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DIDACTICS

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CONTENTS

INTRODUCTION

The technical modules presented on this website are the main project output. They have been created for the project target groups, i.e. as a didactic material for the students and teachers of technical universities, as well as for the graduates of technical universities and employees of small and medium-sized enterprises in the cross-border region. The first version of the modules was created in cooperation with experts from practice and teachers of both partner universities. The individual modules were presented and discussed at workshops, conferences and mainly during the pilot project. Based on the feedback obtained from their potential users and experts from practice were finalized and prepared for free used by the target groups mentioned above and the wide public via the website created for this purpose.

Within the framework of the events organized and attended within the project implementation, that is, two workshops, international conferences, pilot project, and questionnaire surveys implemented at both partner universities, it turned out that it will be useful to create also a theoretical teaching material for the content teachers. The project team thus decided to create a specific module that would serve to this purpose, containing also the findings obtained during the international experience exchange that took place within the project activities, and the specifics of teaching technical subjects.

Field didactics cover also the area of relations between the individual technical and didactic subjects, the relations between the individual disciplines, and shall also consider the relations between the theoretical and practical knowledge, which is essential in the university environment. Although currently online form of teaching and learning is becoming increasingly popular, teacher still plays a significant role in the teaching process. Content teachers must show not only deep knowledge in the relevant discipline, but also have a command of didactic principles, methods and specifics of pedagogical research. Content teachers as those responsible for the didactic process must be able to pass their knowledge to the students but also decide on the appropriate form for concrete groups and individual students with regard to their specificities. They must be able to carry out learners´ needs analysis, create and adapt the didactic material to the needs of the learners, and master the principles of social communication. This didactic module thus provides the material that could be used for CLIL teachers, both language and technical subjects teachers.

BRANCH DIDACTICS

1. FIELD DIDACTICS IN THE EDUCATIONAL SCIENCE SYSTEM

General didactics is a discipline of pedagogy, it means a theory of teaching. It comprises goals, content, methods and organizational forms in teaching. Problems of the different degrees and types of education are concerned with relevant didactics, e.g. didactics of kindergarten, elementary school didactics, didactics of vocational schools. The specific didactic problems of particular courses and branches are the main object of the field didactics (Maňák 1993 In Průcha, Walterová, Mareš 2003 p. 44).

The word didactics in the pedagogical sense (in the sense "the way of teaching, the art of teaching") used W. Radke in the 17th century.

In the work of J. A. Comenius "Didactica Magna" (Great Didactics), didactics is understood in a wider meaning than nowadays. Comenius interpreted the concept of didactics as "the general art of teaching". We can say, in this sense, didactics is the main subject of the pedagogy. Later, in the 19th century, in the works of pedagogical theoreticians (J.J. Pestalozzi, J.F. Herbart), didactics became independent part of pedagogy dealing with the systematic interpretation of teaching theories.

The most general concept of didactics is a concept interested in any educational process (from education in the classroom to the training of artists or corporate courses, etc.). In this sense the general didactics is called "instructional science" in international terminology. In the Czech language, this term isn't usual, but the term "general didactics" is a suitable equivalent for this general understanding (Průcha 2000 p. 102).

Together with the technical and scientific progress in our history, also the knowledge requires the attention of didactics. This problem becomes a crucial factor not only in the school but also in the social context. Learning and teaching processes are nowadays mediated through specific forms such as mass media, retraining, coaching, etc. (compare Skalková 2007 p.16).

Although, general didactics and field didactics are in a very close relationship (general didactics provides a general theoretical background to the field didactics), the field didactics forms independent scientific disciplines. They are currently very developed.

2. TEACHING PROCESS AND IT'S STAGES

The teaching process is an intentional, purposeful, systematic and rational process of the student's activities, aimed at achieving the set of educational goals. It leads to the acquisition of knowledge and skills, and to the development of mental and physical abilities and to the formation of the personality of the student. This is a complex social process influenced by many factors.

Basic factors of the learning process include these 3 parts: teacher, student, curriculum.

Students' activity

Active acquiring of knowledge and skills, formation of abilities, interests, emotions, motives, behaviours etc.

Content of the subject (curriculum)

A system of scientific knowledge and activities that are students acquire. From the point of view of the development of the student's personality, the teaching process can be divided into the content, processual, external conditions of the teaching process and educational process.

The teacher has to do a didactic analysis of the curriculum and, on the basis of it, to determine the optimal teaching procedure.

Function of the teaching process

Informative (passing on information), formative, (shaping the personality of the student), instrumental functions (acquired knowledge and skills become tools, tools of other learning activities), integrating functions (combining all previous functions).

Phases of the teaching process

Stages of teaching process affect the process and success of the lesson. They are the following (Čadílek, 2005): **motivation, exposition, fixation, evaluation.**

- Motivational preparation of students to acquire the subject, to stimulate their interest.
- Exposition phase focused on creating and learning new knowledge and skills.
- The fixation phase represents the repetition and making the acquired knowledge deeper.
- Evaluation stage means the evaluation of students' knowledge and skills.

3. CURRICULUM

This term has been used in pedagogy in the 20th century and became common until in the 1960s in the connection with the so-called curriculum movement. We can find it in English, but also in German, French education, etc. In the world of pedagogy, it is a broad sign of a comprehensive concept, it includes the content and organization of the institution - schools, including the characteristics of the environment and the relationship with the environment.

What does the term curriculum include (Walterová, 1994):

- Educational program, project, plan
- Course of study and its content: characteristics of the educational path and content of the experience acquired by the student during study.
- Curriculum as the program and life of the school.
- A curriculum as a curriculum content plan.
- A curriculum as a learning plan.
- The curriculum is all the students' experience gained at school.
- The curriculum includes the teacher's and students' relationships, and the school environment.
- Curriculum as a planned and managed learning experience.

Walterová (1994, pp. 16-17) presents the following **forms of curriculum:**

- Recommended curriculum: a document that addresses basic conceptual questions of the curriculum,
- Obligatory curriculum: an official document that is binding on certain types of schools or on the entire education system,
- Implemented curriculum: what the teacher really does in the classroom,
- Support curriculum: textbooks, time grants, school staff, teacher training, school equipment that supports the implementation of the obligatory curriculum,
- Evaluation curriculum: a set of tests, tests and other measurement tools,
- Learned curriculum: what the students really learn.

Formal curriculum is the complex of objectives, content, resources and organization of education; ways of controlling and evaluating learning outcomes.
Informal curriculum includes activities and experiences related to the school (e.g. the activities organized by the school as excursions, competitions, interest activities)
Hidden curriculum of other contexts of school life, school climate, values, relationships between teachers and students, relationships between school and other sources of education.

Curriculum is realized in the interaction and communication of teachers and students, as well as in and out of the class. The real form of the curriculum is determined by the relationship of students and teachers. It is influenced by the quality of the school environment, the climate of the school, the relationships between the stakeholders of the school life and the relations with the environment. It is supported by textbooks and other materials and resources. It is governed by a system of curriculum projects, regulations defining objectives, content, organization and evaluation, which arise at school, region or state level.

4. IMPLEMENTATION OF DIDACTIC PRINCIPLES

As the traditional didactic principles are usually considered (Obst 2006):

- the principle of awareness and activity,
- the principle of clarity in sensual learning,
- the principle of continuity,
- the principle of proportionality,
- the principle of permanence,
- the principle of educational approach,
- the principle of scientific approach,
- the principle of linking theory and practice.

The principle of awareness and activity requires that students have a living relationship with learning that will make them learn as conscientiously as possible in order to achieve the best results. The student should be aware of the meaning of the curriculum, he/she should understand what and why he/she learns (Nelešovská, Spáčilová, 2005, p. 143). The conscious knowledge is characterized by profound understanding. If a student is unable to answer correctly, then it means he/she did not understand the acquired knowledge or skill.

The principle of using senses is the requirement for students to form ideas and concepts on the basis of the perception of real objects and phenomena. It's needed to use and to present them the representation of the reality (Jarábek, Valkovič, 1979, p. 101). The goal is that students learn from sensory perception in order to recognize the reality on the basis of a perception. It is especially important in teaching fields as mathematics, as it requires a abstraction.

The principle of continuity and consistency indicates that students under the guidance of teachers should learn systematically. Individual knowledge must be created in a unified logic system. Known educational theorist in the history, Ušinsky, wrote that only the system allows us to fully master our knowledge. Another theorist, J. A. Komensky recommends the organization of the learning process from known to unknown. The principle of consistency is thus realized in practice when we proceed from the easier to the more demanding, from the familiar to the unknown so that there is no gap in knowledge.

The principle of proportionality represents teaching where the process is optimally proportional. In the learning, both activity and interest must be involved. Excessive difficulty of methods or presented curriculum does not lead to success, so the student loses self-confidence and interest in learning. The degree of difficulty and pace need to be adapted to individual students' differences.

The principle of permanence is the requirement to manage the lessons in the way, where the learner is acquainted with the knowledge so that he can safely use them in the future. One of the necessary conditions for the continuity of knowledge is the principle of consciousness. This means that it is not possible to achieve permanence through ordinary learning with lessons and definitions without a deep understanding of the studied substance. The necessary condition of permanence is therefore the active learning of the given subject.

The principle of scientific approach is a requirement under which the interpretation of knowledge is understood in the context of contemporary science. The teacher is supposed to maintain a lifelong contact with the scientific disciplines that form the basis of the teaching subjects.

The principle of linking theory and practice requires that the theory is based on practice in order to connect the theoretical knowledge of students to their practical activities. The goal is that students understand the meaning of theory in life, in practice, and have learned consciously to use acquired knowledge to solve practical problems.

5.CLASSIFICATION AND CHARACTERISTICS OF TEACHING METHODS

Different authors used different criteria to classify teaching methods.

Sorting of the learning methods which are based on the character of the student's cognitive activities in learning the content of the educational curriculum and the organized activity of the teacher in the classroom:

- **Informationally receptive method:** passing the final information to students (explanation, description, illustrations, textbooks, experiments, video program, film, etc.), knowledge acquisition depends on students' abilities, experience and characteristics.

- **Reproductive method:** the teacher constructs teaching tasks, controls the fulfilment of learning tasks, does not lead to students' creative activity, students update, reproduce, solve type problems, intentionally or unintentionally memorize.

- **Method of problem interpretation:** the teacher sets out the problem (problem only for students, the teacher knows the solution) and solves it himself; the aim is to gradually introduce students to the logic of the individual phases of the solution at the students, but prevails over unintentional memorization.

- **Heuristic method:** the teacher constructs the learning tasks in a way they pose a certain difficulty for the students and require a separate solving of some phases, the balance between the activity of the teacher and the students.

- **Research based method:** students require a separate search for solutions for a complex problem, students determine the sequence of the individual stages of the solution, study independently; the teacher assembles (select) appropriate learning tasks, checks the course of the solution, but his / her activity in the teaching process is receding into the background.

6.THE CHOICE AND USE OF TEACHING METHODS OF THE FIELD DIDACTICS

The choice of teaching method is based on the actual goal and must be based on the logic of the thing and on the objective criteria. These include the target, the content of the lesson and the student's individuality.

Typical criteria comprise:

- The principles and rules of the learning process (logical, psychological, didactic).
- Objectives and tasks of teaching
- Content and methods of the subject
- The level of physical and mental development of students, their readiness to cope with learning requirements.
- Characteristics of the class, groups of students, relationships in the class.
- External conditions of educational work, e.g. geographic environment, social environment, noises from outside, technical equipment of the school, etc.
- Time allocation for the subject and teaching time (morning, afternoon, etc.)
- The personality of the teacher, his professional and methodical equipment, experience, pedagogical expertise.

7.ORGANIZATIONAL FORMS OF TEACHING

What influences the choice of teaching forms?

