

Methods of Education and Training of Work-Based Learning

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Abstract – A pedagogical science which is an application of the principles of didactics to the teaching of the subject of technology. Technology teaching methods, like any science, have their own subject of study, i.e. a particular area of reality. Recently, special attention has been paid not only to teaching and upbringing of students, but also to their development, so the subject of technology teaching methodology should be understood as the theory and practice of teaching technology, upbringing and development of students in the process of teaching technology.

Keywords – Pedagogy, Psychology, Technology, Education, Methods.

I. INTRODUCTION

Learning can be defined as the process of information exchange between the instructor and the learning system, and learning methods as the means of managing this exchange on the basis of a given programme. The problem of methods in labour training methodology has not yet been interpreted unambiguously. Even the fact that some authors do not formulate it as "methods of teaching in labour (or technology) lessons", but as "methods of labour training" is of fundamental importance. The difference in these formulations demonstrates a significant difference in conceptual views of the subject "technology". The latter implies its own system of methods specific to the subject and distinguishing it from all others.

In modern didactics it is customary to classify teaching methods on several grounds [2]:

- according to the sources from which students acquire knowledge (verbal, visual, practical methods);
- by the nature of cognitive activity of students (explanatory-illustrative, reproductive, problem-based);
- the nature of the didactic tasks to which they serve (methods for imparting new knowledge to students, methods for consolidating acquired knowledge, methods for building skills and competencies, and methods for monitoring and evaluating students' knowledge)
- by prevalence of application in the activity of a teacher or a pupil (methods of presentation of knowledge by a teacher, methods of independent work of pupils). The first two of these classifications are the most popular, so let's look at them in detail.

II. MAIN PART

Methods, defined by source of information, include three main types:

- verbal;
- visual;

- practical [7].

Verbal methods. Verbal methods such as explanation, narration, conversation and instruction are the most widespread in labour training practice.

A story is a narrative form of narration by a teacher, usually of new learning material ("history of paper", "features of folk art", "how clocks are made"). The story should meet the following didactic requirements: be short, authentic; logically coherent and understandable for primary school pupils. An educational story should combine accurate technical information with a vivid and lively narrative. Usually the teacher's narration is accompanied by a demonstration of materials, tools, equipment and graphic aids. When new terms are used, the teacher should pronounce them clearly and write them down on the board. The effectiveness of the story increases if the teacher introduces elements of problems and contradictions.

Explanation is a consecutive explanation of the content of the task to the students. In the process of explanation the teacher guides the students to choose the ways of solution, introduces new terms, properties of materials and purpose of tools, rational labour actions, operations and techniques. The explanation is usually accompanied by an educational demonstration of visual aids (tables, posters, drawings, diagrams, flow charts, samples of products made by the teacher or students, etc.) or stages of work performance. This method is characterised by conciseness and clarity.

In a technology lesson, the storytelling and explanation often turns into a conversation.

A conversation is a dialogue between the teacher and the pupils in which the teacher draws on the knowledge and practical experience already possessed by the pupils. Talk is considered to be one of the most effective methods of work-based learning. It may be used when introducing new material, when consolidating and revising, and when summarising what has been learned. The content of the interviews must be close and accessible to the children and related to their experience, perceptions and observations. In preparing for the discussion, the teacher selects questions that should be understandable to the students and reflect the essence of the material studied. The questions in the discussion should be of interest to the children and they should be eager to find a solution and answer. The teacher should think about the sequence of questions and possible answers. By supplementing and summarising the pupils' answers, the teacher will gradually lead the children to learn new concepts or consolidate the knowledge they already have.

Instruction is one of the most specific methods of work-based learning. It is understood as demonstration of correct and safe performance of labour actions, explanation of ways of labour operations, their sequence, prevention and correction of practical activities of students. It should be noted that if such a specific method is proclaimed as the main and basic one at technology lessons, then these lessons become just a "handicraft factory" rather than a means of comprehensive development of students. It should be said that instruction is used at different stages of the lesson (introductory, current and final) and can be not only verbal, but also demonstration and written and graphic.

