



## Used in Technological Training Forms and Techniques of Teaching

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### ABSTRACT

The article describes the essence of the formation of creative abilities of students using the forms and methods of teaching practical lessons in school technology education.

**KEYWORDS:** School, Technology, Lesson, Teacher, Student, Class, Group, Education, Upbringing, Practice, Form Of Teaching, Pedagogical Technology, Method, Individual, Instruction, Knowledge, Teaching, Qualification.

### INTRODUCTION

The effective implementation of educational work and increase the activity of students depends in many respects on the correct choice and application of which form of teaching and the appropriate teaching method. Form of teaching means an educational activity aimed at the conscious mastering of the learning material by students under the guidance of a teacher or instructor in order to achieve the intended purpose of a particular lesson (lesson). One of the main forms of educational and production work in the educational workshop of students is a lesson or practical training. The main features of the lesson (training) as educational and production work include: a) continuity of student body; b) their level of knowledge (level of preparation) is approximately the same; c) training lasts for a certain period of time according to a strict schedule; d) direct supervision of the teacher or the master of training (industrial training); d) his use of different teaching methods; e) be able to conduct the lesson in frontal (group, general), link (group-group) and individual (individual). This means that the course brings organizational clarity to the teaching process and allows for the alternating organization of industrial education and other subjects, thus ensuring that students study and have a high level of productivity.

### THE MAIN PART

Only when the same subject and all lessons are organized correctly and appropriately can the course be opened in accordance with the content and the full purpose. In addition, different types of courses can be used in accordance with the goals and objectives of industrial training, such as:

1. Combined (covering all stages of the learning process).
2. A lesson on mastering operations (learning the techniques of work related to the same operation).

3. A lesson on the performance of complex work (combining previously studied operations in the form of a technological complex in connection with the manufacture of a particular product).

4. Control (inspection, test) assignments and a lesson on qualification (at the end of the quarter, semester, training period).

Given that some forms of production training are organized mainly in the workshop, it should be noted that depending on the nature of the work performed by students (depending on the type or type of work), the form of lesson organization is chosen (for example, work - frontal - whole class). for; link; individual and mixed organization). For example, if all students do the same job (hammer making, key making, etc.). the frontal form of the lesson can be applied. In this case, the teacher provides one general instruction for all students and monitors the correct implementation of the technology of making the item based on the general requirements for all students. In cases where the content of students' work (preparation technology) is close, but the nature, ie the structure is different, it is better to organize the lesson in groups, for example, when studying the structure of a sewing machine or lathe, the teacher divides the work into parts (gearbox, speed box, next chapter, and so on) and assigns a study of each section to a group of 2-3 people. The teacher tells the students all the general information about them in the form of frontal instruction, and the specific information of each part is told to each link. When using this form of teaching, the teacher's workload, especially in the current instruction, is much higher than in the frontal form. The large number of different jobs (different parts of the machine) also expands the range of polytechnic knowledge in students.

The individual form of teaching can be used when most students in the class are doing things that are different

in construction and close in content. This can be the same work, for example: from a variety of small orders for a training workshop, or from a variety of details (parts of lathes or drilling machines) that do not account for a large number of pieces. In such cases, the teacher analyzes the technology of preparation of the items to be prepared and provides students with frontal instruction, pre-separates the common characters (data) and the information to be said when using the individual form. There will be more information to be told individually. As we can see, when organizing a lesson on an individual basis, the teacher has to be more prepared. In this case, it is necessary to distinguish between the two concepts, consisting of the individual form of the lesson and individual instruction. Individual instruction can be applied in any form of organized lesson, but the scope of this work will be less in the form of a frontal lesson and more in an individual form lesson. Finally, a mixed-form lesson consists of elements of the three lesson forms mentioned above. It should also be noted that, depending on the content of the program material, the nature of the specialization and other factors, other organizational forms can be used in industrial education. For example, in cases where it is not possible to use a form of teaching appropriate to the production conditions of the school, it is advisable to use a form of teaching in the form of a student brigade. This form of education can often be used in the training of coal miners, metallurgists, chemists, and many skilled workers in agriculture. Under such conditions, production teachers usually divide students into separate student brigades, each of which performs a specific training-production task. However, the learning objectives and content of these assignments can vary considerably. For example, if one brigade learns to service a marten furnace, another can learn to service gas generators, a third can learn to monitor control and measuring instruments, and so on. In such cases, the teacher should draw up a schedule for the rotation of training teams within the study areas, so that each team, for example, knows and learns all the methods (techniques) of serving the whole complex of metallurgy.

