all the problems it involves and to use it effectively for its well-being.

## 5. THE ROLE OF IMAGE IN CULTURE. TEACHING USING AN IMAGE.

THE PICTURE AND THE DRAWING ACCOMPANY PEOPLE FROM THE VERY BEGINNING TIME. The oldest paintings we know today are paintings in the Chauvet Cave in France (31,000 ± 1300 BC). From this moment on, the person constantly accompanies an image that over time has various informative and aesthetic functions. The important educational role of visualization can be noticed in the Middle Ages. Typical example of the then "picture education" can be the Bible Pauperum (Bible of the Poor).

It was very common to link the picture to the text in order to more fully illustrate a particular story. Over the course of a century, symbols, allegories and emblems that represented the text appeared in many paintings; on the contrary, the text itself was often accompanied by images, often in the form of initials or illuminations.

John Amos Comenius, who wrote *Orbis sensualium pictus* in 1658, also recorded the tradition of teaching with the aid of painting. It was an illustrated "Encyclopaedia", divided into 150 chapters with 150 woodcuts. The world in the pictures showed and named all the things of the spiritual and material world that were necessary for the children.

### **Visualization**

Images can not only serve the role of illustration, but sometimes it is also possible to explain problems that are hard to imagine. As an example of such an approach was the text of prof. Janusz Rachonia of Gdańsk Polytechnic, which describes how he explains the resonance theory of Linus Pauling to the students by painting by Salvador Dalí.

# 6.MEDIA COMMUNICATION. SOCIAL COMMUNICATION: VERBAL, NON-VERBAL COMMUNICATION.

## Media Education

The relationship between media education and media literacy is simply a relationship between the means and the goal. Media education is thus defined by means of media literacy as education for orientation in mass media, their use and at the same time their critical assessment as a deliberate educational influence on achievement of a certain degree of media literacy, or simply as education for life with the media. Media education was gradually formed, and its roots are sometimes laid at Comenius, sometimes up to ancient Greece, but the real development came after the Second World War. Media communication has tremendous power, it creates its reality; Used to increase the range or self-presentation; It is good to maintain a positive relationship with the media; Neighbouring sectors - public relations and media relations.

## Types of communication media

- Primary - "sets of characters and rules for their use (native language)"
- Secondary - means of recording and transmission of messages (pictures, fonts, print, transmission and broadcast technology, computer communication networks).

The word communication comes from the Latin **communicare**, which means "to share something together, to do something in common. Communication is a basic condition for the existence of every social relationship. It is also a means of socially integrating the individual into the human community. For a perfect interaction with the environment, it is necessary to learn to listen to the inner impulse - to consciously observe your thoughts, to cultivate a constant inner conversation, to monitor feelings and to learn to understand them.

## Communication can be divided into:

- **Intrapersonal communication** takes place inside an individual and takes the form of an internal dialogue. It is a "self-talk", a self-reflection of one's own behaviour and communication with the outside.
- **Interpersonal communication** takes place between two or more people between whom there is a relationship. A specific type of interpersonal communication is group communication.
- **Mass communication** is characterized by a one-way flow of information from one and more communicators (resources) to many communicators (recipients). This is communication through media, such as radio, television, the press, and the Internet.

There is no direct feedback in mass communication, so it is important to critically evaluate the information received.

Vybíral (2009) defines five basic communication functions: inform, instruct, convince, negotiate, entertain. Social communication is a condition and prerequisite for the existence of any human community.

**Communication factors:**

- Source of communication- communicator,
- Determination of communication / recipient /
- Communicant,
- Communication / communiqué /,
- Communication space - channel.



## 7. MEDIA EDUCATION AS DEFENCE AGAINST THE NEGATIVE EFFECTS OF MEDIA COMMUNICATIONS.

The relationship between media education and media literacy is simply a relationship between the means and the goal. Media education is thus defined by means of media literacy as education for orientation in mass media, their use and at the same time their critical assessment as a deliberate educational influence on achievement of a certain degree of media literacy, or simply as education for life with the media. Media education was gradually formed, and its roots are sometimes laid at Comenius, sometimes up to ancient Greece, but the real development came after the Second World War.