- Learning goals
- Nature of the curriculum
- Teacher's experience
- Specific needs of students
- Choice of the teaching method
- Time and space options of a school or a class
- Conditions of the school in general

Individual lessons: One student and one teacher. Used exceptionally where is just one private teacher. Common in history (e.g. in works of John Locke, J.J. Rousseau, etc. - nobility education). This method is suitable, for example, for teaching a musical instrument because it is time-consuming, but it would be very ineffective in teaching other subjects.

Group lessons: Students divided into groups. The groups may be homogeneous (breakdown by gender, etc.) or heterogeneous (mixed). All groups can then deal with the same tasks or any other task. Students develop their ability to cooperate.

8. MATERIAL DIDACTIC DEVICES USED IN FIELD DIDACTICS

It comprises all tools which the teacher and students can use to achieve learning goals, such as textbooks, imaging techniques, models, and visuals.

Classification of material didactic tools:

- Original objects: natural (minerals, plants), creations and products (samples, devices).
- View and represent objects and facts
- Models, views (school pictures, photographs, maps), sound recordings.
- Text aids: textbooks, workbooks, study manuals, task collections, spreadsheets, atlases, magazines, encyclopaedias.
- Programs and programs presented with didactic techniques.
- Special aids: student experimental systems; aids for physical education.

Textbooks: Books that are specifically designed for use in the school practice. Therefore, books that are used in school but were not created with this purpose (e.g. encyclopaedias) are not considered as textbooks.

Textbook functions: The didactic processing of textbooks makes it possible to make full use of their basic functions in the teaching process:

- cognitive and systemic,
- fixation and control,
- feedback,
- motivational,
- coordination (co-ordination in the use of other didactic tools that follow the textbooks);
- educational,
- indicative

Characteristics of current textbooks:

- Cartoons include cartoon jokes, links to common practical life, motivating questions and tasks with practical focus, links to students of already known fact.
- Reduce the total amount of curriculum in the textbook; Trying to make the text easier for the student - short sentences are used, minimal use of foreign words, unknown terms must be clearly explained to the students, the text is classified into shorter sections, it is differently graphically modified and processed.

- Increasing the proportion of visual material - using graphs, models, photos, reproduction of images, etc.
- Inclusion of questions and tasks by which teachers could evaluate learning - some book publishing publishers choose a strategy where a textbook accompanies a workbook that includes questions, tasks, or complete tests to control learning.
- Differentiation of the basic and expanding curriculum. Extending curriculum is usually different.
- Integration of the curriculum - emphasis is placed on the consistent application of interdisciplinary relationships.

9. TEACHER'S PLANNING AND PREPARATION FOR A LESSON

The lesson plan typically comprises following components:

- title of the lesson, objectives, teaching tools
- date, time, class, subject name,
- teaching process, time schedule
- specific questions and especially open questions
- references to literature, especially textbooks
- topics of testing and evaluation
- + the assessment of the success of the lesson which allows the teacher to re-evaluate the methods more effectively for next lessons

Teacher must consider the following characteristics:

- Learning objectives: what's the goal of the lesson?
- By what means the objectives can be achieved
- The specific didactic aspects (what is the previous knowledge of students, how to motivate them, what is the continuity of the subject, how to practice with the students, how to evaluate the work and the results of the students, there are interdisciplinary overlaps...?)
- Educational opportunities (how can be the curriculum used?)
- Organization of lessons (the most appropriate type of teaching)
- Time schedule of the lesson (it is advisable to schedule how much time I can spend on the individual phases)

10. INTERDISCIPLINARY RELATIONS

Interdisciplinary relations are the relationships between individual subjects that arise from the relationship between the various disciplines. It is a didactic modification of the reality of existing relationships in the surrounding world, which is reflected in the relationship in the scientific fields.

- Relationships between the knowledge of different disciplines of various sciences refer to interdisciplinary relationships (interdisciplinary).
- Relationships between the knowledge of the various disciplines of the same science are referred to as interdisciplinary relations (intradisciplinary).

In the implementation of cross-curricular relationships, the teacher has a major role to play. It is also expected to know the contents and content of related textbooks, ideally including discussions with colleagues of related subjects, mutual visits,

Advantages of cross-curricular education:

- Creating a specific product associated with practice
- Teamwork
- Learn to search for information independently
- Respecting interdisciplinary and temporal contexts
- Respect for individuality
- Self-learning
- The changed role of the teacher, who is the process director who oversees the organization of work and the relationships between themes
- It is easy to use during excursions

Prerequisite for long-term planning

- Knowledge of curriculum
- Knowledge of inter-subject relations
- Theoretical curriculum links to practice

DIDACTISC OF TECHNICAL SUBJECTS

11. DIDACTICS OF VOCATIONAL AND TECHNICAL SUBJECTS IN THE SYSTEM OF EDUCATIONAL SCIENCE

Didactics has an important place in the field of education and pedagogy. The general didactics comes from general pedagogy (it happened in the second half of the 20th century) and later, also didactics of vocational and technical subjects found its place among pedagogical disciplines. Pedagogy in general is a science about education and teaching. The two main parts are the theory of education and didactics.

Didactics of vocational subjects means that the didactics is for teachers of the relevant vocational field. It has been separated from general didactics (Čadílek, Loveček, 2005).

There are also didactics aimed to various levels of school education (eg. Didactics for elementary education, didactics for secondary education, didactics for higher and university education and didactics in andragogy and adults teaching). Didactics of vocational and technical subjects usually belongs to the environment of higher education and deals with practical training and specialized vocational subjects teaching. These didactics work with the general rules of general didactics in a combination with specifics of single technical fields and their practice.

Didactics of vocational and technical subjects deals with rules and principles of the learning processes and with the teaching process in the vocational schools (aims, curriculum, methods, forms, content, procedure and the evaluation). The teacher is able to explain the rules of the educational process and to ensure that he/she picked for the most effective implementation of the methods. Teacher of vocational subjects should be able to present also the values related to environmental or economic areas, and to be able to integrate the knowledge of technical and natural sciences with regard to the student's future practice of the technical field.

12. LEARNING OBJECTIVES AND CONTENT OF VOCATIONAL SUBJECTS

The teacher is always aware of the planned result of his teaching activity.

Cognitive goals: Knowledge and intellectual skills.

Psychomotor goals: Leads to creation of psychomotor skills, such as drawing, working with materials, machines etc.

Affective (values) goals: involves values and appropriate behaviour (how to form the values towards the world, society and nature, the relationship to culture, to art and to beauty or to the chosen profession)

- **Objectives of the school:** training of qualified professionals (arises from legislative of the country)
- **Objective of the discipline:** according to the graduate profile
- **Objectives of the course:** according to the curriculum
- **Objectives of the thematic unit**: in curriculum
- **Objectives of the subject:** in the curriculum or in teacher's preparation for the lesson.
- **Objectives of the teaching unit**: in teacher's preparation for the unit

Well-formulated goals

- **Complexity:** They are focused on the cognitive level, as well as on the educational level.
- **Consistency:** Lower (more specific) goals must go towards achieving higher (more general) goals.
- **Unambiguous:** Their understanding should not admit various interpretations
- **Appropriateness:** They should match the real possibilities of individual students
- **Verifiability:** formulated so that they can be verified

12.1. Cognitive goals

(B. S. Bloom's taxonomy). There are 6 categories (by difficulty):

- Remembering
- Understanding
- Applications
- Analysis
- Synthesis
- Evaluation

12.2. Psychomotor goals

(H. Dave's taxonomy, 1968). There are 5 categories:

- Imitation
- Handling (practical exercises)
- Refinement
- Coordination
- Automation

12.3. Affective goals

(D. B. Kratwohl's taxonomy). There are 5 categories:

- acceptance of the value
- response of the value
- knowing the importance of the value
- integrating of values
- integration into student's personality

For aiming of the content of education at vocational and technical subjects, we draw on the knowledge of the profile of the school graduate. It is necessary to follow what students can know and what they already know. We can't forget that the student abilities differ. This fact leads to the requirement of differentiation of the curriculum from the basic curriculum or on the contrary the extension of the curriculum. There is a selection of subjects that should reflect the current state of knowledge in the field.

13. DIDACTIC PRINCIPLES IN VOCATIONAL SUBJECTS

Didactic principles are general rules and requirements that determine the nature of teaching in accordance with the objectives of the learning process. They are related with all stages of the learning process, with all methods used, with picking the forms and means of the learning process. They represent a system of scientifically justified requirements and rules of the learning process.

13.1. Principles of teaching vocational subjects

Principle of Science: Science is the main source of the facts, concepts and rules that are presented. Knowledge is differentiated according to the level of school education. Continuity between vocational subjects and other subjects must be ensured. The development of technical and economic sciences sets requirements for knowing news in technology as well as in education. The teacher must work with professional literature, magazines, etc.

Principle of clarity: It helps to create the knowledge of complicated technical process based on sensory knowledge of real objects, processes and phenomena, directly through their visual presentation. Things and experiment are shown in their real form. If this is not possible, the model, video or picture can be used.

The principle of awareness and activity: Student must learn with understanding and with intent. Failure in this principle leads to formalism in learning process and getting the knowledge. We need to constantly ask students if they understand.

Principle of continuity: A logical structure in learning is needed. Students must acquire knowledge and skills in a coherent system. In vocational subjects, it is necessary to distinguish the basic subject and what is supplementary and complementary. The principle of continuity reflects the relationship among the technical knowledge, the selection and organization of the curriculum, and the connection with other subjects.

The principle of proportionality: The content of the curriculum, work from simple to complex, from concrete to abstract etc.

The principle of perseverance: The aim is to make the acquired knowledge and skills permanent. The active perception and consistent repetition and practice are needed. A combination of theoretical and practical knowledge leads to the best results. Logically derived knowledge is more permanent than mechanically acquired.

The principle of linking theory and practice: Students should be able to apply the theoretical knowledge and skills in the practice. There is important the connection of school education to real companies, organizations, and research centres, where small technical projects are assigned to individual senior students.

Feedback principle: The didactic principles are closely linked and connected. They are applied into teaching all subjects at all types of schools, vocational and technical education included.

14. TEACHING METHODS IN THE TEACHING OF VOCATIONAL SUBJECTS

The teaching method is a purposeful procedure the teacher uses in teaching in order to achieve a given teaching goal (Čadílek, Loveček, 2005). The teacher chooses the methods to respect the learning process and to make the classwork look like the students work mostly independently and, if possible, they discover new contexts and opportunities when using their own acquired knowledge and skills. In vocational subjects, it is necessary to choose such teaching methods, which allow the students to learn independently and which looks like the application of knowledge in practical situations.

14.1. The choice of teaching methods

There is no universal method for a given educational situation. Individual methods are usually connected. Each method has its use, it depends on the teacher to choose **the best method(s) for single lesson** (Čadílek, Loveček, 2005) and it depends on:

- School specialisation
- Specifics if the vocational or technical field
- The educational goal of the lesson
- Age and individual differences of students we work with
- Time, we have
- Classroom and materials
- The teacher's personality

14.2. Methods taxonomy

(Maňák, 2001):

Methods according to the source of knowledge

- Verbal methods (explanation, narrative, lecture, work with text).
- Demonstrative methods (demonstration, observation).
- Practical methods (workshops, laboratory work, school grounds, training kitchen, graphic and art activities, etc.).

Methods according to the student's activity and independence

- Methods of single perception of the content
- Methods of individual student work
- Methods of research, problem solving methods

Methods according to the intellectual operations

- Comparative procedure
- Inductive procedure
- Deductive procedure
- Analytical-synthetic procedure

Methods according to the learning process phases

- Motivational methods
- Exposure methods
- Fixing methods
- Diagnostic methods
- Application methods

Methods that are combinated according to the teaching forms

- Combination of different teaching form methods
- Combination of different teaching tools methods

Activating methods

- Discussion methods
- Situational methods
- Incantation methods
- Didactic games
- Specific methods

15. VERBAL METHODS

15.1. Explanation

The main purpose is the clarification of subjects, objects and phenomena, which leads to an understanding of the causes, contexts and background of the phenomenon. Explanation aims to the deeper context and to the connections of the curriculum and other subjects. It is focused on the interpretation of terms and rules. In the vocational training is very common form a description. An example is a description of the main machine parts or of any economic phenomena.