Another way to train students in an enterprise setting is to add them to the workforce. It is advisable to use this form in specialties such as fitter-repairman, assembly plumber, installers, as well as construction specialties. The purpose of providing vocational training to students on the basis of this form is that one or more students with general training or any other training are assigned to production crews in the above-mentioned specialties. In this case, the task of the technology teacher is to periodically conduct current briefings, determine the nature and scope of the daily task, introductory briefing on the topic of the assignment and the final briefing on the results of the work. But because the students are distributed to different objects, the teacher loses the opportunity to give each student an assignment and take the work from him. Due to this, in this case, the task of teaching (educating) students is partially delegated to members of the workers' brigade or the brigadier himself. The wages of students working in the

labor brigade are calculated taking into account their much lower qualifications and the labor expended. The principle of systematically carrying out a program that has been read (studied) in a student work brigade is sometimes violated. This is because a technology teacher cannot change the type of work that workers do (even if that type of work is not appropriate for the job being studied during the same period of the program). However, the fact that students are constantly employed, have access to advanced technology and advanced methods of work, and are trained in the conditions of a team of workers, etc., at least partially compensate for these shortcomings.

Another form of technology teaching is the attachment of students to skilled workers, where the training is carried out by an instructor or master who is not fired from the main job. No more than two students may be assigned to one instructor at a time. The advantage of this form of training is that this method can directly train new workers in any profession in production shops equipped with advanced technology. In this case, taking into account the level of preparation of students for the instructor and their qualities, it will be possible to apply the most effective teaching methods. However, an instructor who is forced to do his or her main job may not be able to pay enough attention to the students attached to him or her and may not be able to monitor the progress of the production training on a daily basis.

Technology is a special form of teaching that is practiced by students in full-time jobs (workplaces where consumer goods are processed). This form is held in the last months of education, in an enterprise setting. In this form of training, each student works on a full-time basis and prepares a product in full compliance with the requirements of the product. In this case, the student is also forced to meet the time norm in the production of the item.

The product prepared by the student is accepted by the staff of the technical control department of the enterprise. Organizing educational and production activities in this way makes students accustomed to working in the same conditions as workers of the same specialty. The teacher must choose the forms and methods of teaching in accordance with the requirements of the workplace. If the technology program in the same workplace is not fully implemented, the teacher must transfer the student to another job on the basis of a pre-arranged schedule. Finally, the last form of extracurricular activities is technical creativity circles. Before embarking on the study of organizational forms of extracurricular activities, it is necessary to determine the importance of this stage in the work in developing students' skills. The point is that the knowledge, learning, and skills that students acquire in the classroom will only consist of the minimum set in the syllabus. However, most students are interested in modern technology. Therefore, their participation in various technical circles allows them to develop their knowledge of technology in accordance with their interests and abilities. In general, each form of teaching has its own advantages and

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disadvantages, which must be taken into account in the teaching process. Table 1 shows the advantages and disadvantages of the most commonly used forms of teaching.