### Reasons for Media Education

- Lots of information, knowledge, opinions;
- The changing conditions of human life;
- Development of media literacy as part of general education;

**Media literacy** = a set of competencies that help the user to search, analyse and evaluate information, and pass it on;

The content and the way of implementation are different for different education systems.

### Conceptual questions:

- What should be the content of media education?
- What is the mission of media education?
- What is the way of realizing media education?

### Concept of media education

Two basic components:

- knowledge - typical of Canada and Scandinavia - is based on a critical branch of media theories, the Frankfurt School, and British cultural studies.
- skill - typical of the USA, assumes that pupils acquire the necessary knowledge and skills by trying out how the media work.

### Negative effects of media communications

#### Radio

I believe that the role of radio as a means of influencing the views and the value system of children and youth is at present the smallest of all information technologies. Most young people use radio only as a sound background. The only thing that can affect the listener is

the necessary ads, which are often very subdued by the melodious melodies and the audience's memory, and some slogans are constantly remembered.

### TV

One of the most important media on the child's psyche is television. When a child watches 24 McLUHAN TV, Herbert for an action movie with bad content, he considers everything that goes with it for granted and he also wants to try it out without even thinking about the consequences.

### DVD player

Children spend their time looking at DVD discs instead of going out with friends, but this hobby can also lead to copying DVDs that are illegal from the point of view of copyright. Children watching a movie at DVD do not develop their rhetorical skills, they do not connect fantasy. Which can lead to small vocabulary, poor speech and obesity.

### Mobile phone

With a mobile phone, there is a danger that school students will use their phone for cheating. It leads to inattention during an hour, to a lack of concentration. Often used to play games, to write SMS while teaching.

### **An example of negative effects**

- Everyday communication takes place via e-mail,
- We manage finances with e-banking,
- We read news mostly on the Internet,
- The influence of the media on the individual's psyche - especially on children and youth,
- Social networks - children,
- The most effective way to alleviate the negative effects is the family.

## 8. PHOTOS, ITS HISTORY. DIGITAL PRESENT AND FUTURE.

### The history of photography

Even the ancient Greeks have found that when the light passes through a small hole in the dark room, it shows the image of what is out there. In the 9th century BC this invention was used by Arabs in astronomy to determine the location of the Sun or solar eclipses. Leonardo da Vinci, an Italian scholar of the 15th century, described the phenomenon in detail as a "camera obscura", or a dark room.

In the 16th century, the Italian Giambattista Della Porta used a lens instead of a small hole to give a sharper image. Since then, camera obscura has appeared in all sizes, ranging from the smallest sizes to the large ones on the lookout towers and beacons.

In the 16th and 17th centuries chemists came to the point that some substances, if left in open space, changed their color. 1725 - Johann Heinrich Schulz discovered that silver salts are sensitive to light. However, it took almost a hundred years before the combination of these two separate discoveries created the first image on paper.

With the invention of photography, a new kind of image arose, in which the technique and mechanics taking over the manual work in creating a record of reality played a significant role in its invention. The new technology was no longer based on the hand-made but the photochemical process.

Digital photo: The emergence of digital camera technology is associated with television image recording technology. In 1951, for the first time, tape recorder (VTR) recorded the image from the television camera by conversion to electrical impulses and deposited it on a magnetic tape in Bing Crosby's laboratories (a research team sponsored by Crosby led by John Mullin). In 1956, RTD technology improved through the discovery of Charles P. Ginsburg (Ampex Corp.) and came into normal use in the television industry. TV and video cameras use a very similar technology to CCD scanners for digital cameras.

In the mid-1970s, Kodak discovered several sensors capable of capturing static images that also worked on the principle of light transmission. In 1986, Kodak researchers discovered the world's first megapixel (MPix) sensor capable of recording 1.4 million pixels (which means recording a photo of 10x15 cm in photo quality). In 1990 Kodak developed the Photo CD system - the world's first standard for colour definition in the digital environment of computers (and peripherals - printers). Especially in the years 2000 and 2001, digital photos have grown up on the technological side. From 0.3 MPix sensors to commercially available professional CMOS sensors with 22 MPix resolution. From plastic lenses to high-end ultraviolet lenses.