15.2. Narration

A method of sharing knowledge with students based on the story. In vocational subjects it is typical to use the form of narration as the initial information about a certain thematic unit. Narration can be part of another methods combination (with an interview or lecture). Used as a complementary method, it appeals to emotions.

15.3. Lecture

Lectures present knowledge in a longer coherent, logically structured form. It's usually connected with the analysis of facts. It's difficult for teacher's preparation. The lecture theme must be clear, and the subject divided into most important and less substantial. The lecture should be supplemented with as many pictures or videos as possible, as well as with examples, symbols etc. It is necessary to combine the difficult parts with some little funnier moments. During the lecture, the teacher should write the specific terms, calculations and drawings on the board.

15.4. Work with text

In vocational subjects, it is also necessary to use professional manuals, tables and specialised literature. Students should follow those rules while work with textbooks:

- They should look for the most important topics in the text that express the nature of the problem.
- They should be aware of all acquired knowledge and create a relation between new and old knowledge.
- They should study the text with a comprehension and focused attention.

- They should also study pictures, drawings, symbols or layouts together with the text.
- If the curriculum is extensive, it is needed to write notes and a clear overview.
- They should identify important parts and write notes in the text.

15.5. Dialogue

It refers to exchange of questions and answers between a teacher and a student / students.

The so-called heuristic dialogue is practical form of verbal method in the teaching of vocational and technical subjects. It requires the teacher's knowledge how to ask questions appropriately. It is necessary to ask students through short and precise questions in a logical sequence. The student should answer in a precise sentence and the answer should be justified, as the result of his/her logical thinking. If the student has a problem to answer the basic question, until then the teacher helpfully asks through another guidance questions.

How to ask questions in vocational subjects:

- The question must be accurate, clear, meaningful. The question does not contain unknown terms or words.
- Each problem is listed in a separate question.
- If the teacher works with the whole group, the question is first put on and until then the student should be called.

16. DEMONSTRATIVE AND PRACTICAL METHODS

16.1. Observation of the presented subject.

Demonstration and observation: Teacher demonstrates new knowledge with the help of visual tools. In vocational subjects it is usually a demonstration of real objects. Advantages of this method are the size and visibility from a greater distance. In the technical subjects are often used symbolic representations and technical or schematic drawing.
Observation is a purposeful perception of specific things. Observation becomes the teaching method when it is purposefully and thoughtfully directed by the teacher and consciously leads to students' learning. It must be planned and systematic. In the subject matter, both direct and indirect observations are important. Images, experiments, movies, etc. are used.

Instructions: It consists in a theoretical explanation of the practical activities and from the demonstration by the teacher. It focuses on the correct technological process, quality of work and the duration of the given practical task. During the instruction, the teacher builds on the students' acquired theoretical knowledge, presents them the work process and demonstrates them all the activities they will perform.

16.2. Practical methods

Practical work is a source of valuable knowledge, requires increased student activity, independence, responsibility and perseverance. It perfectly completes the learning process. It is effective for its development and allows a more permanent retention of new knowledge. In the vocational subjects it is usually used in laboratory activities or workshop activity.

Laboratory activities: It is necessary to have sufficient knowledge and technical and work skills. The results of students are presented in writings, lists of another graphic form.

Workshop: Workshops, real companies and workplaces provide best possibilities for practical work. Students gain their knowledge and skills in the real environment. The goal is to make students familiar with machines, devices, materials, drawings, schemes or programs they will use in their future work.

17. ACTIVATING TEACHING METHODS IN THE TEACHING OF VOCATIONAL SUBJECTS

17.1. Activating teaching methods in the teaching of vocational and technical subjects

Discussion methods: Collective solving of the problem. All students are responsible for the result. There are discussed topics with no one correct solution. Teacher is in the role of discussion director who watch the discussion rules.

Problem solving methods: They must be logically linked to the student knowledge background. They must be proportionate to student capabilities. There is presented real problematic content which is for students interesting.

Didactic games: Their unconscious secondary product is learning process. Learning takes place as if in the second plan. It is just a game with rules (Maňák, Švec, 2003).

Situational and Staging Methods: The purpose is to find ways how to solve a concrete situation. Students are involved in the situation.

18. COMPLEX TEACHING METHODS IN THE TEACHING OF VOCATIONAL SUBJECTS

18.1. Projects

The project teaching methods can be defined as a complex method, where students solve more parts of real problem that makes a complex project (Šimoník, 2005). Many methods are used, especially methods of independent work and teamwork, are used in its implementation. In addition, it is important to reach the project goal through completing different steps by using different methods.

How to use projects in the vocational school education:

- Teacher determinates the task that is interesting to students.
- Teacher determines the procedure for the implementation of the project (solution plan).
- Implementation of the project to the life of the class/school, which leads to the fulfillment of the set goals.
- Evaluation and presentation of project implementation results.

Benefits of teaching methods based on projects:

- Possibility to create a specific complex project
- Teamwork
- Possibility to search for information independently
- Respecting interdisciplinarity and contexts
- Respecting individuality of students
- The new role of the teacher

Project categories:

- Theoretical projects or practical based projects
- Projects that come from students' ideas or projects that come from teacher's
- Short term projects, middle term projects, long term projects
- Projects in one course or projects connecting more courses and subjects

The preparation of the project puts demands on all the teachers involved in the project method implementation. Projects can be used as a students' work which is part of the final exam. These projects can be designed by students themselves or by the teacher. Larger projects involving cooperation, communication and other parts of personality are positively developed.

18.2. Brainstorming

This method proposed Alex Osborn in the year 1953 as motivational method to initiate group creativity. The purpose of this method is to produce as many ideas as possible and until then decide about their potential. It's practical to start with words e.g.: How..., Propose..., Show... Ideal timing should be between 30-45 minutes. Ideal size of group is 7 – 12 persons. I the classroom we usually use it in the beginning and then we continue with other methods.

Brainstorming rules

- Ideas are not judged
- Absolutely free ideas production
- The goal is to produce many and many ideas
- All ideas are written (usually on board)
- Written ideas are inspiration for new ones

Process of brainstorming method

- Students know the rules
- Problem is written on the board
- Single proposed ideas are written on the board
- Some free time before the evaluation
- Ideas evaluation

18.3. Group and cooperative methods in teaching

- Split students into groups
- Collaboration of students in solving a task
- The splitting of students' work in the complex problem solving
- Natural cooperation among the group members
- All students are responsible for a common result
- The positive dependence of group members
- Interaction of students in a group.
- Individual student responsibility for group collaboration, including assessment of individual contributions to the solving a task or problem.
- Development of effective social skills.
- Communicating of the group members about improving the group process.

19. ASSESSMENT AND EXAMINATION IN VOCATIONAL SUBJECTS

The examination and evaluation has educational, motivational and educational function. It also serves as a feedback, i.e. it is a means of controlling the effectiveness of teaching methods, didactic principles and teacher's practices.

The evaluation should focus on:

- Consistency of acquired knowledge and skills
- Ability to apply acquired knowledge to practice
- Ability to independently solve problematic tasks
- Spoken word culture and use of terminology

19.1. Testing

Verbal testing by dialogue is the most common and most difficult way of examining knowledge and skills. There are several forms of verbal testing in person: individual, frontal and combined testing.

Written testing is one of the most proficient kind of knowledge screening and is often considered more objective and time-consuming than dialogic verbal form of testing. Nevertheless, there is a lack of contact with the teacher, lack of possibility to use the supplementary questions and student's understanding.

19.2. Practical examinations

Practical examinations are essential for verifying practical skills.

Didactic tests usually propose the selective answers that student marks by ticking. Different types of questions may be used in didactic tests. They shouldn't be the only source for the final classification. They are divided into non-standardized tests and standardized tests (cf. Chráska, 1999).

20. ORGANIZATIONAL FORMS OF TEACHING IN VOCATIONAL SUBJECTS

It is planned according to the teaching and educational goals, sort of students, according the place (a classroom, a specialized classroom, a laboratory, in the companies, factories, at home) etc.

According to the method of organization we know (Čadílek, Loveček, 2005, Bajtoš, 1999):

- Traditional school lesson
- Practical lesson
- Excursions
- Individual work
- Consultations

According to the forms of cooperation in teaching method:

- Individual or individualized teaching
- Group teaching
- Collective (frontal) teaching

20.1. Lesson

It's a basic organizational form of teaching. Each lesson has its educational goal. These objectives are directed to the tasks of the lesson. Then we need to choose the methods, etc. The individual lessons differ in their content and structure.

- Introducing and motivational lessons
- Lessons focused on new topic
- Lessons focused on repetitions
- Lessons focused on practice
- Lessons focused on evaluation
- Lessons combining more focuses

20.2. Excursions:

It takes a place out of the school environment (in companies, workshops, etc.).

• **Thematic excursions** are related to the topic being discussed
• **Complex excursions** are related to the cross-curricular subjects

Teacher must know the environment of the planned excursion perfectly and students must know the tasks for their observation during the excursion. After excursion students work with new knowledges individually or in groups.

21. PREPARING THE TEACHING PLAN IN VOCATIONAL SUBJECTS

It comes from the requirements of ministry of education in every country. Usually it's general framework program for particular school level, which is transformed into school framework program. This school version of framework program is a result of a team-work of all teachers in the school.

Long-term planning is realized with the perspective of the whole school year. Prerequisites for long-term planning are:

• Knowledge of **curriculum**
• Knowledge of **inter-subject relations**
• Knowledge of **the connections between theoretical curriculum and practical lessons**

Short-term planning involves the preparation of one to two teaching units. It comprises determination of goals, selection of curriculum, methods, choice of organizational forms, environment, etc. Preparation of home works and evaluation methods, and technical preparation of tools which should be used. Preparing the written plan of the lesson, teaching presentations or multimedia learning supports.

21.1. Teacher's preparation for a lesson:

It can take various forms: complex list of methods, forms, goals etc. for teachers, presentations, form of worksheets for pupils, etc. Teacher's preparation can be detailed one or just a framework. Detailed preparation is typical especially for novice teachers. It contains all important didactic information (identification of school, class, data, objectives, methods, tools, timetable, tasks for students, motivation, notes about various conditions...). The most common form is the written preparation, although it can be only few notes.

Written preparation may include the following:

- Basic data (subject, class, year, hour number, date)
- Topic, topic
- Educational goals
- Content, curriculum
- Relationships to other subjects and topics
- Motivation
- Used methods and forms, tools
- Tasks for students
- Time options
- Experiences

22. DIDACTIC TECHNIQUE IN TEACHING OF VOCATIONAL SUBJECTS

One gains 80% of information by sight, 12% by hearing, 5% by touching, and 3% of other senses.

22.1. Didactic technique:

- Display areas, boards
- Projection technology
- Auditive technology
- Multimedia technology

22.2. Teaching tools:

- Real objects, natural objects, products, devices, etc.
- Models
- Photos, maps, etc.
- Text tools, textbooks, workbooks, magazines, encyclopaedias, etc.
- Multimedia programs, 3D technology
- Special tools for students' experiments

Learning facilities: In vocational education we use more than classrooms, we also use computer labs, laboratories, workshops, operational workplaces, real environments of specialized companies etc.

Basic equipment of the class - school board. Rules for its use: Writing legible, Short, Aesthetic, logical and concise, linguistically correct.

An interactive whiteboard is a large area capable of projecting images from a computer. The advantage of interactive whiteboard is the ability to control the displayed elements by touching. Ideas for using the interactive whiteboard in teaching technical subjects: working with interactive presentations, displaying, editing and drawing, adding examples, schematic tags, diagrams, technical drawings, etc.