**Table 1.** Comparative description of organizational forms of education.

<b>Education forms</b>	<b>Characteristic features</b>
<b>Team (frontal)</b>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• accuracy and orderliness of training is provided;</li> <li>• the study group works as a whole;</li> <li>• Thrift - the teacher is all students at the same time works with.</li> <li>• Teacher - the object of education;</li> <li>• Teaching is general - individual with students</li> </ul> <p>Possibility to carry out regular educational work will not;</p> <ul style="list-style-type: none"> <li>• The teacher teaches everyone in the same program at the same time, level of preparation and development of each student, reading opportunities are not taken into account;</li> <li>• Approaches the “average student”: students’ abilities equalized, averaged;</li> <li>• Students are almost never interacting and collaborating they don’t - each works for itself.</li> </ul> <p><b>Disadvantages:</b></p>
<b>Grouped</b>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• teacher - is the subject and object of education;</li> <li>• Opportunity, ability and ability of each member to work in a team mutual support and mutual control of processing speed organized on the basis of the distribution of tasks taking into account is given;</li> <li>• Experience of each team member working collaboratively complements the experience of others, the training material helps to master;</li> <li>• their activities between group members and groups, independence, dialogue and cooperation provides a sense of responsibility to be connected;</li> <li>• each member works for himself and for others;</li> <li>• Results are less time consuming than when working individually is spent;</li> <li>• The results obtained through teamwork much more than students do the task separately will be high.</li> </ul> <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• training requires a certain amount of time to work in a group and get the results;</li> <li>• requires a lot of work, i.e. teacher training have to work hard;</li> <li>• The learning process is out of control when it is organized incorrectly can go away and become uncontrollable.</li> </ul>
<b>Individually</b>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• students are highly independent;</li> <li>• Student development, preparation, ability and knowledge taking into account the maximum level of options individual training is provided;</li> <li>• Each according to the strength and level of preparation of the student learning speed is controlled;</li> <li>• Assist each student individually. mined.</li> </ul> <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• requires a lot of work, ie the teacher preaches individually.</li> </ul>

	to develop and assist in the implementation of fishin, a lot of work and time to monitor and evaluate have to spend; <ul style="list-style-type: none"> <li>• not frugal, the teacher works with only one student;</li> <li>• not everyone has time to work with a student.</li> </ul>
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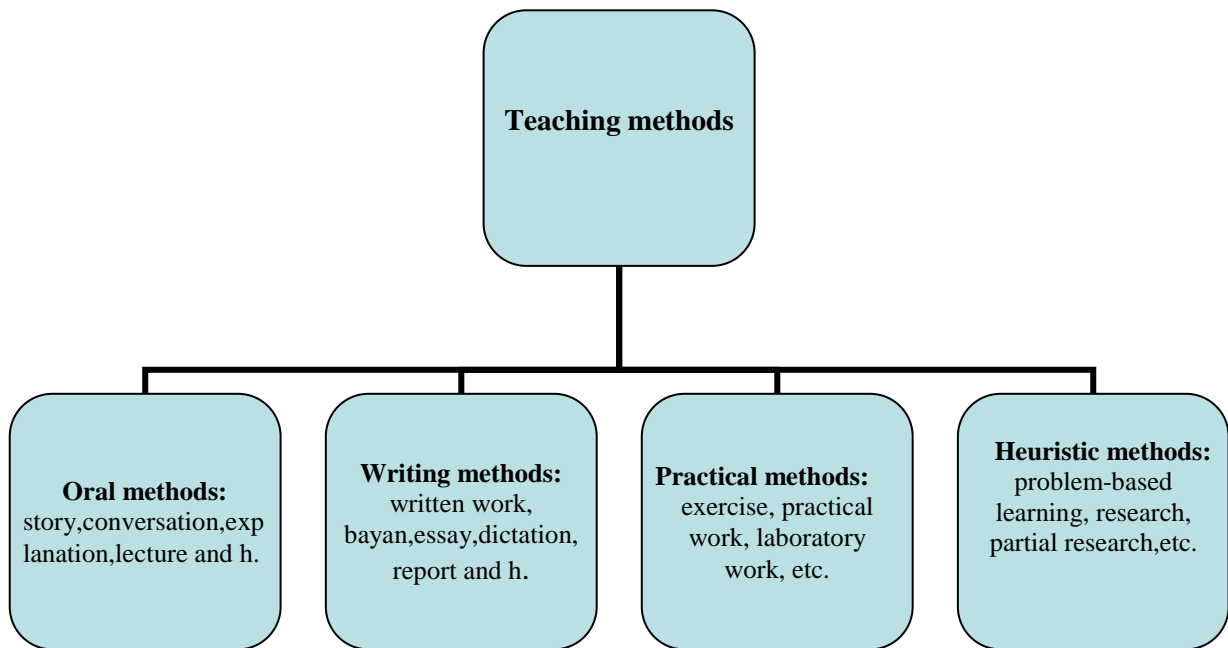
The right choice of methods in the educational process is also an important issue. The method of teaching is primarily determined by the goals and objectives of teaching, the conscious and thorough mastery of students' knowledge, learning and skills, the development of creative activity and independence in them. One of the important requirements for the organization of technology lessons is the diversity of methods and their purpose. Oral, written and practical methods are widely used in the educational process. Oral methods are the most common and most common method in all educational institutions. This method is also called the logical method and is carried out in the form of stories, conversations, explanations, speeches. In this case, the oral presentation of the educational material not only serves to convey knowledge to students, but also arouses their interest in the same direction. With the help of written and practical methods, the theoretical knowledge acquired by students is