### ***Important personalities in photography***

Joseph Niecephore Niepce

Luis Jacques Mandel Daguerre

F.S. Archer

## 9. FILM, ITS HISTORY, DEVELOPMENT AND FUTURE. FILM TECHNOLOGY.

The film is a composite sign for cinematography and all its aspects - artistic, technical, commercial and social.

Way of passing information, source of entertainment, means of communication.

While watching the movie, the human eye sees a sequence of consecutive images. Rapid rotation of the projected images in a very short period of time with our eye nerve and consequently the brain appears as an uninterrupted activity (the image is not torn and is perceived by the brain as a continuous motion).

### History

- 1893 - kinetoscope - William Kennedy Laurie Dickson.
- Viewer for one spectator.
- The film could be watched only through a small peephole on the body of the device.

The development of film as a technical invention as a kind of art, cultural, social and economic phenomenon occurred in the late 19th century. The history of the film as an independent artistic form begins in 1895, when a cinematographer of the Lumiers Brothers (28th December 1895 in Paris) was presented with great acclaim in Paris. The film was 35 mm wide and 16 frames per second (fps). The Lumiers Brothers dealt with documentary and travel videos. The first short feature film is considered to be their *Upper Spider*. Comedy with a gardener and irrigation hose

The film originated as a technical miracle, the youngest, the most synthetic and audio-visual art, whose main attribute is iconicity. The film's inventor is T.A. Edison, but the movie's motives can be found in so-called animated photographs. There are two basic paradigms: passive capture of reality (documentary line - Lumiers) and science fiction, trick line (Méliès). Georges Méliès - the first film studio in Europe in 1897. Author of film tricks.

In the 20s of the 20th century there was a change that completely changed the form of the film. In California, there was a time to set up film studios. The quality of the films played an increasingly important role in the competitive struggle, and it was necessary to gain the audience with something that differed from the average production.

Various film sizes and film editing allowed the film tension to grow and lead to narratives on several levels, for example difficult to realize in the theatre. Deepening and refining the film expression in the area of editing and using the camera. With the use of multiple lenses, the range of shots ranging from large units to detail has been fully utilized, and the camera has also been detached from the place and used to ride. During this period, the film was

completely detached from the theatre, it found its visual rhythmic way of expression, but also a new cinematic way of acting, writing scenarios,

### **Silent movie**

*Charlie Chaplin* - one of the most famous and best-paid artists. Every time, he played socially declassified characters that fight against the beautiful and successful people.

*Joseph "Buster" Keaton*, created a new, completely distinctive type of film comedy. The character of his film character was a stark, stone expression of his face, which became his "corporate brand" and for which he earned the nickname "The Great Stone Face".

### **Sound movie**

In the early 1900s, Edison and Dickson designed a prototype of a sound film, a system called Kinetofonograph or Kinetofon - an ancestor of the kinescope giving non-synchronous sound. The first known (and also the only surviving) movie with live-recorded sound was the kinetophone test - Dickson's 17th overall soundtrack.

*The Jazz Singer* (1927), launched by Warner Bros., began the era of soundtrack. In the next five years, all technology, instrumentation and the face of the film have changed fundamentally. The sound made the audience more interested in the film. However, many actors who did not speak English lost their jobs, as well as pianists who made soundtracks in silent cinemas.

Soviet soundtrack appeared a little later. This delay was caused by the production of own cinematographic material, which did not allow the Soviets to pay fees for foreign material. Still in 1930, silent films were filmed, such as *The Ball*. The first English soundtrack was recorded by Hitchcock in 1929.

The 1930s were a great Hollywood era, when many new genres emerged and gradually became a "dream factory" whose thrilling or merry films allowed people a short-term escape from the depressing reality of their everyday life. Almost all the genres reproduced the myth of the land of limitless possibilities and swore in infinite variations to the "American dream" of a great career "from a dishwasher to a millionaire."