Technical animations aim at understanding the process, illustration; motivation; practice.

METODOLOGY OF RESEARCH

23. SPECIFIC PECULIARITIES OF RESEARCH IN THE SCIENCES

"Understanding is more than knowledge."
"Knowledge is based on experience, understanding from knowledge."
"Knowledge must be integrated and organized before we reach understanding."

Brown and Ghiselli

Science uses a specific way of thinking in order to create and defend thoughts, ideas, ideas - it is a scientific logic: 2 forms:

- **Inductive logic** (from the amount of observations a knowledge is forming) that leads to hypotheses;
- **Deductive logic** (from general to individual), which begins with a general statement from which the conclusion is then drawn (Vacek, 2001, Česal, 2007).

Individual sciences explore relationships: **quantitative and spatial, living and inanimate nature, man, the phenomena of social life.**

We divide science:

- Humanities / Philosophy, History, Law, Linguistics, Theology, Literature, Art /,
- Natural / mathematics, physics, logic, biology, chemistry, medicine /,
- Social sciences / pedagogy, sociology, didactics, linguistics, political science /,
- Technical sciences / cybernetics, engineering, agricultural sciences.

In addition to the term "science", the term "research" is also used, which we understand as an intellectual process of research in order to discover, interpret and redefine facts and processes, It is a creative work to expand knowledge about man, culture, society - their use to create new applications.

23.1. Specifics of scientific research

4 general ways of learning:

- the method of tradition,
- the method a priori,
- the intuition method,
- the method of science,

It follows that scientific research is a systematic, controlled, empirical and critical examination of hypothetical statements about the supposed relationships between natural phenomena. The goal of science is to search for truth, the effort of scientists to get the most out of explaining but also understanding the phenomena under investigation. Research is a systematic activity that reduces the ignorance of mankind, has a corrective ability, confirms or refutes the knowledge that is still known.

For scientific knowledge to make sense, we require it to **fulfil the following functions:**

- description and classification of things, phenomena and processes;
- explanation of the occurrence of things, phenomena and processes;
- the prediction of the occurrence of things, phenomena and processes;
- Understanding events;

It's never a matter of a single person. Research is divided into basic and applied.

- **Basic / pure / research** - experimental or theoretical work, primarily aimed at gaining new knowledge about the most basic causes of phenomena and observable facts, but without addressing the use and exploitation of this knowledge.

- **Applied / targeted / research** - experimental and theoretical work to gain new knowledge but clearly focused on specific, specific, predetermined usage goals.

- **Experimental Research and Development** - A systematic creative work aimed at broadening the state of knowledge, including knowledge of man, culture and society, and its use in order to find new possibilities for the use of this knowledge.

The methodology is consistently based on the professional methodological foundations of OECD statistics. The NABS methodology classifies R & D work according to socio-economic objectives, in which (mostly programs) the work is done.

23.2. 13 areas of research and development

Methodology distinguishes between 13 areas, directions of research and development (in brackets the English name of the area) 1:

- **Exploration and exploitation of the earth**
- **Infrastructure and general planning of land-use**
- **Control of environmental pollution**
- **Protection and improvement of human health**
- **Production, distribution and rational ulilization of energy**
- **Agricultural production and technology**
- **Industrial production and technology**
- **Social structures and relationships**
- **Exploration and exploitation of space**
- **Research financed from General University Funds**
- **Non-oriended research**
- **Other civil research**
- **Defense**

We define **technology** as a learning about the development and production of tools, machines, materials; It can be broadly understood as a set of all **technical sciences**.

We understand **technigue** as the development, production, use of tools of all kinds; Broadly as a synonym for technical sciences.

The methodology of contemporary science has been established for several centuries. It is the result of the enormous intellectual effort of many generations of excellent thinkers. Foundations of Modern Science were laid in the Renaissance. The Epoch of Modern Science has undergone two fundamental developmental phases corresponding to Renaissance science and the science of industrial society. Renaissance science was born of a Renaissance cultural era, which disrupted the subordination of science to theology. This epoch is programmatically based on the return to ancient patterns and the idea of ??humanism. The theocentric image of the world is gradually replacing anthropocentrism in the form of humanism. A new epoch of science is born, with its characteristic rationality, exploration and social roles. The medieval divine determinism was replaced by cosmic determinism, which is conceived as the teaching of the general causal-consequent conditionality of natural phenomena as the rule of natural law. The embodiment of natural law is the movement of celestial bodies. The scientific picture of the world is built as a model looking at the immediate interference of God. The world is served as a world without beginning, end, and development. Movement is an eternal cycle. The Copernicus discoveries played an important role in shaping the modern image of science. It was the beginning of the definitive advent of modern science. G. Galilei has created a model of a new way of scientific exploration by proclaiming the basic

meaning of causality in science. In the modern, mechanical-materialistic picture of the world, scientific testimony is an endless series of mechanical causes and consequences. On this mechanical-materialist type of rationality, the entire system of exploration of modern science was built. The laws of science were logically derived from certain universal principles. Within the modern science, an inductionist approach to exploring phenomena is also developed. Its founder is F. Bacon and J.S.Mill's inductive logic.

From the 19th century we can see the development of inventions, thanks to which many innovations have been promoted in technology and production. At the same time, industrialization / industrial revolution could take place.

We distinguish three waves of industrial revolution:

- Implementation of steam engines,
- The use of electricity,
- Using computers and biotechnology.

The epoch of post-modern science first diagnosed the crises in the knowledge of natural science at the beginning of the 20th century. In modern science space, time and movement exist independently of matter, they are independent entities. The 20th and 21st centuries are characterized by space exploration, computerization, and global information exchange. The so-called information society is currently developing - it uses digital processing, stores and transmits information in digitized form, is universally applicable, duplicate.

24. BASIC METHODOLOGICAL START-ING POINTS OF SCIENTIFIC KNOWLEDGE IN PEDAGOGY

24.1. Methodology, method, methodology

The term of the methodology is of Greek origin. It means learning about the method or theory of the method. The methodology deals with the general theoretical problems of the ways and means of scientific knowledge and with the principles of scientific research as a creative process. It is based on an analysis of scientists' practices in the development of individual sciences. It reveals general aspects of used methods and means, compares them, states in the system, reveals the essence of scientific knowledge. The notion of "science methodology" is unambiguously used in theory.

Methodology of sciences

- is the theory of the method of science, or science on the principles and methods of scientific knowledge.
- forms on the interface between philosophy and special sciences.

The relationship between the terms **"science methodology"**, **"science method"** and **"methodology of scientific work"**

Methodology broadly refers to the general philosophical foundations of scientific knowledge common to all scientific disciplines. In the narrower sense, this term refers to the theory of scientific knowledge that studies the processes of cognition and transformation of reality that are the subject of specific scientific disciplines. Simply put, the methodology of science is the science of methods. Knowledge of the methodology is necessary for every scientist.

Methodology of pedagogy

- a system of knowledge about the foundations and structure of pedagogical theory,
- about approaches to studying pedagogical phenomena and processes,
- ways of acquiring knowledge that truly reflects the ever-changing pedagogical reality in the conditions of an emerging society

The term **method** also comes from the Greek word methods and literally means "the way to something", "process". The term scientific method can generally be characterized as an intentional procedure (Path) through which we reach a certain goal, something is

known or solved. The method usually represents the whole complex of diverse cognitive practices and practical operations that seek to gain scientific knowledge. The use of the method in scientific research presupposes knowing how to use the method.

Special method = metanalysis = method of comparison and evaluation of research published on a particular issue

Method (from Greek)

- In general, an indication of how to achieve a certain, predetermined goal through conscious and planned action.
- In the field of science, the term "method" refers to the intentional and systematic procedure used to identify the objects under study; Is always inseparably linked to theory.
- During the scientific discovery of the world, a number of general scientific methods of knowledge have emerged, such as induction, deduction, analysis and synthesis, analogy, experiment, observation.
- In a special philosophical sense, the method is a way of reproducing the subject under consideration in thinking.

The characteristic of the scientific method is that we **approach systematically and organized to learning**. Both of these concepts, systematicity and organization, are to express the fact that the focus of scientific research is not in immediate and one-off response to stimulus, as is the case with laic cognition. The main activity is work organized according to certain rules, planned and thoughtful.

Method in pedagogy

the whole complex of diverse cognitive practices and practical operations aimed at acquiring scientific knowledge

Scientific method in pedagogy

a system of basic methods of research corresponding to the subject and tasks of pedagogical science

We also use so-called methodology in scientific work. Methodology is not part of the methodology. The methodology of the research work is a practical procedure (instruction) how to gradually implement the research procedures related to the realization of the research goal.

24.2. Theory

- is a system of views on a particular subject of study, a complex of phenomena or a realm of reality.
- Ideal model analysing and describing contexts, relationships, laws, but also ways of enforcing and proving them in an area at an accessible level of knowledge.

Encyclopedic Dictionary, 1993

Theory [from Greek]

- is a set of ideas, imaginations and thoughts aimed at explaining a phenomenon.
- In the narrower sense, the theory is the most advanced form of scientific knowledge, giving a systematic, generalized image of the laws and essential contexts of the realm of the subject matter. From practice, theory differs in that it represents an ideal reproduction of objective reality, but it is organically associated with practice as its basis, source, and goal. It differs from the hypothesis by being tested by practice.

- Structure of the developed theory includes empirically accurate facts, as the theoretical starting points set of principles and laws, postulates, axioms, etc. describing the object in an idealized form, logical procedures of deduction and evidence, and finally a summary of theoretical conclusions.

25. PEDAGOGICAL RESEARCH

25.1. Clarifying the concept of research and pedagogical research

Research systematically and critically examines reality in order to confirm or disprove the findings of the past, or to discover and gain new knowledge. The explanation of **"research"** or **"scientific research"** can be found, for example, by US scientist F. N. Kerlinger:

***"Scientific research** is a systematic and critical examination of hypothetical assertions about supposed relationships between phenomena; Its result is the creation of theories that allow phenomena to be explained and predicted. "/ HARTL, P. Psychological Dictionary. Prague: Budka, 1994, p. 236).*

The definition of **"pedagogical research",** for example by R. M. W. Travers:

***"Pedagogical research is an activity aimed at creating an organized amount of scientific knowledge about phenomena that are dealt with by educators."** / TRAVERS, R., M., W. Introduction to pedagogical research. Prague. SPN, 1969, p. 11).*

Pedagogical research aims at solving pedagogical problems and disseminating knowledge about pedagogical phenomena.

Action research builds on the immediate needs of practice and its results are immediately applied.