strengthened.

The effectiveness of teaching also depends on what methods are used. First of all, let's get acquainted with the broader meaning of the concept of method, that is, it consists of a set of methods and techniques. Through these methods and techniques, the teacher provides students with goal-oriented knowledge, forms the necessary learning and skills, strengthens them, checks the level of mastery, and students actively and consciously master these learning and skills, acquire skills.

**RESULTS AND DISCUSSION**

Teaching methods are classified and described differently by research educators. The most commonly used and preferred classifications are: oral methods, written methods, practical methods, heuristic methods (Figure 1).



**Figure 1.** The most commonly used types of teaching methods.

*To tell a story* – is a way of describing the learning material in a vivid, figurative way. The story must be linked to control and students' future work. The story should end with a brief summary of the lesson topic. Live word can be used in any method, live word can be used to explain labor practices, exhibitions, manuals. The word of the teacher is to ensure activity in teaching, to avoid mistakes, in the performance of the same work technology to help the reader, the structure of the device controls is necessary to change the control receivers.

Study material *explanation* verbal narration through is the consistent narration of the main material. The analysis and proof of the facts play an important role in this. The teacher uses his own notes and calculations in his statement, which clarifies the content of the forthcoming work. In describing the teaching materials, the teacher should rely on the level of theoretical knowledge of students, their experience gained in the process of industrial training.

*Conversation* - in which students answer the teacher's question or speak according to the content of the question. It

is used when students have a certain amount of knowledge about the material being learned from the interview. At the end of the conversation, the teacher summarizes the students' answers. Conversation is one of the most convenient and effective methods of teaching and develops students' mental activity and attention in technology. The interview can be conducted in the form of a pre-arranged discussion of specific issues, with students answering questions posed by the teacher. The conversation method can be effective only if the students have some knowledge and imagination on the same topic. The success of a conversation often depends on the teacher being able to ask the right questions to the students. The interview should be conducted in such a way that it contributes to the successful implementation of the assigned educational tasks. Let the conversation focus on a clearly defined goal.

**Demonstration method** – means to demonstrate personal work techniques, equipment, visual aids, educational films, videos, slides, etc. Demonstration techniques can also include field trips to production, demonstrations of labor practices.

**Excursion is** – a visual training, in which students learn about objects, technological phenomena and labor processes, the organization of labor in the conditions of production. The teacher of labor education should plan the excursion in advance, identify the most characteristic objects and get acquainted with them. Excursions to enterprises to get acquainted with modern equipment and technological processes are of great importance to demonstrate the techniques of equipment management, advanced work methods, including the organization of labor (see Annex 2).