### **Film production in Czechoslovakia**

By the end of 1941, all Czech production companies were destroyed and only two production companies - Lucernafilm and Nationalfilm - were left behind. All the rentals were unified into the Kosmos monopoly, which had the only right to distribute Czech films beside Lucernafilm and Nationalfilm.

# 10. AUDIO MEDIA, THEIR HISTORY, PRESENT AND FUTURE.

## Auditory aids

According to Janíková (2005), auditory aids play an important role in "mediating and practicing the phonological aspect of the lexical unit." (Janíková 2005, p. 129) They also help pupils at the beginning of the process of learning a foreign language and when they are familiar with the new vocabulary. When using authentic material, the pupil can listen to the pronunciation of native speakers using auditory aids. You can use recordings on a tape recorder or CD, news or radio or television advertising, and more. For many pupils, listening to an authentic recording medium, such as a native speaker, provides auditory media.

## Audio aids

prostředek DT	pomůcka (nosič informace)
gramofon	gramofonová deska
kotoučový magnetofon	magnetofonový pásek
kazetový magnetofon	magnetofonová kazeta
přehrávač CD	CD (kompaktní disk)
rozhlasový přijímač	rozhlasové vysílání
audioknihy	mp3 záznam

Means of DTAid (information carrier): gramophone, gramophone record, disc, tape recorder, tape, cassette recorder, Tape recorder, CD player, CD disc, wireless set, radio broadcasting, audiobooks, MP3

## Audio-visual equipment

prostředek DT	pomůcka (nosič informace)
filmový projektor	zvukový film
televizor	televizní vysílání
videomagnetofon	videokazeta
multimediální počítače	CD-Romy s multimediálními programy



dataproyektory	data v počítačích či jiných zdrojích
DVD přehrávač	DVD

Means of DTAid (information carrier): Film projector, sound movie, TV, TV broadcasting, video recorder, video tape, multimedia computers, CD ROMs with multimedia programmes, data projector, data in computers and other sources, DVD player, DVD

## Audio Media

Auditive = hearing; Media = medium, between, in the middle. The media is an intermediary, it mediates something.

Definition - it is difficult to define the term; there are many definitions. The role of media: communication, transport of information. The term "medium" refers to technical means and the system of social institutions serving communications. Another possible definition of this concept is that "the media are social institutions that play a large part in ensuring communication in the public sphere, thus contributing to the development, establishment and transformation of culture, that is to say shared values, values and interpretations of the world" (JIRÁK, J., KÖPPLOVÁ, B., 2003. 208, p.52)

## What are the audio-visual media?

This term has two meanings. We can label media with audio-visual content - that is, (Such as DVDs, video cassettes), or it is a communication medium that acts on these senses. 4 Milan Šmíd states that this is a technical term in the division of media that is used in France, where audio-visual media also includes radio, which can be a bit problematic as the radio only transmits auditory information.

On the other hand, Anglo-Saxon literature divides the media into printed and electronic. Electronic media include radio, television, audio-visual and auditory records. American literature, in this division, includes, among electronic media, a film that had only few common features in the past with electronics. At present, however, it is already connected with electronic media by close links.

## Present

Auditive media - still used, often linked to visual or audio-visual media.

Players - phones, tablets, computers, television, mp3 / 4, players, radio, radio, dictaphones, man :-)

Audiobook = sound record of the spoken word; Has already begun in history, now boom thanks to smart phones, internet downloading.

## **Future**

Do we expect some future for auditory media? Will a TV screen or a radio be part of our home, as it is so far? Will the TVs in our homes be replaced by projectors?

There is a new concept: projectors that will need little space for display - a huge image at a distance of 25cm, complicated installation, connection to set-top-box, computer or game console with wireless system; Projectors for mobile phones and tablets / Lenovo, ... /. Reducing the price of projectors will allow replacement of TVs.