Stages of research

- Determine the research problem: who, who, whom, you, and in what situations I want to examine
- Information preparation: study of books, articles + consultations with an expert
- Preparation of research methods: pre-research
- Data collection and processing: tables, graphs
- Interpretation of data
- Writing the research report: Qualification work, studies

There are two types of research in the research:

- **Creative = constructive** - at the beginning and end of the research
- **Mechanical = non-creative** - stage of field work: data collection and processing

Origin of knowledge

- **The primary source** - the author processes his own empirical data
- **Secondary source** - here we include overview studies on the problem

Reflections on the possible effects of the researcher's subjectivity on research outcomes

- If the research conflicts with ideas and facts, the researcher must always prefer facts
- Every research is only a small stage in the great process of seeking the truth
- For the sophisticated research, the transparency of the methodological approach is typical
- Independence of thinking and thinking; A certain amount of doubt as well as its own findings
- (Pygmalion effect = Galatea effect - the teacher tries to make the words)
- (x Golem effect - negative expectation)
- Conclusions: "that the following conclusions have been drawn for the selection."
- in pedagogical research, it is mostly about searching for laws rather than laws
- **Quantitative approach** - statistical data processing - at what level of significance the relationships are monitored
- **Qualitative approach** - reveals tendencies, to some extent also laws

26. SUBJECT OF PEDAGOGICAL SCIENTIFIC RESEARCH

Determination of educational phenomena

- how educational phenomena are determined
- how are they depended
- how are they determined

Educational phenomena and processes are characterized by

- unusual complexity - be careful, do not simplify
- rich interrelationships - search for context
- with great dynamism

Scientific explanation of pedagogical phenomena

- About probability determination - statistical probability laws apply
- About possible states from which one will take place
- Which option is larger, which one is smaller

26.1. Relationship between the method and the subject of the research

- the inner link between what is to be known and how it is known
- according to the nature of the subject of the research, we choose appropriate methods of investigation
    - selection
    - system
    - the use of research methods

Methods in didactic research most elaborate

- the goal the teacher is trying to achieve in students - what the student can do
- methods suitably selected and suitably used
- student's result - knowledge, skills, overall student development
- Learning processes of students' knowledge and skills, what happens in the student's head when the teacher uses one or the other means

- observation method
- generalization of teachers' experience
- experimental method
- statistical methods - capturing qualitative differences of knowledge and qualitative change of knowledge
    - knowledge of the external appearance
    - knowledge of causal relationships

Beginner in pedagogical research

- The choice of method depends on how we ask ourselves what is the leading idea of research, what is the research hypothesis
- The choice of method depends on the real conditions of its application in practice - natural experiment at school, time factor (cannot be repeated as in physics)
- Method from pedagogical and humane view, pedagogical risk of some methods (sociometry)

The level of research results depends largely on the choice of a set of appropriate methods and on the methodological level of their use

27. FORMULATION OF SCIENTIFIC PROBLEM AND HYPOTHESIS FUNCTION

Objective of the research: Discovering and determining relationships and patterns between objects and phenomena that form part of a given discipline - definition and exact formulation of the problem the problem is a question, a question that asks*:* **"What is the relationship between two or more variables?"**

Research problems

- Asking question (question) - has stimulating potential;
- Reveals new facts and then creates new hypotheses;
- The researcher is trying to get in touch with the people surveyed, about getting into the situation.

The main goal is to understand the person (as he sees things and assesses the action):

- setting the goal which the researcher wants to achieve,
- terminological precision, specification of terms with which the author works,
- Clarification of the scope and content of your own space of investigation.

27.1.1. Research problem

3 Types of research problems:

- **Descriptive (descriptive)** - answer to the question What is it?
  The problem may also be diagnostic-evaluation
- **Research methods:** observation, scaling, questionnaire
- **Relative (relationship)** - There is a relationship between the phenomena under investigation and how close this relationship is
- causal - identifies causal = causal relationships / identifies the cause that led to a certain consequence /.

It is important to know scientific hypotheses = they can be formulated only for relational and causal research problems.

The main research challenge and the partial problems are the research objectives and objectives

The goal can develop and change in the research process. The nature of the research goal remains until the problem is resolved.

27.2. Research: research problem, research objective, research goal

Basic two orientations of research:

- **Quantitative** - the aim is to sort data and explain the causes, work with numerical data
- **Qualitative** - works in a verbal form (description)

If a researcher chooses quantitative research - the variable will begin to explain the term. The variable is called an element of exploration that acquires different values that change (age, knowledge, intelligence).
Variable can be a phenomenon, a property, a condition, a factor.
Variables: 2 groups:

- **for measurable (quantitative) variables:** we can determine the number or measure of a phenomenon or property (better - worse)
- **for categorical variables:** cannot be quantified, it can only be categorized into classes, categories

The dichotomous variable has only two values (the simplest) – sex = man x woman

- There is more than one variable in research:
- The variable that is the cause of the change - independently variable
- The variable whose values have changed by the dependent variable - the dependent variable - varies depending on the independent variable

In order for a variable to be examined, it must be operationally defined.

28. FORMULATION OF THE HYPOTHESIS

Hypothesis - a scientific assumption (requires many readings of literature, personal experience); It is a prediction of the relationship between two factors, conducts a research.

Hypothesis is a prerequisite in which, on the basis of a number of facts, a conclusion is reached about the existence of an object, its context or the cause of the phenomenon, and this conclusion cannot be considered to be entirely conclusive.

In quantitative research, the hypothesis is determined in advance at the beginning of the research, determining its direction.

Hypothesis formulation = basic property = expresses relations between variables (differences, consequences); Suggests how the hypothesis will be confirmed or refuted.

28.1. Golden rules of the hypothesis

- **Hypothesis is a statement = notification sentence!**
- **Hypothesis expresses the relationship between 2 variables!**
- **Hypothesis must be tested, measure the variables!**

Hypothesis in terms of cognitive value:

- Working hypothesis = initial hypothesis,
- Real (scientific) hypothesis.

Hypothesis is a prerequisite in which, on the basis of a number of facts, a conclusion is reached about the existence of an object, its context or the cause of the phenomenon, and this conclusion cannot be considered to be entirely conclusive.

Heuristic value of hypothesis: combines

- familiar knowledge with new one,
- knowledge of what is being sought.

The hypothesis also arises with the main objective of the research.

28.2. Creating hypotheses

- the contradiction between theory and facts, which cannot be explained in theory (pedagogical theories),
- The hypothesis has the nature of probability knowledge.

Working hypothesis - the working tool of theory

- actively influence the further development of scientific knowledge,
- leads to the collection and systematization of new facts,
- encourages new research,
- encouraging the formulation of new ideas and theories - must be substantiated and verified,
- directs the material analysis,
- shows the prospects of further research development.

Objectivity of the hypothesis

- What reflects and exactly how,
- what reveals the perspectives in further scientific knowledge,

Hypothesis in terms of cognitive value - working hypothesis = initial hypothesis

- **First clarification of phenomena,**
  - Directing thought to deeper analysis of phenomena,
  - Expresses basic tasks, basic orientation of research,
  - Expresses criteria and judgments for the selection and evaluation of facts,
  - The results of the research create the preconditions for the formulation of another hypothesis.

- **Real (scientific) hypothesis**
  - Arises on a deeper theoretical basis,
  - Has an exact form of testimony,
  - Expresses a presumption of existing relationships between phenomena or their legality, the existence of a certain phenomenon, property or results.
  - Experimental research - relations between the dependent and the independent variable.

29. METHODS OF PEDAGOGICAL RESEARCH - EMPIRICAL, THEORETICAL, HISTORICAL-COMPARATIVE

The research method is a process that is being used in research.

The choice of method depends on:

- the research goals
- the conditions of research (psychological conditions (e.g. the ability of the investigated
- people, their willingness to cooperate, age, etc.), technical (what we have, for example,
- whether we have a computer, a video, a voice recorder, etc.) and then organizational conditions (e.g. time, personnel, financial options)
- the researcher's experience to understand the properties of the method, or on the perfect practice of the method.

Within each research method, a specific system of research tools can be created. These are either created in a ready-to-use format, or we create new tools according to their own research goals. Then it is a good idea to verify the reliability and validity of the research tool by pre-research that takes place on a small set.

The aim is to find out:

- Operation of the method
- Understanding of guidelines and questions by respondents
- Willingness of respondents to participate in research
- Possibilities of evaluation of collected data
- Whether the time distribution of the research is according to the concept of the plan,

Pre-research will also help us refine the hypothesis or the research file and often affect previous and further stages of research.

29.1. Empirical methods

- **Method of observation as a scientific method** / direct observation; Indirect observation; Short-term observation; Long - term observation.
- **Experimental method** / classical experiment; Multifactor experiment.
- **Action research** - systematic data collection by a teacher and their critical analysis - the teacher is involved in the research / problem that has emerged in practice; The idea of solving the problem; Activity to the chosen solution; Evaluating the results of the activities leading to the problem; Problem modification.

29.2. Theoretical methods of research

- Abstraction.
- Analysis and Synthesis: Classification analysis,
    - Relationship analysis,
    - Causal analysis,
    - Dialectical analysis

- Comparison.
- Generalization and Concretization.
- Induction and deduction.
    - Modelling methods: Model experiment,
    - Thought experiment.

- Methods of formalization

29.3. Historical-comparative methods

The system of pedagogical research methods according to Pelikan

Exploratory methods - the information obtained from the testimony of the monitored person itself, the problematic validity of the results.

- **Questionnaire** - finding data about the respondent interested in the interviewer, large number of respondents, but subjective answers
- **Poll** - unspecified circle of respondents, answers who wants
- **Autobiography** - psychological method, respondent processes his curriculum vitae, a deeper insight into human development
- **Interview** - structured, partially structured, unstructured,
- **Discussion.**

Rating methods - measures phenomena that are not accurately measurable,

- **Scales, assessment scales** - several groups of scales, numerical, graphical, standard, cumulative, judging scale with forced selection,
- **Expert investigation.**

Q-sorting method

- Indirect technique of assessment of pedagogical phenomena by respondents and experts,
- Combines the rating method, psychometry and statistical procedures,
- Q-types> card packs

Psychosemantic methods

- Knowledge of individual systems of meanings that introduce into the interpretation of words individual people – the technique of vocabulary associations.
- Semantic differential – allows to penetrate into the individual meanings of concepts in the concept of individual respondents.

Content analysis

- Analysis of personal documents,
- Analysis of school documents,
- Analysis of school indicators.

Tests - accurate, objective measurement of personal qualities, personality activities and their performance; An instrument of systematically learning (measuring) learning outcomes.

- **Psychological tests** - intelligence, personality,
- **Psychomotor tests** - prerequisites for physical abilities,
- **Didactic tests** - school performance of the student.

Projective methods and techniques

- A personality research method confronting an investigator with a particular situation in which he / she will respond according to the meaning of the situation.
- Verbal projective method - word association experiment, test of unfinished sentences,
- Graphic projective method - font analysis, drawings,
- Manipulative techniques

Method of measuring social relationships

- **Sociometric techniques** - the preference scales of the people we communicate with;
- **Techniques exploring preferential attitudes** - bias towards people, groups.

Behavioural Method

- Observation of certain phenomena, situations, behaviour of individuals and groups and their interaction.

30. MEASUREMENT TECHNIQUES IN PEDAGOGICAL RESEARCH, RESEARCH TOOLS, VALIDITY, RELIABILITY

RESEARCH METHODS = Have the following features: validity + reliability

- a specific research tool can be created within each method

30.1. Validity

The ability of research tools to find out what they have – types:

- content,
- constructive,
- criteria (concurrent and predictive),
- internal,
- external.

30.2. Reliability

- Accuracy and reliability of the research tool.
- How to determine the reliability of the research tool?
- Repeated measurement
- Equivalent forms of the research tool.
- Internal consistency.
- Consensus among evaluators.

30.3. Research file

- are called research entities - the basic set (POPULATION)
- **random selection** (draw, random number table)
- **stratified selection** is a specific type of random selection - the base file is decomposed according to an essential character. As for the number of subgroups, this selection may be:

- **Proportional** (it is used by agencies that identify e.g. citizens' preferences,
- **Uniform**

- **Mechanical selection** - selects each n-th person (eg every tenth student, fifth teacher); Old way: commanders of Roman legions in this way selected soldiers to punish after losing battle.
- **Deliberate selection** - based on the determination of relevant characters = those that are important for the investigation; This is an available choice.

Sample Range = n (eg n = 112)
depends on the

- The required reliability,
- The required accuracy,
- Variability of the base file.

Big Pitfalls - **Uncontrollable Variables.**

31. QUALITATIVE METHODS

Qualitatively oriented research:

- **Unstructured observation**
- **Ethnographic interview**
- **Life story research** - is the writing, analysis, and evaluation of a person's life

    - main research tool is the researcher himself
    - the goal: to understand people and the events in their lives
    - culture is = set of values, attitudes, rules of behaviour of a group of people
    - main feature = length, intensity, detailed listing

Procedure:

- **analytical induction** - determines the research problem? collects data in the field about one primary case? initial hypothesis? looking for negative cases? formulates a new hypothesis-continuation

- **constant comparison** - it does not set the hypothesis at the beginning, but it collects and classifies the data? the category refines, establishes relations and at the end formulates the hypothesis and further refines the view

ALWAYS = INTENTIONAL RESEARCH

- its subset is a cumulative selection = the researcher starts with 1 person or small group and gradually extends the circle of people to work with.
- Selection range (sites, persons) is not determined statistically as in quantity but is controlled by saturation = the researcher terminates the selection when he finds that the information is the same and is repeated.

