

American Journal of Social and Humanitarian Research

Vol. 7 Issue 10 | **pp.** 160-166 | **ISSN:** 2690-9626
Available online @ https://globalresearchnetwork.us/index.php/ajshr

Article

Pedagogical and Linguodidactic Foundations of Visual-Didactic Materials in Native Language Education

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Abstract: The article analyzes the pedagogical and linguodidactic foundations of using visual-didactic materials in native (Uzbek) language teaching. It clarifies the essence of the concept of visual-didactic material and proposes its classification. The didactic potential of text, images, schemes, diagrams and infographics is compared. The relationship between verbal and visual information is interpreted through dual coding theory and principles of multimedia learning. The impact of visuals on students' cognitive activity, thinking and speech development is examined, and local and foreign approaches are summarized.

Keywords: *native language teaching, visual-didactic material, linguodidactics, scheme, infographics, dual coding, speech competence.*

1. Introduction

In the modern information environment, students receive knowledge mainly through screens, images and short texts. This situation creates new requirements in native language teaching as well: explaining language phenomena only orally is no longer sufficient. Therefore, the purposeful use of visual-didactic materials has become an important factor in increasing the effectiveness of native language lessons[1]. The principle of visualization has been recognized in didactics since the time of J. A. Comenius . However, today's visual tools — schemes, clusters, diagrams, infographics, interactive presentations — have far broader possibilities than the simple function of "showing". They model relations within the language system, make abstract grammatical concepts concrete and encourage the student to draw independent conclusions [2].

Nevertheless, in practice, visual materials are often used as decoration and unsystematically. The linguodidactic criteria for selecting and applying them have not been sufficiently developed. This determines the relevance of the topic [3].

The aim of the study is to theoretically substantiate the pedagogical and linguodidactic foundations of using visual-didactic materials in native language teaching [4].

Objectives of the study:

1. To define the essence of the concept of "visual-didactic material" and to develop its classification.
2. To conduct a comparative analysis of the didactic possibilities of text, images, schemes, diagrams, infographics and other tools.

Citation: Shomurodovna, N. T. Pedagogical and Linguodidactic Foundations of Visual-Didactic Materials in Native Language Education. American Journal of Social and Humanitarian Research 2026,7(10). 160-166.

Received: 10th Sept 2026
Revised: 11th Sept 2026
Accepted: 24th ASeptug 2026
Published: 21th Oct 2026

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3. To reveal the relationship between verbal and visual information in native language teaching.
4. To highlight the impact of visual materials on students' cognitive activity, thinking and speech development.
5. To summarize local and foreign pedagogical approaches related to the topic [5].

2. Materials and Methods

The study is theoretical in nature. It employed the methods of analysis of pedagogical, psychological and linguodidactic literature, comparative-typological analysis, systematization and generalization.

The following were taken as the methodological basis: the views of J. A. Comenius and K. D. Ushinsky on visualization; L. S. Vygotsky's theory of the relationship between thinking and speech; A. Paivio's dual coding theory; R. Mayer's theory of multimedia learning; and J. Sweller's cognitive load theory. In addition, the works of Uzbek methodologists on the methods of teaching the native language were analyzed. The Essence and Classification of the Concept of Visual-Didactic Material

A visual-didactic material is a tool that presents educational information in a form perceived through vision, is aimed at a specific educational goal and serves to guide the student's cognitive activity. Three features are important in this definition: perception through vision, subordination to a didactic goal and the function of organizing activity. In this respect, it differs from a simple illustration: if a picture remains a decoration in the lesson, it does not become a visual-didactic material.

3. Results

In traditional didactics, the term "visual aid" has been widely used. The concept of "visual-didactic material" is broader: it covers not only ready-made visual aids, but also visual models created by the student himself (cluster, table, mind map). Hence, visuality here is not merely showing, but a means of thinking and constructing knowledge [6].

In the context of native language teaching, it is advisable to classify visual-didactic materials according to the following criteria (Table 1):

Table 1. Classification of visual-didactic materials in native language teaching

Classification criterion	Types	Example in a native language lesson
Form of presenting information	Text-visual, pictorial, schematic, statistical-graphic, integrative (infographic)	Color-highlighted suffixes; plot picture; scheme of sentence parts; error diagram; "Parts of Speech" infographic
Level of abstraction	Natural (real object, photo), symbolic-pictorial, conventional-symbolic (model, formula)	A noun through an object picture; word structure symbols (∩, □, ∧)
Didactic function	Explanatory, reinforcing, controlling, speech-developing	Rule scheme; fill-in table; test infographic; essay based on a picture
Subject of creation	Prepared by the teacher, created by the student, created collaboratively	Ready-made table; cluster drawn by a student; mind map compiled in a group
Technical medium	Printed, static digital, dynamic-interactive	Textbook table; slide; animated or interactive exercise
Linguistic level	Phonetic, lexical, morphological, syntactic, text level	Scheme of sound classification; synonym series; word-formation model; compound sentence scheme; text composition chart

The proposed classification is multidimensional: one material may belong to several groups at the same time. For example, a compound sentence scheme drawn by a student

is a schematic, conventional-symbolic, reinforcing material related to the syntactic level [7].