## II. TV WORLD IN HISTORY. ANALOG AND DIGITAL.

History of television in Czechoslovakia

### Pioneers:

**František Pilát** - the later post-war technical director of the Barrandov Film Studio, himself built a television set. Pilát was the first in Czechoslovakia to receive experimental Baird's "thirty-line" broadcast, spread out in the early 1930s (1929-1935) from Great Britain to a medium wave of 261.5 meters.

The most active pre-war pioneer of the television is dr. **Jaroslav Šafránek**, associate professor of experimental physics at Charles University in Prague. In 1935 Šafránek built his own functioning television equipment, with which he later traveled to the Republic and publicly presented it. The Ministry of Post and Telegraph refused to authorize Šafránek to broadcast television in the air. Šafránek's equipment could only work in the laboratory and lecture halls. While Šafránek, radio amateurs and their interest organization, Czechoslovak Radio Broadcasting Corporation requested permission for experimental broadcasting of a mechanical low-line (30 line) television mainly serving radio amateurs, the Ministry of Post and Telegraph, which since 1934 closely watched developments abroad, wanted to provide frequencies for television broadcasting to some more developed Projects. It was guided by the principle - to wait, to study foreign facts and then to decide.

In 1939 television research was completed on the territory of the former Czechoslovakia. (Threats to the Republic, Munich, and the Nazi occupation). At that time, Šafránek was working on a more advanced 240-line image decomposition device.

On November 17, Germans concluded Czech universities.

Šafránek's television experiments ended. He lost his position at the university, and his German Institute of Physics was closed by the German authorities. Šafránek allegedly managed to take some equipment to the Pardubice Telegraph factory, where he stayed throughout the war.

Even before the end of the war, in April 1945, the top German experts left Fernseh A. G.. They move to Austria. In May, the factory is hired by Czech local authorities, the factory in Smržovka Fernseh A. G. immediately renamed to Televid. At the beginning of June, Televid is took over by the Czechoslovak Ministry of Defense under its administration.

However, in July 1945, the security of the company was taken over by the Soviet military administration, for which the factory was part of the war booty, and several Soviet experts came from the Leningrad Television Institute. At this time Associate Professor Šafránek often comes from Prague to Smrzovka. But according to memories, witnesses did not intervene in

technical development, because his 240-line mechanical system was outdated and Televid worked on an electronic, later "European" standard of 625 lines. However, Šafránek's name has once again been written into the history of our television. He organized the internship of a group of 25 experts who joined Smržovka - after the agreement of the Czech authorities with the Soviet military administration - in October 1945. Before the trainees could work actively, the Soviet party decided to move Televid as a war booty.

Jaroslav Šafránek is attributed to the primacy of popularization of television in Czechoslovakia. He published the book *Televise*, in which he acquainted himself with the technical principles of image transmission at a distance. An up-to-date version called "*Televise - The Physical and Technical Foundations of the Television*" by Šafránek was published after the war. Šafránek tried to distinguish the simple technology of transferring the moving picture from the complex television broadcasting process, for the television as a mass medium, where he coined the word "roar", which, according to him, "correctly describes the essence of television."

On March 23, 1948, journalists were invited to Tanvald, welcomed here by VTÚ General Josef Trejbal and Technical Deputy of Czech Radio - Kazimír Stahl. As part of the demonstrated technique, even with the use of some trophy components, the design itself was a television receiver with a 16x21 cm own production screen.

There were two television cameras at the MEVRO exhibition in Prague and the signal was transferred to the receivers by cable. A month after the end of the MEVRO exhibition, July 4, 1948, during transfers from XI. Sokol organization meeting, three cameras were working on the Strahov stadium, and the signal was transmitted by air from the mast of Petřín for 25 receivers in various institutions and in public places (e. g. Exhibition Grounds, ČSS Radio, Red Law paper Redaction, reception was also checked outside of Prague in South Bohemia and the Giant Mountains).

From 1949 to 1952, television in Czechoslovakia ceased to exist.