Reliability of qualitative research is a counterpoint to strictly structured research = rather specific situations (not typical)

Validity ensures long-term research through direct contact

31.1. Unstructured observation

It is a flexible system, has several variants

- **Event samples** - detailed written records of people and the environment (person does not take opinion, does not expresses opinions and does not evaluate)
- **Field records** - the observer does not make a complete record of things, but from the existing phenomena he chooses the things to which he is paying attention + the record by his own commentary
- **Participatory observation** - the observer seeks to gain extensive and profound knowledge of the reality under examination.

    - Long-term and researcher participates in the activities of the observed persons,
    - Watches and makes detailed notes from which to make a summary of the observations. Ask questions and problems, formulate preliminary comments? preliminary analysis.

31.2. Ethnographic interview

the goal is how people interpret the world around them, what meanings they attach to important events.

- It is usually unstructured (questions depending on how the interview evolves),
- **"Report"** = a pleasant atmosphere between the interviewer and the corresponding,
- The proportionality between the interviewer speech + information
- The data is verified by a way of reverting the findings (the researcher will return to the informant after a while and verify what he / she wants).

32. QUANTITATIVE ANALYSIS

32.1. Variable

A variable means an element of exploration that acquires different values, it changes (age, knowledge, intelligence) - **it can be a phenomenon, property, condition, factor**.

2 groups:

- **measurable (quantitative**) – we determine the number or degree of phenomenon, properties; Spelling mistakes can be expressed by the number of errors
- **categorical variables** - cannot be quantified, just categorized into classes, categories (dichotomical – gender: female – male)

- More than one variable is in the research,
- the variable that causes the change - **independently variable**
- a variable whose values have changed by the dependent variable - **dependent variable**
- the dependent variable varies depending on the independent variable.
- In order for the variable to be examined, it must be operationally defined (when the variable is a foreign language ability, the researcher can, for example, define it as a student's score in Malíková's Foreign Language Test)

32.2. Quantitative research

- Observation,
- Scaling,
- Questionnaire,
- Content analysis of text,
- Experiment.

OBSERVATION

Means tracking people's activities.

- Structured observation - the observer knows what and how he will observe,
- Observed phenomena
    - category of cognitive character (explanation of curriculum,)
    - categories of affective character (attitudes, interests, feelings),
    - category of psychomotor character.

SCRAPING

- **the assessment scale** is a tool that allows us to determine the characteristics of the phenomenon or its intensity, we assess: - other people, phenomena, ourselves.
- **bipolar scales** = create opposing properties.
- **Likert's scales** = used to measure attitudes and opinions of people.

QUESTIONNAIRE

- Data collection - bulk retrieval
- Basic terminology:
- **respondent** = person who completes the questionnaire
- **questions** = questionnaire elements
- **items**
- **administration** = questionnaire
- Types of questions: closed, open, semi-closed,
- Questionnaire reliability - is higher when it contains more questions that ask for the same information

INTERVIEW

- interpersonal contact - allows to penetrate deeper into respondents' attitudes
- types:
    - structured (questions + alternatives are clearly given)
    - unstructured (freedom of reply)

32.3. Content text analysis

special method, analysis + evaluation of written texts

- **Quantitative** = content analysis
- **Non-quantitative** = does not support explicit categories of phenomena

EXPERIMENT

The power lies in the possibility of manipulating variables

Terminology:

- **Subject** - Persons participating in the experiment
- **Character** - defined property
- **Random selection**
- **Experimental plan** – layout
- **Experimental group** – a group of subjects
- **Prete**st - entrance test
- **Posttest** - final test

33. THEORY AND CREATION OF DIDACTIC TEXT, PROTOTYPE OF DIDACTIC TEXT PROPOSAL

DIDACTIC TEST *(Mil. Chráska)* = tool for systematically measuring learning outcomes (Byčkovský)

Basic classification of tests

- The test is not a test (e.g.: what requirements are set for the admission test or the test that is part of a final exam)
- It is also a question of how they meet the knowledge of tested pre-determined requirements

33.1. Types of tests:

- standardized - professionally prepared
- non-standardized - teacher
- quasi-standardized - more perfect than teacher
- speed test
- level tests = most tests

Tests by B. S. Bloom

- **cognitive** = learning outcomes = almost exclusively used in pedagogy. Practice (measuring what students have learned)
- **psychomotor** = determine the learning conditions (when admitting students to a higher type of school)

Other types of tests:

- Comparative (relative power tests) = performance compared to the population tested
- Authentication (Absolute Performance Tests) = The task is to determine to what extent the test fulfils predetermined and known criteria or standards (e.g. graduation)
- test of assumptions, input, continuous = formative, output = summative, monothematic (objectively scalable), polytematic (subjectively scorable)
- Psychological - intelligence, personality
- Psychomotor - movement abilities

- Didactic - school performance of the student
- Tests are accurate, objective measurements of personal qualities, personality activities and their performance

33.2. Projective methods and techniques

- a personality research method confronting an investigator with a particular situation in which he / she will respond according to the meaning of the situation
- Types of methods: verbal projective method (word association experiment, ...), graphic projective method (font analysis, drawings), manipulation techniques

Measurement method soc. Relationships

- sociometric techniques and techniques exploring preferential attitudes

Behavioural Method

- observations of certain phenomena, situations, behaviour (controlled observation, interaction analysis)

Experimental method

- allows verification of hypothesis mediation, changes of independent variable (laboratory, simulation, natural, forming)

Typology of Gavor's Methods

- **Qualitative research methods** (participatory observation, ethnographic interview, teacher's life story research)

Properties of a good didactic test

- Validity - to test what is to be tested
- Practicality
- Reliability - consists of 2 components:
    - solid (knowledge + skills)
    - accidental (external condition of condition)

33.3. Validity

- expresses the degree of adequacy of the interpretation of test results with respect to the particular test group
- expresses the rate (e.g. High, Medium, Low Validity)
- refers to any particular use of the test

4 types of validity:

- **Content** - based on the opinion of competent persons, what is in the curriculum, what is actually taught in lessons
- **Criterion** - the measurement result is compared with other generally acknowledged participant data
- **Prediction** - the test result is compared with the success of the test participant in those areas where the quality measured by the test is applied
- **Face-validity** - special case of content validity
- **Constructive** - indicates how much the test measures a certain characteristic of the student (e.g. Communicativeness)

Standardization of didactic test

- Will allow to rank the student according to the number of points achieved in a particular scale

33.4. Using didactic tests in school practice:

2 results of didactic test:

- Information for students' assessment
- Optimizing its further pedagogical activities
    - assessment of overall class results
    - usually by average number of points achieved
    - or arithmetic mean

34. DIAGNOSTIC ANALYZES AND ASSESSMENT OF DIDACTIC TESTS

34.1. Pedagogic diagnostics

Pedagogic diagnostics is a scientific discipline that has its origins in pedagogical and psychological diagnostics. It started to be considered independent discipline in the 1960s.

According to L. Mojžíšek (1988, p. 235), pedagogic diagnostics is a "theory and methodological practice of identifying, recognizing, classifying, assessing, and evaluating the level of pedagogical development of the personality of a pupil or group of pupils developed as a result of pedagogical activity."

Pedagogical diagnostics is an integral part of a complex educational process. It is a process of identifying, recognizing, classifying, assessing, and characterizing the level of pedagogical development of the subject of education or the course and result of the educational process in order to determine the current state – to make diagnosis.

Diagnosis is thus assessment of the current state of a student´s level.

Significant influence on the efficiency of the teaching process, i.e. the conversion of information into the learner's knowledge (skills, attitudes), has the teacher's ability to recognize the individual learners' abilities and to tailor their instruction.

Didactic test is a very good diagnostic tool for this process, especially for the following reasons:

- you can diagnose the entire class at a short time,
- the results are not influenced by the teacher's opinion and experience.

Custom principle of diagnosis

- Is based on the fact that the diagnostician must not be attracted to the diagnosed subject, which is a real problem in other ways of its realization for the teacher.

- Without the use of objective diagnostic tools, the teacher can diagnose students on the basis of their subjective approach (overly optimistic x negative).

- In the teaching process, the teacher notices especially those students who draw their attention by their knowledge or their behaviour.

Control functions of didactic tests

- Means the control of the objectives achieved at the beginning of the teaching process.
- The implementation of the control is important for both participants in the teaching process, For both the teacher and the student.
- The teacher acquires information on the effectiveness of the teaching process and the suitability of the applied teaching methods, organizational forms and other didactic means.
- The student gets information about the success of his or her activity / test results are a relatively good argument of the teacher when communicating information to the student's parents /.

Summary of rules for selecting didactic test tasks

- The tasks in the didactic test should not be too difficult or too easy.
- Tasks in the didactic test should distinguish sufficiently between students with better and worse knowledge.
- In the didactic test, there should not be a large number of unresolved tasks.
- The number of minor errors in didactic test tasks should not exceed the number of major errors.
- For the didactic test item with a sample answer, students should choose the same part of all the distractor offered.
- Creating a high-quality didactic test is an activity that is very demanding for the time and expertise of the author, it would seem ideal if the teacher could select and order a professionally prepared and quality didactic test from the market offer.

Didactic test

- "The systematic measurement of learning outcomes". (P. Byčkovský, 1982)
- An examination that focuses on objective discovery of the level of mastery of a subject in a particular group of people.

COMMUNICATION AND CREATIVE PROCESSES

35. SOCIAL CONTEXT OF COMMUNICATION, SOCIALIZATION, SOCIAL INTERACTION

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

The beginnings of word communication can be dated more than 60,000 years ago (Neanderthal man). Preserved written monuments, the oldest of which are at most 5000 years old. There has been a decline in the languages spoken by people on Earth. Their number is currently estimated at 6,000. Communication is always between two or more people.

35.1. Communication

Interaction is a demonstration of the procedural character of communication because each of the communicating people tries to influence the other, seeking support. Both the communicant and the communicator try to show in the speech what rules are acceptable to them - whether they are willing to step back, listen, whether they want to dominate what they dislike, what they like to welcome. If the communication does not work as one of the communicators would like he changes his tactics trying to impress more on the feelings or to argue with something he had not originally intended. It is therefore a process of change which the participants always initiate a change. If someone wants to initiate change, they act actively and send a message to the recipient.

People who want to talk together want to communicate not only information, but also their relationships, attitudes, feelings, moods. The essence of understanding relationships is the context in which the messages are transmitted. Most of the relationship information is transmitted by non-verbal and paralingual signals (voice colouring, phrasing, volume, body language). Communication is thus the process between the communicant and the communicator, the subject and the object between which mutual interaction proceeds. Self-awareness and self-esteem contribute quality of communication.

35.2. Socialization

In simple translation, the socialization means – be socialized. The factors of socialization are divided into primary, secondary, and there are also tertiary factors: The basic primary socialization factors: the family. Secondary factors include school, work environment, friends, mass media and various social groups; the tertiary factor is specific in that one constantly learns something new in life.

Mechanisms of socialization:

- learning by social anticipation,
- observational learning,
- learning through social empowerment,
- identification,
- learning by imitation,
- conditioning and
- social activities. Socialization is related to the concept of conformism, a process of individualisation.
- How one can be successful in socializing depends on external and internal aspects.
- An important aspect is education in the family, at school and in a close team.

35.3. Social interactions

- The process of interacting individuals (of the same kind) with each other.
- The process of social learning is important, which is hampered by errors: the halo effect, the effect of social status, prejudices and stereotypes.
- Socialization is related to the term conformism, a process of individualization.
- How a person can be successful in socialization depends on external and internal aspects.
- An important aspect is education in the family, at school and in a close team. Scripts explain other concepts related to the process of socialization, such as desocialization and resocialization.