Didactic Possibilities of Text, Images, Schemes, Diagrams, Infographics and Other Visual Tools

Each visual tool is adapted to revealing a particular aspect of a language phenomenon; effectiveness depends on correctly matching the tool to the nature of the topic [8].

Visually organized text. In a native language lesson, text remains the main learning unit. However, through font, color, frames, underlining and layout, it becomes a visual tool. For example, presenting the root and suffixes in different colors shows the morphological structure at a glance. Consistency is important in color coding: one color should denote one meaning throughout the entire course [9].

Image (picture, photograph, plot picture, caricature). An image makes lexical meaning concrete, provides a content stimulus for speech and evokes an emotional attitude. Plot pictures are effective in developing oral and written coherent speech, and a series of pictures is effective in teaching story composition.

Scheme and table. A scheme models the relationship between language units (subordination, coordination, sequence). A table, in turn, makes it possible to compare and classify units according to several features. They are especially useful in generalizing grammatical concepts and deriving a rule.

Diagram. A diagram shows quantitative relations: the proportion of types of spelling errors, the share of parts of speech in a text, the frequency of word usage. It opens the way to studying the native language in a linguostatistical and research-oriented spirit [10].

Infographic. An infographic combines text, signs, images and graphics into a single composition. It presents the topic in a holistic, concise and memorable form. When students create infographics themselves, the skills of selecting, compressing and structuring information are formed.

Other tools. Graphic organizers such as the cluster, mind map, Venn diagram, "Fishbone", T-chart and "Insert" table, as well as presentations, videos and interactive exercises, are also included in this system. Table 2 summarizes the didactic possibilities and limitations of these tools.

Table 2. Didactic possibilities and limitations of visual tools in native language lessons

Tool	Main didactic possibility	Suitable native language topics	Limitation
Visually organized text	Highlighting an important unit	Word structure, spelling, punctuation	Distracts if color is used unsystematically
Image	Making meaning concrete, stimulating speech	Vocabulary, coherent speech, essay	Cannot express abstract grammar
Scheme	Modeling relations and structure	Sentence parts, compound sentence, word formation	Requires prior teaching of conventional symbols
Table	Comparison and classification	Cases, parts of speech, verb tenses	Load increases if overfilled
Diagram	Showing quantitative proportions	Error analysis, text statistics	Requires data collection
Infographic	Holistic, concise presentation of the topic	Review lessons, end of a unit	Takes much time to prepare
Graphic organizers	Structuring thought, active learning	Comparing concepts, text analysis	Result depends on the student's preparedness

The Relationship Between Verbal and Visual Information in Native Language Teaching

In native language teaching, visual information does not replace verbal information, but structures and reinforces it; the ultimate goal is still speech. This is the main feature that distinguishes the native language from other subjects: both the object and the result of learning are the language itself [11].

According to A. Paivio's dual coding theory, a person processes information in two interrelated systems — the verbal and the imagery systems. If a concept is expressed in both codes, it is stored more firmly in memory and is recalled more easily. R. Mayer developed this idea in the theory of multimedia learning, substantiating that learning is more effective when words and images are presented together.

In a native language lesson, three types of relationship between verbal and visual information are observed:

1. Duplicating relationship — the visual tool reproduces verbal information in a visual form (for example, a rule and its scheme).

2. Complementing relationship — the visual tool reveals a relation not stated in the text (for example, the direction of subordination between sentence parts).

3. Transformational relationship — the student moves from one code to another: builds a sentence from a scheme, makes a cluster from a text, writes a story based on a picture.

From the linguodidactic point of view, the most valuable relationship is the transformational one, because the transition from code to code requires analysis, synthesis and verbal expression from the student. For example, independently building a sentence according to the scheme ,” because." combines understanding the structure of a complex sentence with a subordinate clause and using it in speech [12].

At the same time, if verbal and visual information is presented disproportionately, a negative effect arises. According to J. Sweller's cognitive load theory, simultaneously perceiving a text and an image that are not linked to each other overloads working memory. Therefore, the explanation should be placed next to the relevant image, and unnecessary decorative elements should be removed.

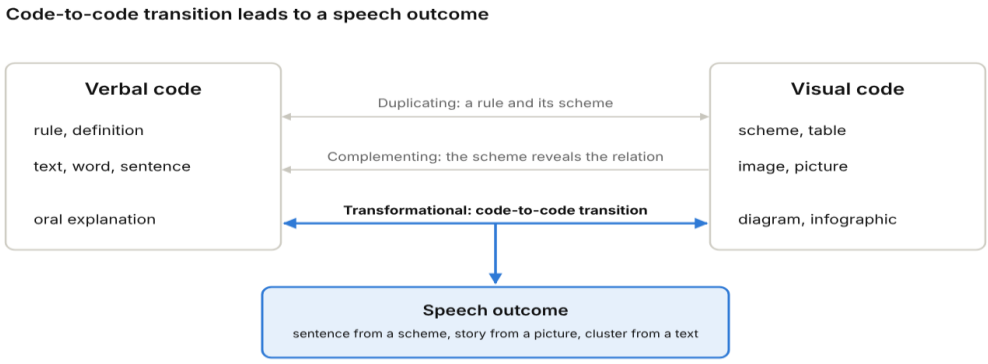


Figure 1. The relationship between verbal and visual information · 3 types

4. Discussion

Duplicating and complementing relationships ensure understanding; however, only the transformational relationship — the student's own transition from code to code — leads to a speech outcome.