The television equipment of the VTU Military Technical Institute, including two camera chains and ten television sets, was transferred to Czechoslovak Radio, which was established at the beginning of 1949 by the ÚRT Institute of Radio Technology. Although he continues to carry out the task of preparing television broadcasts during the first five-year period, ie by the end of 1953, but the Cold War, which was intensified in 1950 by the conflict in Korea, caused the ÚRT Office had no other office to cooperate with, technical research has focused exclusively on military needs. According to Ing. František Křížka In 1951, the Office of the Czech Radio organized several experimental broadcasts in its building in Vokovice and lent the receivers to party and government officials to promote television without success. Turnover occurs in 1952.

On April 8, 1952, the Government issued a regulation requiring the Ministry of Communications and Welfare "to build and operate technical radio and television equipment".

The first "Programme Director and Director of Television Studies", established within Czechoslovak Radio Karel Kohout, was appointed on 1 February 1953 (three months before the scheduled start of the broadcast). Karel Kohout came from Barrandov's studio and started with his legendary secretary Maria Kořenová to organize a broadcast from a temporary office on Wenceslas Square.

For several years the broadcast has been limited to the Petřín transmitter in Prague reaching the Central Bohemian region to the foothills of the Jizera Mountains and Krkonoše Mountains. At the end of 1953, some 2000 TVs were in operation, of which a thousand Leningrad brands were imported from the GDR, where they were then produced in the Soviet license. But as early as 1953, Tesla supplied the Tesla 4001A to the market. They were selling for CZK 4,000 (at that time it was an almost half-year average salary). At the beginning of January 1955, when the so-called concessionary fee began to apply, the statistics of 3833 concessionaires were reported. By the late 1950s, the television receiver became a scarce product on the market.

On February 11, 1955, the first direct TV transmission of a sports match in the history of Czechoslovak Television took place.

On April 17, 1955, the first direct transmission of the opera from the National Theater took place.

Since October 1955 it has been broadcast 6 times a week (not on Mondays); From December 29, 1958, began broadcast nationwide every day, seven days a week.

On New Year's Eve on December 31, 1955, the second Czechoslovak television broadcaster Ostrava-Hošťalkovice started operation.

TV studio in Brno was established only in 1961; On February 25, 1962, TV broadcasting began in Košice.

This basic structure of the five major television studios resisted in fact until the breakup of Czechoslovakia in 1993. At the turn of the 1950s and 1960s, a network of transmitters and converters was built so that in 1961 the television signal covered all regional centers and most of Czechoslovakia, so that shortly thereafter (1962) there were more than one million television owners.

On 1 January 1993, after the dissolution of the Federation, Czech Television was established. In the 1990s, the first private TV company was launched (NOVA and others). In 2000, the Czech Republic was preparing for the transition to digital TV broadcasting in the digital terrestrial (formerly termed Terrestrial) DVB-T platform, which was supposed to replace

analogue terrestrial broadcasting. Technically, the Czech Republic has been very well prepared - the experimental digital television broadcasts have already been successful in the three largest cities.

**The difference between analogue and digital** transmissions can be likened to sending money by a coach or by bank transfer. If we send the money to a shoemaker, the recipient will receive our money physically as we sent it, provided that the coach does not declare that the courier is not lost anywhere, etc. While we send them by bank transfer, the recipient receives physically other money, but in any case at the same value as they were sent.

**Digital transmission** of information is the transmission of a value, in the form of a number. (In this case the so-called binary number).

**An analogue broadcast** is an outdated way of spreading television and radio signals. Both the image and the sound are transmitted by electromagnetic waves. Color and sound information is generated by modulation of this continuous (analogue) signal. Each TV or radio frequency thus bears one station signal. Analog broadcasting is currently replaced by digital broadcasting. In the Czech Republic, analogue broadcasting was turned off at the end of 2011, when analogue darkness occurred.

**Digital Broadcasting** (DVB = Digital Video Broadcasting) allows the multiplex to transmit several TV programmes at one frequency. This makes it easier to use the bandwidth used for analogue TV broadcasting.