36. INNER CONTEXT, RELATIONSHIP FORMULAS AND SOCIAL STEREOTYPES

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

36.1. Communication

- way of communication,
- the process by which information is told or exchanged,
- a means of social interaction,
- is not a specifically human process (unlike speech);
- results from the need for a person to exchange information,
- isolation from information causes psychological deprivation in humans.

Development of communication systems

- signs and signals,
- speaking,
- writing,
- printing,
- mass communication.

Communication process

- communicator (communication from her)
- communiqué (content of the message),
- communicator (accepts a message),
- the effect of communication.

Types of communication

- verbal (only 20% monologue, dialogue ..) / nonverbal (mimic, gestures..80%),
- symmetrical (all participants equally) / asymmetric,
- harmonic / conflicting,
- competitive / collaborative,
- formal / informal,
- chain / focal / circular,
- spoken and written verbal communication,

- effective x inefficient communication,
- content x relationship communication,
- intra (internal speech) and interpersonal, group, mass communication,
- complementary communication,
- synchronous x asynchronous.

Effects of communication

- To what extent was the intention of the speaker fulfilled:
- effect short-term x long-
- desirable x unwanted (for example, a wit can be understood as a cue).

Communication models

- **Linear** - one speaks, the other listens;
- **Interactive** - role change alternately;
- **Transactional** - every speaker at the same time listener.

36.2. Feedback

is defined either as information communicated or as a process or system observation process and the gathering of information to evaluate or correct it. In practice, we come across feedback as a way of helping another person to learn how other people see him. It is about communication, during which someone is told how he influences his surroundings.

People as the providers of feedback generally do the following:

- uncertainty of communication,
- one-way communication,
- manipulation.

People as recipients of feedback are prone to these errors:

- expectation of the worst,
- counterattack,
- passivity.

Feedback should follow the following principles of successful communication:

- openness,
- respect,
- co-responsibility,
- purposefulnes
- adequacy.

37. RHETORIC. PUBLIC PERFORMANCE, PRESENTATION.

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

Rhetoric

- is a science of speaking, speech, speech designing.
- It was born in ancient Greece where, besides drama, music, sculpture and architecture, it was considered a creative art.
- It was based on five elements (topic definition, substance selection and layout, text stylization, training, presentation) and three parts of the construction of speech (introduction, core, conclusion).

Speaking

- Ability to communicate clearly is one of the basic prerequisites for successful work in many fields.

A communication is a term that indicates a linguistic (oral) speech, speech or message. Its general layout (scheme) consists of the following parts:

1. **Introduction** - During the introduction, the speaker communicates the main idea of his / her performance, defines the problem he / she will deal with and learns about the way of interpretation and its structure (curriculum).

- Welcome
- Topic, structure and main thesis
- Motivation of speech, an effort to gain favor

2. **Stage (core)**

- Specify the topic
- Method, Methodology
- Custom information - We move from whole to detail, from familiar to new, from simple to more complex
- Arguments
- Anti-counter-missed

3. Conclusion

- Drawing conclusions, summarizing the main arguments, possibly pointing to the possibilities of further research, development
- Reference to source information, contact with speaker
- Farewell

Preparation of public appearances

- We do not underestimate the meaning of sufficient content preparation, the performance must communicate something essential or interesting, it should enrich the audience.
- We will get the most out of listeners.
- We will meet the venue of the speech and the technical
- hall equipment. Make sure the technique works and the technical parameters are satisfactory. We will schedule the exact time of the speech. We're going to try to get speech in rough.
- We will prepare a written background, a presentation, visual aids.

Speakers are more convincing when using visuals, as sight is the most important information channel. It is estimated that by sight we receive about three times more information than all other senses combined. For this reason, presentations are the most preferred type of communication in the 21st century.

We distinguish types of presentations: Primarily on a) information presentations, often in the form of a presentation or paper, we try to be objective, informative and factual; b) A convincing presentation aims not only to rationalize employees, superiors, customers, or journalists, but also to enthuse them.

Specific forms of presentations

- professional sales presentations,
- information events,
- public opinion,
- professional lecture,
- a working meeting,
- project consultation,
- presentations for company management,
- motivation conference,
- presentations on posters (panels),
- training.

38. WORD COMMUNICATION, IMPLICIT AND EXPLICIT COMMUNICATION; DENOTATION, CONNOTATION

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

38.1. Character types

- **indexes** - the relationship of the character to the object
  - for example: smoke - fire, sneezing - allergy or cold

- **icons** - Physical similarity
  - statue, photographs,
  - pictograms - for example, smiley,
  - an example: it was thaaaat long

- **symbols**
  - for example: morse, music, math, crossed cigarette

For ordinary users, language is first and foremost a means of communication.

In general, regular users do not realize when speaking**,** that:

- language is a system of rules,
- The issue of language equipment (variety or breadth of vocabulary).

They sometimes know intuitively when they found a "common ground" with a communication partner over a given topic.

Words have:

- objectively given meaning, generally accepted = denotation;
- subjectively generated meaning = connotation.

Denotation: social meaning, what a word or term is important.

Connotation: We can create for each word our other, subjective meanings, given by our experiences, imaginations, ideas,

The type of communication of information as part of the communication process in the framework of word communication at the level of *extralingvistic (paralingvistic)* contents of factors or characters or **nonverbal expressive means (mimics, gesticulation, movements of the body or its parts)** is referred to as metacommunication.

Metacommunication

- Metacommunication is what I add, for example, a tone of consensus and the attachment of "hm" or ironic tone in the voice, a change of intonation.
- Sometimes, metacommunication is mistaken for non-verbal communication, forming a separate way (type) of communication.

39. TYPES OF PUBLIC SPEECH, ITS PREPARATION. INTERVIEW, LECTURE, MEETING, MEETING. PUBLIC RELATIONS.

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

39.1. Interview

Is an ancient and effective method of gathering and exchanging information and interacting. It is a method used in various fields of practice as well as in science and research. The core and basis of each interview is polling, answering questions and listening. The essence of the art of conducting an interview is the ability to appropriately formulate and ask questions, listen to, correctly understand and analyze the answers obtained while maintaining the routing of the interview to the intended goal.

Uncontrolled (free) interview

- **Main advantages of an uncontrolled interview** (Štěpaník 2005)
    - It gives free expression.
    - It brings more information (often unexpected)
    - We will also learn what we would not ask (or forgot to ask).
    - Because speech is to a large extent an indicator of the educational and intellectual level, free speech (content and formal page) gives rich material to analyze and recognize personality.

- **Main Disadvantages of an Uncontrolled Interview** (Štěpaník 2005)
    - It demands great time.
    - There is a tendency to "run off" or "run" from the subject, to cling to insignificant details.
    - Some people are stressed by the unstructured situation, while others make it possible to talk without hesitation.

Managed (Structured) Interview

- **The main benefits of a managed (structured) interview** (Štěpaník 2005)

    - Interview results are comparable to others.
    - Questions are prepared in advance, focusing on areas of interest.
    - Saves the time of the participants.

- **Main Disadvantages of the Structured Interview** (Štěpaník 2005)

    - He does not have to capture all the important information.
    - It does not give the other party the possibility of free expression.
    - It can act impersonal, bold, "**interrogatory**".

For communication success, however, it is perhaps even more important to respect the three principles:

- to be natural in his speech,
- to behave appropriately,
- not to try to be someone other than I am.

39.2. Public relations

- working with the public, I will talk about working with the public in non-commercial institutions.

- It should create trust between the institution, the public and the environment. The goal is good judgment, positive acceptance of the organization, good impression

- this work is differently called, its history dates back to the early 20th century, public relations is associated with the development of mass media in the life of society

- In the 1950s, the concept was already codified in dictionaries and is an integral part of the work of the institutions

- Institutions are trying to track all the processes taking place in society and react to them. At the same time, by being sustained by state resources, it must prove its worth

- The difference from marketing - marketing focuses on the economic, material aspect, public relations, and observes social and political factors.

- It has three main components:
    - inform
    - prepare
    - integrate (in order for the institution to be accepted as part of the municipality).

40. DYSFUNCTIONAL COMMUNICATION AND VERBAL COMMUNICATION DISORDERS.

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

Communication disorders

- There is sometimes a lack of information or distortion between the communicant and the communicator. In these cases, we are talking about communication disorders, in terms of either quantitative or qualitative:
- disturbances in the communication channel - eg environmental noise, hearing loss, discontinuity;
- faults from the senselessness of words - for example word ,,rail,;
- "metacommunication" - "metacommunication factors" are: facial expression, emotional accent, social role and status;

Brainwashing

- disturbances that occur during conflicting situations - these are the following:
- grossly destructive communication (communication with the aim of humiliating and offending);
- authoritarian communication (the tendency to impose second own attitudes),
- disjunctive communication (individuals do not affect the messages received, the incentives are brighter),
- pseudocommunications - formal communication,
- noncommunication - factual interruption of communication, even if partner presence persists.

Subconscious speech disorder

- the incomplete sentence, when the speaker remains in the middle of the sentence and starts the second sentence,
- the reverberation and stuttering, occurring in people in tension and uncertainty,
- using parasitic words.

40.1. Communication errors

- the devaluation of the other, his opinions (shedding, scoffing)
- changing the topic to be considered as an answer,
- incomplete sentences,
- catching the word,
- phrases, vague statements,
- double-minded,
- speaking after another,
- interpreting the manifestations and behavior of the other,
- labeling, ie tagging the behavior of the other,
- manipulation, ie influencing the behavior of others with a living goal,
- verbal aggression: snoring, verbal intrusion, irony, sarcasm, insulting,
- non-verbal aggression: to ignore demonstratively, to remain silent, to behave in an impassioned way.
- jumping into speech,
- scorn,
- suspicion,
- underestimation of the others,
- doubt over the competence of the other,
- disqualifying someone,
- insensitive to incoherent behavior,
- bullying,
- abuse of trust,
- non-compliance with the agreed rules,
- conscious overloading the other with the complaint that it is not enough,
- pulling out of the position of my social role,
- slander.

Cause of communication disorders:

- communication noise in the communication channel - environmental noise
- unclearness of the meaning of words - multi-meaning words
- metacommunication - we do not understand the hidden subtext correctly

Conflicts

They express the encounter of two or more totally or to a certain extent with mutually exclusive or opposing efforts, forces and tendencies.

Types of conflicts:

- intrapersonal (contradiction within one personality),
- interpersonal (emerging from an obstacle),
- group,
- intergroups.

41. THE IMPORTANCE OF NONVERBAL COMMUNICATION. MIMICS, VISUAL COMMUNICATION, GESTATION, HAPTICS AND POSTUROLOGY

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

41.1. Nonverbal communication

- body language is the exchange of information by other means than words (mimics or gestures)
- facial expression, delay, zooming, touch, attitude, movements, gestures, views, speaking tone, outward adjustment.

Nonverbal communication functions

- nonverbal communication is historically the oldest communication and is influenced by culture,
- it is mainly used to support or replace speech expression, expressing emotions, interpersonal attitudes, self-expression, ceremony and art (pantomime).
- nonverbal communication must be monitored according to its importance in society and the situation.

Nonverbal communication includes:

- **Mimic** - face, look,
- **Gesture** - a nod to consent,
- **Haptic** - touch, hand delivery,
- **Posturology** - body posture,
- **Proxemics** - Approaching, delaying the other (intimate, personal, social, public sphere)
- **Kinetics** - involuntary movements of hands, heads,
- **Communication from outside,**
- **Chronemics** - time management, handling of objects,
- **Paralingism** - a sound page.