The Impact of Visual Materials on Students' Cognitive Activity, Thinking and Speech Development

The impact of visual-didactic materials manifests itself in three directions: they activate attention and memory, develop the operations of logical thinking and create a support for speech activity.

Impact on cognitive activity. A visual material attracts the student's attention and directs it to an essential feature. It activates the processes of perception, imagination and memory. In particular, schemes and tables break information into "chunks", which makes it easier to remember. A visual material presented in a problem-based way (for example, a scheme containing an error or an incomplete table) arouses cognitive interest and search activity [13].

Impact on thinking. R. Arnheim, putting forward the concept of "visual thinking", showed that visual perception is also a form of thinking. In a native language lesson, constructing a scheme requires from the student the operations of analysis (dividing a sentence into parts), synthesis (building a sentence from a model), comparison (table), classification (cluster) and generalization (deriving a rule). In this way, visual modeling forms the student's linguistic thinking — the ability to see language phenomena as a system.

Impact on speech development. According to L. S. Vygotsky's theory, thinking and speech develop in close interconnection. In this process, a visual material performs the function of a "support":

- a plot picture and a series of pictures provide content and sequence for coherent speech;
- a support scheme and a cluster make the plan of an oral answer or an essay visual;
- lexical images expand vocabulary and convey the exact meaning of a word;
- orally explaining an infographic and a table develops monologic speech, while discussing them in a group develops dialogic speech.

Thus, the speech effect of a visual material emerges not when the student merely sees it, but when he expresses it in words, that is, when he moves "from the visual to the verbal" [14].

Local and Foreign Pedagogical Approaches to the Use of Visual-Didactic Materials

Foreign approaches are mainly aimed at studying the cognitive mechanisms of visuality, while local approaches focus on its application to the content of the native language and the learning process.

Classical pedagogical heritage. J. A. Comenius, in his work "The Great Didactic", called visualization the "golden rule" of teaching. K. D. Ushinsky emphasized that visualization in native language teaching is justified by the fact that a child's thinking works through images, colors and forms. Eastern thinkers, in particular Abu Nasr al-Farabi and Abu Ali ibn Sina, also paid attention to the fact that cognition begins with sensory perception.

Foreign approaches.

- E. Dale's "Cone of Experience" — arranges learning tools from the concrete to the abstract and shows the intermediate place of visual tools.
- Dual coding theory (A. Paivio) and the theory of multimedia learning (R. Mayer) — substantiate the principles of integrating words and images (contiguity, avoiding redundancy, signaling).
- Cognitive load theory (J. Sweller) — defines the requirements for designing visual material without excessive load.
- Concept maps (J. Novak) and graphic organizers — ensure meaningful learning through the visual structuring of the student's knowledge.
- Visual literacy concept — regards reading, analyzing and creating visual information as a separate competence.
- V. F. Shatalov's method of support signals — the experience of presenting learning material in concise symbolic notes; support schemes in native language lessons are based on this idea.

Local approaches. The works of Uzbek methodologists — A. G'ulomov, M. Qodirov, M. Ernazarova and others — highlight the issues of visualization, the use of schemes and

tables, and speech development in native language teaching. In recent years, graphic organizers such as the cluster, Venn diagram and "Fishbone" have been widely used in textbooks created on the basis of the competency-based approach. The manuals of R. Ishmuhamedov and co-authors on interactive teaching methods have also contributed to the introduction of these tools into the lesson process [15].

Foreign studies have thoroughly substantiated the psychological mechanisms of visuality, but most of them were conducted on the material of the natural sciences. Local studies, in turn, are close to the content of the native language, but are mostly of the nature of methodological recommendations. Therefore, combining the two approaches and empirically testing the effectiveness of visual-didactic tools on the material of the Uzbek language remains an urgent task.

5. Conclusion

The study showed that a visual-didactic material is a tool perceived through vision, subordinated to a didactic goal and guiding cognitive activity, and that it is broader than the traditional "visual aid" because it also covers visual models created by the student. Classifying such materials by form of presentation, level of abstraction, didactic function, subject of creation, technical medium and linguistic level allows teachers to select them purposefully, while the highest linguodidactic effect is achieved when the student moves from one code to another. Visual materials activate attention and memory, develop logical and linguistic thinking and support coherent speech, and combining foreign cognitive theories with local methodological experience provides a scientific basis for their use. Accordingly, teachers should select the visual tool in line with the linguistic nature of the topic (a scheme for relations, a table for comparison, a diagram for quantity), accompany each material with a speech task, gradually move students from ready-made materials to creating their own, use colors and conventional symbols consistently, and control cognitive load by avoiding unnecessary decorative elements. The effectiveness of visual-didactic tools in different grades should be tested in future experimental research.

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