The method of demonstrating various visual aids and labor receptions plays an important role in the technology. In this case, special attention should be paid to the stage of preparation and the requirements for the show. Experience

has shown that excessive visualization can cause students to deviate from the essence of the phenomenon under study. However, there is no need to worry that the number of visual weapons belonging to a single item will serve to clarify its various aspects.

Typically, visual aids are not displayed until the lesson begins. Students' premature (partial) interest in exhibition weapons can dampen the air of serious interest in these weapons. Students should be involved as much as possible to uncover the content of the exhibition material. This is one of the measures to cultivate observation and cognitive qualities in students. A special place in technology belongs to the issue of demonstration of labor practices. This is one of the main exhibition materials of the training. In addition, in order for a technology teacher to be able to demonstrate the techniques and processes of work, it is necessary not only to be highly professional, but also to have sufficient pedagogical experience. It should also be noted that the labor practices and processes on display must be visible to all students. Students need to have a good understanding of what actions and in what order to use to form the same work receptions.

Practical methods play a leading role in the formation of the necessary work skills and competencies in students in technology classes. Practical methods include: practical training, exercises, laboratory work, laboratory-practical work, technical reference, work with literature and documents.

**Use of instructional methods in practical training on technology education.** It is known that the main part of technology lessons in general secondary schools, ie 75-80%, is practical training. Here are some practical exercises *exercises, practical work, laboratory work* such as This is represented by the cluster method in Figure 2. We will talk about these below.

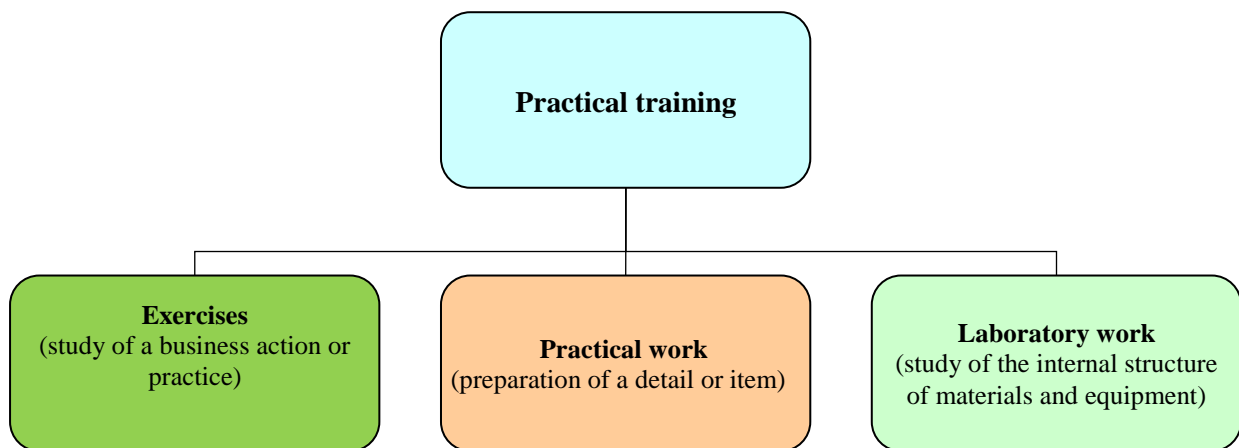


Figure 2. Types of practical training.

**Exercises.** It is advisable to start each new operation, that is, the study of the working method, with a short-term exercise in the teaching of technology. These exercises are

conventionally called educational exercises. During the practical exercises, students prepare a variety of items and continue to practice learning the method and movements of



the work. Exercises include workplace organization, learning and adjusting the structure of tools, mastering basic work methods and movements, are divided into exercises such as skill and skill development, which differ from each other according to the set learning goal and implementation conditions. The following didactic requirements are set for the exercises as a teaching method:

1. Exercises are based on the conscious activity of students. Ability and consciousness plays an important role in building skills. Consequently, in the practice of teaching technology (labor education), the subconscious approach to "muscle training" (MMI system) has shown that it does not lead to success. The ability is formed in the mind of the student before the formation of the skill. The more accurate and precise his imagination is, the faster and more accurately he can capture it.