Demonstrative (visual) methods are particularly widely used in the early grades, as children of this age are predominantly visual-imaginative and have insufficient experience and understanding. They provide direct perception of the pupils and make it easier for them to learn. These include showing, demonstrating, looking at, observing, examining, analysing a sample, etc. In each particular case the teacher chooses the most optimal visual methods and techniques for the lesson [3]. All types of visual aids should support the main idea of the lesson, be closely connected with the solution of the technical and aesthetic task, focus attention on the form of the product, possibilities of colour solutions, decorations. Visual aids for technology lessons can be divided into two groups: natural and pictorial. Natural aids include materials, tools, samples of finished products, etc.; visual aids include models, models, tables, pictures, photographs, drawings, diagrams, charts, technological charts, etc. Each aid - factory or homemade - should meet the educational objectives, be scientifically reliable, convincing, accurate, concise, appropriate to the age specifics of the students. The teacher usually combines the demonstration of a manual with an explanation which makes the teaching easier to understand, arouses the children's interest in the work task and stimulates their creative initiative.

Practical methods in technology lessons are extremely important because it is possible to acquire the necessary knowledge and learn how to correctly apply skills and abilities only in the process of direct performance of specific educational tasks. This group of methods includes all exercises, experiments, experiments, as well as work with the textbook, etc. At technology lessons, students acquire general polytechnical skills (designing the work product, planning the work process, equipping the workplace, marking, machining, measuring, assembling, fitting, finishing, carrying out self-monitoring) in addition to polytechnical knowledge. The

transformation of knowledge into skills requires additional explanations, instructions and drills that enrich the students' personal work experience. In skills training, work operations are usually broken down into smaller elements, i.e. work procedures and actions. In the first stage, each work activity is carried out by the pupil at a slower pace, with careful thought given to each element to be performed. The work techniques are gradually merged into work operations and then into work skills. In the process of carrying out practical work the younger pupils "exercise" a lot and gradually master the techniques of working with simple hand tools, ways of processing various materials. Special experiments and experiments on the properties of different materials arouse the pupils' interest and remain in their memory for a long time. When it comes to independent work with the textbook and other didactic materials, the teacher should pay special attention to teaching the pupils to use them competently in their work. It is a matter of carefully analysing the information they contain, selecting it appropriately and using it in practice, as younger pupils are often not able to do this kind of work, as they are used to following direct instructions and directions only in technology lessons.

Having considered the classification of teaching methods according to the sources of knowledge, we can note that all methods in it are closely interconnected and sometimes difficult to separate. Thus, word as a source of information is present not only in storytelling, explanation (in verbal methods), but also in a textbook (i.e. inseparable from practical methods). Visualisation in the early school age accompanies any explanation and is also contained in the textbook. In addition, any of the methods discussed can guide pupils in different ways. In one case the teacher's narration will only contribute to some learning and pupils will be passive listeners. In another case, the same verbal method may show them the reasoning process and contribute to the children's thinking.

With this in mind, consider another classification.

Methods defined by the nature of cognitive activity of students are divided into:

- explanatory-illustrative;
- reproductive (reproducing);
- problem-based [3].

Explanatory-illustrative methods are the previously discussed verbal methods combined with demonstration methods. Teaching usually starts with explanatory-illustrative methods, which consist of presenting knowledge to students in different ways - visual, auditory, verbal, etc. Possible forms of these methods are communication of information (storytelling, observation, examination, etc.), demonstration of a variety of visual material, including by means of technical means. The teacher organizes perception and the pupils try to comprehend the new content, build accessible connections between concepts, and remember information in order to operate it in the future. Knowledge acquired through the explanatory-illustrative method tends to remain at a low level of knowledge-copies, i.e. learners memorise the information and then reproduce it as needed.