## 12. MULTIMEDIA IN THE MIRROR OF TIME. PHILOSOPHY OF THE MEDIA.

What are the media? Media is often referred to as a means of communication, a media, most often a technical device for communication between the communicator and the recipient. In addition, they are mass media, so-called promoters. Other media than mass media play an important role in the promotion. And, as examples, we can present fairs, exhibitions, showcases, covers, but also lectures, excursions.

Newspapers, magazines, films, radio and television broadcasts, the Internet (news, educational, entertainment portals, social networking, blogs, spoken word, films, music) - communication resources available to a potentially large number of users at regular intervals.

Through them, we can purposefully influence public opinion, manipulation, deliberate message selection and shrinking, mixing of messages and evaluating comments may occur, exaggeration (positive, news sound more positive, negative news sound more negative).

The force of editing (only a part of the sentence is left), manipulation with the image (the order of the images may cause confusion of cause and effect). Speech rendering.

### Media features

- INFORMATION FUNCTIONS. It is mainly news and journalism, where news, comments and reports are used.
- FUNCTIONAL FUNCTION. Mass media bring music, art, sports, and even today's phenomena - television shows, reality shows, cooking.
- KOMERČNÍ FUNKCE provides the media with funding for broadcasting and guarantees profit, it is realized mainly by advertising, but also by teleshopping and sponsoring.
- EDUCATION

### Political, social scope.

From 1900 to 1925, the journalistic industry, the first field reports and photojournalism, emerged.

1918 - Czechoslovak Press Office "CTK" is founded; Political diaries, independent diaries, btabloits. Although the system of the First Republic is today a model of the democratic system for many, the functioning of the periodical press has been much more limited at this time than today.

*Role of radio* - entertainment, news



In 1925, news began to play a new and more active role on the radio, not just reporting messages, but trying to bring events closer. First attempts at reporting. The first sports report.

### **Radio and education**

Gradually, radio courses for foreign languages such as French were also included in the programme offer. Lectures, interviews, discussions, bands, radio games, professional broadcasting.

1930-1960

### **TV**

A pioneer in our country was Jaroslav Šafránek (associate professor of experimental physics at Charles University in Prague) in the 1930s. In 1935 he completed the first television reception apparatus in Czechoslovakia. Great interest in television was shown by Czechoslovak radio amateurs.

### **The force of interview continues**

1939 - Radio broadcasting to the Protectorate (all employees of Jewish descent have to leave).

### **Film and the varnish popaganda**

There was a series of films depicting the territorial expansion of the Third Reich. These films did not have any great artistic value.

### **Media and communism**

In 1948 ČTK was under Communist dictatorship. It serves as the instrument of political propaganda of the ruling party. There is strong censorship, the nationalization of the radio.

Two types of reporting: for the public and non-public (for high party and state officials). The agency is formally subordinated to the government, but in fact it is governed by the Central Committee of the Communist Party of Czechoslovakia.

## **Years of the 50th - Sharpened Ideological War**

For the next 40 years, the media in Czechoslovakia has begun to serve "the people and the Communist Party".

1952 - Establishment of the Main Press Office Administration.

1952 - Czechoslovak Radio began to cancel the broadcasts of Free Europe (broadcasting started in 1950)

## **Media before the occupation of 1968**

Radio: natural civil speech, criticism, openness, reception of world radio stations - expansion of supply but weakening of state control.

Television: only one programme, a huge increase of concessionaires, "Sugar" - completion of the construction of a basic network of transmitters.

## **1968 Occupation - Time of Normalization**

ROZHLAS: jammers of foreign stations (Free Europe, Voice of America).

TELEVISION: Transmitter for the Second Programme, 1973 - First color broadcast, personnel cleansing, renewal of censorship, ideological conception, attacks on dissent.

PRINT: Illegal publishing of newspapers and magazines.

## **80s and others**

1986 - Chernobyl.

1989 - The Velvet Revolution.

A big change is the development of personal computers

1981 - 4th generation computers.

## **1990-2017**

Beginning of the 90s - media transformation, end of censorship - the media are heading for personal ownership, the media are an institution of freedom of speech, a forum for discussion of public interest issues and private business.

1991 - Introduced 1st Web Browser - WorldWideWeb at CERN.