



METHODS OF PUTTING INTO PRACTICE THE VISUAL PRESENTATION OF THE CONTENT AND ESSENCE OF CHEMISTRY EDUCATION TO STUDENTS

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ABSTRACT	KEYWORDS
Some examples of pedagogical skills and their corresponding audiovisual tools, the types of reception of information provided and the possibilities of independent preparation of this information were considered.	Chemistry education, visual, visual presentation, pedagogical techniques, static projection tools, etc.

INTRODUCTION

This article will be devoted to the study of the problems associated with the creation, design and application in practice of separate (special) types of teaching aids and other means of teaching chemistry, which are referred to as means of static projection (or visual presentation) with a screen for the educational process. "Static projection media" refers to the objects of pedagogical labor associated with the transmission of educational information through transparent conveyors (large-format visualization tools): in this case, educational information is dropped on the screen using a projector. The projector is an optical board designed for the study room and displaying images such as records, pictures, charts, diagrams, graphs, schemes, short educational films and other information conveying images, and is one means at a time of presenting a screen static projection. The projector is able to completely replace the traditional writing boards written with chalk and has a number of advantages over it.

Table 1. Modern audiovisual tools suitable for pedagogical techniques.

Pedagogical technique, ..	audiovisual medium	R perception	comments
Computer techniques and technologies	application and customized	applications, vision and hearing,	development and application of algorithms.

Before starting to apply projectors, it will be necessary to get acquainted with the detailed instructions for use, Order of Use and technical capabilities indicated by the manufacturer. It is also recommended to study the methodological manual and get the advice of a service employee and an educator-designer in the didactic materials preparation laboratory of the Department of technical means of Education.

If the trainees have not witnessed the techniques of using projectors in the study of other subjects, the teacher should give them a brief explanation of the benefits of transmitting information through the projector as well as receiving in the first session. It is also noted that in cases where the teacher has lost “return communication” with the learners as a result of a certain reason during the transmission of educational information and distorted the rhythm of information transmission, it is necessary for them (i.e. information receivers) to monitor the reflection Times of personnel on the screen so that they can record this situation in time. The teacher explains to the learners that graphic materials on the screen are exchanged quickly, so by rapidly realizing the most necessary of the materials presented, harmonizing with the important points that the teacher conveys verbally is one of the important conditions.

It should be noted that the projector allows you to provide educational information and information in a graphic style, which does not need to be lowered into a synopsis book or drawn. Such information serves to strengthen the idea that the teacher is transmitting, to brighten the listener's perception of the subject. Therefore, the teacher should remind the learners about this before starting to demonstrate a certain frame or model on the topic. The appearance of such information or information in the frame, which is conditionally referred to as “excess information”, can cause such situations as a slight distraction in some listeners, a decrease in attention to educational material. Therefore, it will be necessary for the educator to attract the maximum attention of those who receive education at the time of providing “excess information”, not to leave their distractions possible. In order to achieve this, excess information should be transmitted in a way that is interesting, high-quality, harmoniously combined with the idea that the educator presents. The time for the display of excess information on the screen should not be prolonged. It is also recommended to follow the rhythm of providing excess information through the screen during the study of the topic, that is, it is not considered advisable to use it more often. For example, it is daunting that the formulas that are represented by the projector, the expressions are not immediately recorded, only after the educator has fully explained their essence, when a detailed idea of these formulas and expressions is obtained, is it possible to get into this work. It is also recommended to show the formulas within the subject in series, moving to the one in turn after fully mastering one: if the formula is presented through the screen before understanding it, the learners do not listen to the educator completely carefully and, without thinking, fall into copying him from the projector screen.

Relying on projector capabilities, accelerating the learning process, information provided in the classroom, unreasonably exceeding the volume of data is not suitable.

One of the important tasks that an educator must perform is to control the speed and rhythm of transmission of educational information and maintain a stable, active connection with the audience. He should also not overlook students' notes on the screen regarding the time of each frame being displayed. While the educator presents the information that complements the topic graphically through the screen, it is necessary to help the students receive it, explain the graph in question, make comments on the subject, but not pass zinhor to the main part of the educational material..

There are also technical aspects to working with a projector, the main of which is to prevent the eye from being affected by the flow of light. Explaining the frame being displayed from the projector, the educator can stand next to the screen or projector and use a laser pointer. If he stands next to the projector, he will always have the opportunity to control that the desired image is being lowered on the screen at the right time. There have also been cases where many educators with insufficient experience in using the projector block the screen with their body, preventing the image from reaching the learners.