Reproductive methods are most appropriate in cases where it is necessary to acquire the necessary specific knowledge or ways of action in a short time - new methods of processing materials, ways of marking, rules for using tools, work on folk crafts motifs, etc. Reproductive methods allow the use of the same means as explanatory-illustrative methods: descriptions, repeated stories, conversations, a variety of visual aids, exercises, practical work, etc. The number of repetitions and exercises when using the reproductive method is determined by the complexity of the teaching material [6]. This method assumes both independent work of students and joint activities with the teacher. The goals achieved by reproductive methods (e.g., consolidation and clarification of knowledge) are rather difficult to achieve by other methods.

Explanatory-illustrative and reproductive methods do not provide the necessary level of development of creativity and individual abilities of students. In this sense, special attention should be paid to the importance of problem-based learning for children's development.

Problem methods are aimed at exploratory, creative activities of students. The essence of these methods consists in active acquisition of knowledge and independent search for ways of work. This group may include:

- problem-based narration;
- partially exploratory (heuristic);
- exploratory;

- project method.

All of these methods involve posing and solving problem situations. In non-problematic, 'communicative' learning, the necessary knowledge and skills are formed before the task is solved and are first independent of it, and then the students apply and consolidate them in the process of implementation. Problem-based learning implies that new knowledge is obtained, discovered by the student himself/herself in the process of solving practical and theoretical problems.

The method of problem-based learning involves posing certain problems that are solved as a result of creative activities of students. The essence of the method of problematic presentation is that the teacher in the course of his story, explanation is not just telling the material, and constructs on its basis a problematic situation and himself reveals the contradictory process of its evidentiary solution [4]. Students follow the course of thoughts and reasoning of the teacher, mentally check their persuasiveness. This differs from the traditional problem-based narration, because it necessarily implies the participation of the students. The teacher, creating problem situations ("why does metal sink in water, but a metal ship does not?"), encourages students to make hypotheses, to put forward ideas, gives them the opportunity to refute or confirm the assumptions put forward, independently make reasonable conclusions. The teacher uses explanations, conversations, demonstrations of objects, observations and experiments. In this way, the problem-based presentation of learning material brings the learning process in a comprehensive school closer to scientific inquiry.

Heuristic (partially exploratory) methods include elements of reproductive and exploratory activities. The essence of the methods lies in the fact that students are not given a final solution to the problem; they are asked to solve part of the feasible questions on their own. This implies the introduction of special tasks into the technology lesson that put students in the position of active actors rather than mere doers [1]. Examples of such tasks are work on a flow chart with missing data, mental analysis of a sample design, calculation of product dimensions, making sketches, etc. Heuristic conversation, unlike an ordinary conversation, contains such questions that lead children to some kind of "discovery", resolution of a contradiction, independent search for a solution. Pupils not only answer questions, but learn to reason, analyse and find evidence ("what do our things tell us about things"). Such tasks increase the consciousness of learning, develop students' creative thinking and cognitive activity.

In the practice of teaching younger pupils, partly exploratory methods stand side by side with exploratory methods.

Research methods should be regarded as the highest level of students' creative activity. Its essence lies in the fact that the teacher models a problematic situation and presents it to students in the form of a task, for the solution of which it is necessary to creatively search for his variant in exact accordance with the conditions or a given goal. The use of these methods allows to put students in the position of co-authors, "co-developers" or even independent creators [5]. With these methods, students develop knowledge and skills that are highly transferable and can be applied in new work situations. The use of these methods brings the learning process closer to scientific inquiry, where students are introduced not only to new scientific truths, but also to the methodology of scientific inquiry. Note that the research method in science is different from the research method in teaching. The research scientist discovers new, previously unknown phenomena and processes for society; the pupil makes discoveries only for himself or herself. The teacher, when posing a problem for the students to investigate independently, knows both the result and the ways of solving it. Exploratory methods are introduced in order to foster the pupils' character traits for further creative work. For example, pupils are asked to explore the properties of the different types of paper offered in order to make ships and colour them. In this kind of setting pupils consciously use the materials and apply the activities, rather than copying the sample and repeating the instructions, or offering spontaneous variations.

The research method in technology lessons actually acquires the features of project activities.