41.2. Proxemics

Proxemics - Includes also zooming in or out of the other person

Proxema distance - vertical or horizontal

4 zoom zones

- **intimate** - the lower border merges with the close touch of the partners, the upper limit is given by the distance of 15 - 30 cm, can be observed between the mother and the child, between the partners, the mages

- **personal** - the lower limit is 45 - 75 cm long, the upper limit is 75 - 120 cm. The boundary that we observe when meeting an unknown person, the distance we keep in familiar, friends / social parties, personal / official interviews

- **social** - lower boundary ranges from 120 to 210, upper 210 - 360, especially during business contacts, business meetings, group discussions. Distance from strangers, senior interview with subordinate, craftsman, postman ...

- **public** - the minimum bottom distance is 3.6 m, the top up to 7.6 at a public performance, when it is necessary to see the entire character and movements. Unline zone, it is possible to distancing itself from other people, turning to a wide audience, politicians

Posturology - "body language"

- If your partner breaks his arms on his chest, if his legs cross over and bends (as you can see with our President Zeman) it means: No, no!
- Who leans back in the back of the chair and puts his hands behind his head - he has all the solutions / lawyers - the gesture that they have everything under control.
- Nail friction reveals the idea of "hurting".
- If someone attaches their hands to their heads, they are exploration and evaluation, but he cannot support his head, that is a clear signal of boredom and indifference.
- When the hand rests on the face, it indicates the real interest and the index finger in the direction of temple, a critical distance was added to him.
- The leading role in all hand gestures has a thumb.
- It represents the power of personality, it shows self-confidence.

42. SOCIAL CONTACT, INTERACTION, CREATION OF SOCIAL STRUCTURE.

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

42.1. Communication and social contact

The word communication comes from the Latin communication, 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.

Social contact - interactions and interactions between people. A specific feature of the social environment is that the individual does not respond only to his / her own impulse / word, act, etc., but also to his / her bearer. The interaction takes place in two basic levels:

- Biological (including erotic-sexual),
- Social (friendship, partnership, love, aggression, self-esteem

Communications - by number of participants

- Intrapersonal communication takes place within an individual and takes the form of an internal dialogue. It is a "self-talk", a self-reflection of one's own actions and communication with the outside world.
- 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 the media

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.

Interaction is always about interpersonal perception and communication (communication).
Social perception and judgment: Perception is a complex psychological process that enables a person to get to know the world around and to orient in it**, "Sociogenic filter"**

The most common mistakes in perception and judgment

- effect of so-called "first impression"
- "halo effect„
- "private theory of personality"
- "the effect of mildness and forgiveness"
- „constant error"
- prejudices

People engage in social interaction (social contact) during which social behavior takes place, namely interaction (interaction of social partners) and communication (mutual communication).

42.2. Social perception

- Social perception is how we perceive other people.
- It is subject to certain rules.
- We tend to think about others in certain categories, stereotypes, and diagrams, and there are many different perceptual effects such as the effect of the first impression.
- **Social perception** is always influenced by the personal experience of each participant, his social experience.
- **Social perception** refers to the perception and assessment of each participant, his social experience.
- **Social perception** refers to the perception and judgment of others and of oneself.

43. THE LAW OF COMMUNICATION IN A GROUP. COMMUNICATION AND SELF-CONFIDENCE, SELF-IMAGE

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university.

the right choice of people to the work team is important for proper group communication and manager work.

Workers' advantages and disadvantages must be known. In practice, care must be taken to compensate for the deficiencies and the strengths of the whole team. In other words, each member of the working team has the opportunity to show its weaknesses and strengths. Team roles overview presents different types of behaviour, the mutual interplay of which helps to "smooth" the team work.

43.1. Self – image, self – presentation,

- is the ability to "sell yourself„
- is closely related to empathy, trustworthiness, self-confidence, and overall emotional intelligence.
- The purpose of self-presentation is to leave a good impression and also to present yourself and your skills in real, but also attractive and confident way, and thus to attract interest in others.
- The initial impression we produce and impress upon us is usually given by a complex of non-verbal signals.
- The original information is the body's own habit, height, weight, symmetry, appearance and its adaptation: clothing, footwear, accessories and their alignment, hairstyle, facial features, ornaments, special signs, make-ups, and smells.
- Creating a successful self-presentation requires susceptibility, self-confidence and the ability to control any strong emotions such as anxiety or anger. It means demonstrating ourselves in a way that corresponds to the wishes and expectations of our listeners.

Self-consciousness, Empathy

Self-consciousness is, next to empathy, the basis for successful communication and co-habitation with people. One who does not accept himself can hardly develop his empathic abilities.

Being self-conscious means knowingly perceiving oneself, that is, your body, your feelings, your emotions, your strengths and weaknesses, being aware of your borders, as well as your physical, mental and spiritual abilities. A self- conscious person does not always have to be self -confident. The important thing is whether you are aligned with yourself. A self-confident man can accept the others as they are

The first impression at the meeting

- **Proper posture** - not only for our health and fitness, but also for our use in society. This applies to walking, standing, sitting, just about all movements;
- **How to make a good impression on a meeting** - experts are convinced that a permanent assessment of the second one will be created during the first 120 seconds of a meeting;
- **The chance to find a lie in a normal person is relatively low** - if one is to mark liars, it achieves only 57% (with only two options, so 50% represents the degree of coincidence).

44. EMPATHIC AND EGONIST APPROACHES, SYSTEM APPROACHES, MOTIVATION.

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What is "motivation"?

an internal or external factor or a set of factors leading to the energeticisation of the organism
Stimulus to performance, behaviour:

- What external factor motivates you? For what?
- What internal factor motivates you? For what?
- **The intangible form of motivation is slower but more durable, building loyalty**

44.1. Rogers' Human Approach

(PERSON-CENTERED APPROACH) Carl. R. Rogers

A person in communication: friendly, accepting, self-conscious, interested, empowered.

- Do not keep up with "façade", do not use "should", be free, do not try to please anyone, accept everything as a process of change, be open to experience, believe in, have a self-autonomy.
- The ideal communicator - man constructively-creative, does not attach to the meaning of words, admits that it is possible to change the hypotheses, the ability to receive a great deal of conflicting information, not to draw conclusions immediately

44.2. System approaches

- Man does not live alone, but is part of other relationships that affect him. The change to an individual is also reflected in the whole.
- Communication creates the quality of the whole, the whole creates the communication of the individual members (the principle of circularity).
- If we want to understand the other one, we must first know the whole frame from which the message was removed.
- Empathy = ability to train, improve

Listening to hearing is as follows:

- good communication - how we can listen;
- Art to track down the line, to estimate the attunement of man, his intention, needs;
- Effective understanding of what is being broadcast to us;
- Do not condemn, do not judge;
- Cognitive maturity - to be free from stereotypes and prejudices.

Communication tips

- use shorter sentences,
- professional terms only wherever possible,
- leave room for expression to the other party,
- do not try to please,
- be open to change,
- have your own autonomy (not to lose yourself in conversation),
- take things so that they are the process of change.

Theory of communication games

- Prerequisite: People are players, communication is a game;
- Players - Goal: The greatest pay / reward option;
- Rules of the game;
- Dirty games - lies, manipulation, double-bind;
- Important: Whether the player is based on (not) complete information.

44.3. Transaction Analysis (Structures)

- **Child's Ego (DI)**
  - If he does, he is spontaneous, cheerful, if he encounters an obstacle, he starts to be truculent, angry, unable to bear the consequences of his actions.
  - **A child can either be:**
  - free - in the positive spontaneous plane; in the level of negative immature.
  - adjusted – in positive level collaborative plane; in negative level rebellious.

- **Ego of adult (DO)**
  - He is able to bear the consequences of his actions, anticipate them, logically,
    critically assessing himself and surroundings, often asking questions, is verbally natural.

- **Ego of Parents (RO)**
  - He is caring, advising, mentoring and commanding, type. Parent may take the form:
  - *controlling - in levels:*
    - positive – structuring
    - negative - critical,
  - *or caregiver - in levels:*
    - positive caregivers;
    - negative benevolent.

45. STYLES OF LEADERSHIP, "MOBBING", "LABELING" AND CATEGORIZING PEOPLE. ASSERTIVENESS

Methodological concept for effective support of key professional competences using the foreign language ATCZ62 - CLIL as a teaching strategy at university

A good leader should have five characteristics

- The group must perceive it as part of it.
- They must have the qualities and opinions the group has as a whole.
- They must be model members.
- The group must perceive it as one who helps to achieve the goals.
- The group must positively represent the outside.

45.1. Styles of leadership

- **Autocratic style:** focus on the task, everything the leader decides, the members of the group have minimal autonomy;
- **Democratic style:** frequent discussion of the task, the interest of the leader on the members, the people with the greatest efficiency;
- **Liberal style:** Leaving freedom (the leader does not care about the way the tasks are done), they do not achieve results almost at all.

Authority

- legitimate power.
- When someone has authority, he has the authority to rule, those he rules to, take him as someone who has the authority to rule them.
- It is therefore a power whose expressions are accepted by those concerned.

We can divide the authority into:

- rational,
- traditional,
- charismatic.

45.2. Mobbing

is a kind of refined bullying in the workplace.

In our country we can meet with the expression: the teror at the workplace or the psychoteror.

Mobbing has the following characteristics:

- systematic, purposeful, repeated attacks by an individual or group on a person,
- defensive position of the employee, eliminating him from the collective, humiliating, detracting and forcing to leave the workplace.

Labelling - the theory of sticking

- (or also Labeling Approach, Labeling Approach, the theory of labelling is one of the constructivist theories that try to explain delinquency.
- It deals with the process of interaction between individuals who consider themselves to be perpetrators of social norms, and between those who form them and then assess the intruder (give them a label).
- Anthony Giddens defines the theory of ethics as the theory of deviation, according to which certain individuals become deviant because they have been so designated by other people;
  is characterized by the stereotypical labeling of others by short phrases or phrases, usually to a negative characteristic.
- an example is an outsider, a criminal, a liar, a cheater, a communist, an anarchist.
- Labeling leads to social stigmatization and reduces self-esteem.
- According to Douglas Reybeck, the label may also cover individuals who fail to show enough that they adhere to prescribed standards.
- According to the author, the society is based on a strong desire for unity and collective consciousness, which results in the stigmatization of any "disturbing element" that is viewed as a threat to the order

The deviation according to the society can therefore be divided into "soft" and "hard" forms:

- **Soft deviance** = individual behaviour is inconsistent with valid standards, but it is not a threat to social order.
- **Hard deviance** = behaviour is beyond the norm and is considered as a threat.

45.3. Assertiveness

- It is a way of communication in which the individual honestly and openly expresses thoughts, emotions, opinions and attitudes in both positive and negative forms, while not violating his or her rights or the rights of others.
- Helps to increase self-consciousness and self-esteem, helps to judge your own thoughts, to act and to negotiate.
- An important feature of assertiveness is that it helps to recognize manipulation, reduce the level of emotion, be independent and freely decide.

Assertive rights

- One has the right to judge their own behaviour, thoughts and emotions, andbe responsible for themselves.
- A person has the right to offer no apologies and excuses to justify his behaviour.
- A person has the right to judge how he is responsible for the solution of other people problems.
- Man has the right to change his mind.
- One has the right to say "I do not know".
- One has the right to be independent of the goodwill of others.
- One has the right to make mistakes and be responsible for them.
- One has the right to make illogical decisions.
- One has the right to say "I do not understand you".
- One has the right to say "I do not care".

Assertive techniques

These are techniques that can be understood as possible guidance for solving situations, they are not always a guarantee of success:

- Interlaced Gramophone Plate - Enables manipulation, assert your opinion and demands without excitement.
- Open Door Technique - In case of unjustified criticism, overlook the attacks.
- Balancing with criticism, agreeing with unauthorized criticism – accepting criticism without devastating feeling.
- Inquiry about the shortcomings - determining the true cause of the rejection partner.
- Acceptable compromise - to achieve satisfaction on both sides.
- Negative assertions - managing of own mistakes.