2. Exercises and their parts (elements) placed in medicine. The same elements in each work operation (methods, actions) are common, but work activities vary in difficulty. For example, when cutting metals with a chisel, the work is done as follows: the student holds the chisel in his left hand and a hammer in his right hand, and strikes the chisel seal to cut a thin layer of metal from the workpiece with a sharp tip. In doing so, working with a hammer poses a number of difficulties: the student must first learn the movement of the hammer, the correct direction of the impact force, the correct cutting of the surface. He must learn all these elements. Therefore, a number of other simpler operations need to be performed before this technological operation. For example, metal straightening exercises allow you to learn the correct distribution of the force and direction of the blow when working with a hammer, riveting exercises are the basis for students to acquire the necessary, error-free hammering skills.

3. During the exercises, students should control their labor movements. The teacher should teach the students the methods of work, actions, operations correctly in advance. This requirement is more effectively met when students are involved in self-control, i.e., when they exercise self-control. In addition to teaching the rules of work methods, the teacher also teaches the ways and criteria for determining the correctness of their implementation. Self-monitoring should be appropriate for students to acquire work skills that are a core learning objective. The use of equipment and exercise equipment during the exercise will also be useful. Trainers teach students the strength, speed, or space they accumulate in their work movements helps them to know the deviation from the parameters, that is, create conditions for them to control themselves. For example, there are simulators for training sawing, sawing operations.

**Practical work.** Practical work is a continuation of direct exercises, students apply the work practices and methods learned during the exercise in the process of completing any detail or item specified in the curriculum.

Therefore, the quality of details or items made by students, their timely preparation depends directly on how well students learn and apply the practices and methods of work. In practical work, technological maps are usually used to regulate the movement of students to make a product or part.

**Laboratory work.** In order to increase the effectiveness of practical training, it is necessary to first acquaint students with the various materials, types, structure and application of the equipment used in the workshops. Such classes are organized in the form of laboratory work. The ease or difficulty of laboratory work will vary depending on the age of the students and the available material base. For example, to determine the moisture content of wood or the students can test the hardness.

It is recommended to use modern tools and equipment for laboratory work. In doing the work, the most important thing is to use the knowledge that students have acquired on the basics of science. If laboratory work is associated with productive work, students' interest in them will increase. For example, students do not simply determine the hardness of a metallic material, but it is also advisable to know how to choose a metal billet of the appropriate hardness and size for the part to be made. Depending on the simplicity or complexity of the work, laboratory work can be carried out in individual (individual), group (link) and group (frontal), taking into account the existing conditions. At the same time, conducting laboratory work (as well as practical training) in the frontal form can cause certain difficulties for the teacher from the organizational point of view. Because all the students do the same job at the same time, they will need enough jobs and a lot of the same equipment. This is not always possible.

Such practical training in the field of technology is mainly based on the method of instruction.

**Инструкция** The work activities and methods that students need to perform are first explained by the teacher (or master) and then demonstrated in practice.

Explaining work activities and work methods to students in such a situation, that is, in a demonstrative way, allows them to consciously understand the learning task and to form an idea of how to perform the work correctly and safely. As a result, the correct organization of students' practical activities is achieved.

The method of instruction used in practical training in technology is divided into the following types:

1. According to the transfer period - introductory, current, final.
2. Depending on the form of transfer - individual group (link), yoppa (frontal).
3. According to the method of transmission - oral, written, mixed.