Project-based learning in the Technology course

Students' learning project activities in pedagogy are usually used together with traditional subject-based learning as part of a system of effective education. A project is a collaborative and creative work between a teacher and a student. The use of the project method has changed the role of the teacher, who is now the organiser of the pupils' cognitive activities and their assistant, rather than the bearer of ready-made knowledge. The project method helps the teacher to differentiate the learning process and to deepen and extend students' knowledge. The method of projects at technology lessons allows the teacher to direct the thinking activity of students through setting the problem, to reveal creative abilities, to form intellectual, communicative and social skills. This method

contributes to the formation of some personal qualities that are developed only in the activity and cannot be learned verbally. in any topic, often in several subjects studied [8].

Projects can be individual ("Our Family Traditions"), group ("Folk Crafts of Russia"), collective ("City of the Future"). According to the duration, there are short-term projects ("February 23") and long-term projects ("What we know about paper"). By the degree of inclusion of disciplines there are monodisciplinary ("Origami") and meta-disciplinary ("Fashionable Clothes"). Technological projects may be technologically-constructive or art-constructive in nature. The research work of students is a prerequisite of every project regardless of its type. This includes coming up with an idea, searching for information, processing the found material, comprehending and presenting options.

There are three phases of the project: development, implementation and defence. The teacher's role in the students' project activities is especially important in the first and last stages. The fate of the project as a whole depends on how the teacher fulfils his or her role in the first stage (immersion in the project). During the implementation of the project, the teacher performs several functions: orientation in choosing the topic; assistance in planning the activity, in searching for information, in overcoming difficulties encountered; selection of necessary tools; selection of technological operations; evaluation of the final results. When defending their project, they develop the ability to express and defend their point of view competently, show activity, conscientiousness, diligence and ability. Possible criteria for assessing the quality of the design product can be scientific originality, originality, durability, reliability, choice of materials, absence of defects, as well as aesthetics (compositional completeness, colour solution, style, design).

III. CONCLUSION

The activity-based approach to the construction of the technology (labour) learning process is the main characteristic feature of this subject. It contributes to the formation of junior schoolchildren's ideas not only about the interaction of man and the world around them, about the role of human labour activity in the development of society, but also allows them to form initial technological knowledge, the most important labour skills and abilities.

Students are taught specific technological operations while creating items from various materials (constructor parts) and acquiring initial skills in project activities. Types of practical activities and sequence of practical works are determined by the age peculiarities of students and built on the basis of gradual increase in the degree of technological complexity of products and taking into account the possibility for students to show creative initiative and independence [8].

Socio-moral aspects of labour activity, personal and social significance of the products created are of fundamental importance in the selection of specific training content.

REFERENCE

- [1] Konyshova, N.M. Theory and Methodology of Teaching Technology at Primary School: Textbook for Students of Pedagogical Universities and Colleges / N.M. Konyshova. - Smolensk: Association XXI century, 2006. - 296 c.
- [2] Sinebryuhova, V.L. The lesson of technology in primary schools: textbook / V.L. Sinebryuhova. - Rostov n/D: Phoenix, 2015. - 124 c.
- [3] Kobernik, O.M. Evolution of systems of labor training in the conditions of implementation of educational sector "Technology" / O.M. Kobernik // Pedagogy and Psychology, 2007. - № 1. - C.114-123.
- [4] Kruglikov, V.I. Technique of teaching technology with practical work / V.I. Kruglikov. - M.: Academia, 2004. - 460 c.
- [5] Murtazaeva, E.M. Peculiarities of training future teachers of primary classes to teach artistic labor / E.M. Murtazaeva // Pedagogy and Psychology, 2006. - № 2. - C.67.
- [6] Pohomova N.Y. The method of an educational project in an educational institution: Manual for teachers and students of pedagogical universities / N.Y. Pohomova. - M.: ARCTI, 2003. - 112 c.
- [7] Skandarova N.B. The method of projects at technology lessons / N.B. Skandarova // Elementary school Plus, 2005. - № 4. - C. 48-50.
- [8] Stupak, L.N. Oral magazine using interactive teaching methods / L.N. Stupak // Pochatove nauchannya, 2006. - № 31. - C. 38-40.