Static screen applications are of great importance in the system of using audiovisual media in the teaching of subjects of the chemical category. Static screen applications are used in various areas of visual communication, from the enrichment of technical books with images and cartography to the creation of visual teaching textbooks. Where and how these tools are used, the most important thing is to have a goal of developing the necessary level of thinking processes, relying on logos, schemes, pictures, charts, graphs and the like. Ultimately, the transmission of "graphically shaped thought" in the manner of a "graphically shaped statement" occurs.

The presentation of information in a graphic form serves as an opportunity to bring to the surface the practical goals of communication between educators and students. All these elements in communication – both the communicative goal and the visual statement tools, and the logical arrangements of graphic devices – are all equally involved in the creation of graphic representations. To demonstrate the capabilities of a graphed statement tool (i.e., a graph language), the information regarding the object being described is described as "what? How much? How? and where?" can be presented as an answer to questions such as

"What?" the question refers to the existence of one or another object and directly to the proportions of finding content from individual parts as its appearance, natural composition (structure) or as a holistic structure. The "what?" each of the three aspects expounded through the question are interrelated in content.

Appearance is understood as a form of reflection of an existing object within the sphere of human vision, by the natural composition of an object - we understand its internal structure, and the composition of an object is understood as its abstract structure (that is, how it consists of the constituent elements and the ratio between them). However, each of the three aspects that represent the "what" of an object shows distinct properties inherent in the object in question, and ensures that a common picture is formed. In general, the properties in this variety manifest only in the aspects of the object that are perceived through vision, but in simple conditions the properties that we cannot see "what?" the question is not defined within the framework. Thus, we can say that appearance is the perception of the natural properties of an object, which in moderate conditions are perceived through the organs of vision.

For example, the natural appearance of a galvanic element is some kind of visual landscape that reflects the natural properties of an object. The exterior of the galvanic element is built in such a way that a special feature inherent in this element is distinguished in it. When creating a real image of a galvanic element, its spatial structural composition, the combination of light and shadows and a detailed visual description are taken into account.

The natural appearance of objects, objects, details, devices and, in general, all objects used in science and in the national economy are created by man on the basis of aluminum, silicon, nitrogen, sulfur, calcium carbonate, etc.

We continue our thinking through the formed appearance of the calorimeter, the instrument used to detect thermal phenomena in chemical reactions. The fact that in the calorimeter exterior its functions are also reflected is the main purpose of presenting the exterior graph in the context of the object's particular properties, in which the natural properties of the object are trapped in the "shadow" of the properties of importance: that is, the exterior to be formulated emphasizes the properties that manifest the most important functions of the object. It must be said that in the appearance of the formation, the vision of some natural properties of the object under normal conditions is partially reduced.

The painting also shows the formulae and the equations of reactions in a symbolic way that certain processes that cannot be understood by the naked eye, including Water, Solutions, a solution of sodium chloride, and other substances, go through in electrodes when electrolysis occurs.

Structure (i.e., internal structure) refers to the physical structure of an object that is not visible to the eye under normal conditions. The structure comes to the surface only when the objects' interiors, elements hidden from the naked eye, are graphically presented: if the object was made of transparent material, we would also be able to see these elements with the naked eye. Therefore, regardless of the appearance of the surface layer of the object, it will be necessary to change the appearance of this object in order to see its internal structure or all the elements that make it up.

An invisible structure is a structure presented graphically so that it is possible to see as well as understand the internal structure and organizing elements of an object while keeping its physical appearance intact.

The concept of "finding content" refers to the logical link between elements of an object grouped into a holistic unit. Typically, the order of composition will have an abstract appearance in graphic images. For example, depending on the conditions in which the reaction takes place, metals can form base, amphoteric, and acid oxides, meaning that metals are in harmony with each other with several independent circuits that combine into a common configuration. The introduction of all the provided connections in this general configuration leads to the formation of salts.

Group composition finding denotes the special configuration of elements within the framework of the connection scheme, and it can be witnessed that individual elements form a single form when attached to interrelated groups. This form, which is concentrated by individual groups of elements, is composed in such a way that the object does not compromise the general scheme of its composition.

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