**The introductory** instruction is also used to introduce a new labor operation at the beginning of the lesson. That is, there will be an introductory instruction on how to do each

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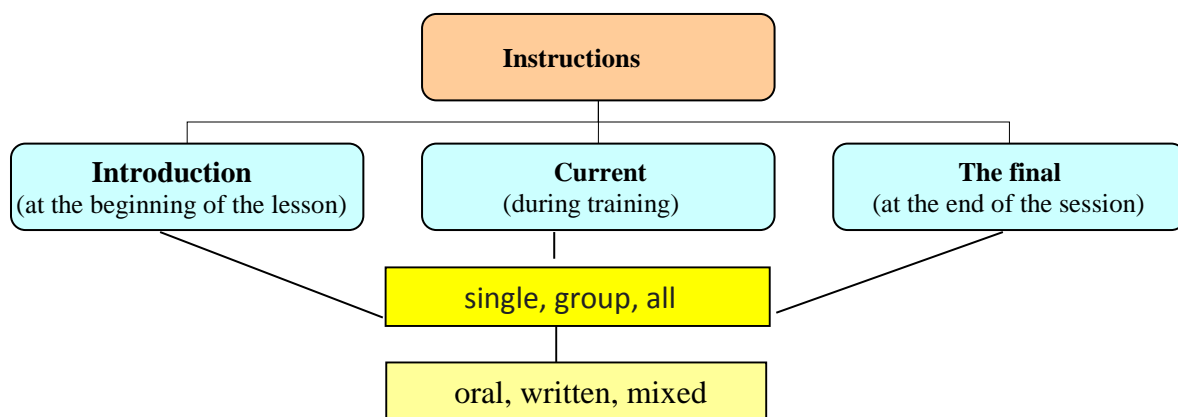
practical work. In this case, the order of work is demonstrated by explaining and demonstrating the methods and actions of labor in a normal and slow manner; self-control and adherence to safety rules. At the same time, students learn to perform certain parts of the work operation, such as holding an instrument, standing in a working position. It is necessary that each element under study does not replace the previous one, but joins it, connects with each other, forms a single chain.

The course on the correction of errors in the performance of work methods is in progress **current instruction** carried out. In doing so, the teacher monitors the students' work and corrects their mistakes. If most students make a mistake - the teacher suspends the students' work and explains the reasons for their misbehavior. On this basis, all students will be interviewed. The teacher then concludes,

demonstrates once again the correct ways of doing the work, and allows the students to continue the work.

Held at the end of the lesson **in the final introductory** the students' accomplishments are showcased and their quality is analyzed, winning and shortcomings are disclosed, on the basis of which students are assessed.

Instruction is a part (element) of a lesson. Several teaching methods are also used in the instructional process. Such methods demonstrate the methods of work and explain the rules of their implementation; technical questions, interviews to determine how well students understand the teacher's task. In this case, the methods are closely intertwined, and their combination (combination) forms a certain system. The types of instruction are illustrated in Figure 3 using the cluster method.



**Figure 3.** Instruction types.

The following requirements are set for the instruction:

1. Effective use of various other teaching methods and techniques in the instruction process.
2. Pre-determine the content of the instruction. If a teacher's task is not clear to students, students often disrupt the conditions for doing it because they don't know what will lead to it. Therefore, every instruction of the teacher and should be based on demand.
3. Completeness of instruction and division of instruction into parts. Depending on how easy or difficult the task is, how the task is performed, the instruction should be broken down into parts.
4. Students should be able to control their activities through instruction. Without fulfilling this requirement, the independence of the students cannot be achieved. Independence is important in the formation of practical work and skills in students.

Tasks such as training competitive personnel, increasing the effectiveness of educational work, including the introduction of new pedagogical and information technologies in the educational process, including the use of educational technologies in technology education, are important work in this area.

## CONCLUSION

In conclusion, it should be noted that, unlike other disciplines in secondary schools, they have great potential in the formation of creative abilities by increasing the activity of students in technology classes. This is because theoretical education in technology science is inextricably linked with practical education. This allows students to work independently, to demonstrate their abilities at the level of opportunity. Students enjoy seeing their own creations during the lesson, comparing them to the creations of their peers, proud of his achievements, corrects his shortcomings. This will be the first step in developing students into independent individuals. In organizing such work, the skill of the teacher, in particular, the choice and application of forms and methods of teaching, depending on the appearance of the lesson, is important.

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