WORLD FORUM ON ACADEMIC INNOVATION AND DIGITAL LITERACY

DIGITAL TECHNOLOGIES AS A MEANS OF IMPROVING THE METHODOLOGY FOR DEVELOPING PRIMARY SCHOOL STUDENTS' SCIENTIFIC WORLDVIEW IN NATIVE LANGUAGE LESSONS

UDC 373.3:37.015.3

Mardonova Laylo Ro'zimurod qizi

2nd-year Master's student, Educational Theory and Methodology (Primary Education), Navoi State University, Uzbekistan

Abstract. This thesis examines the possibilities of using digital technologies to improve the methodology for developing primary school students' scientific worldview in native language lessons. The relevance of the study is determined by the need to combine linguistic education with the development of students' ability to observe phenomena, compare information, establish cause-and-effect relationships, justify opinions, draw conclusions, and think independently. Native language lessons provide a broad pedagogical environment for these processes because work with texts, language phenomena, questions, discussions, and problem-based tasks can encourage pupils to move from simple perception of information to conscious analysis and reasoning. The paper theoretically substantiates the role of digital and interactive resources in this process. Particular attention is given to multimedia texts, interactive questions, digital visual materials, collaborative tasks, educational platforms, and formative assessment. A methodological sequence is proposed: digital stimulus → observation → question → analysis → comparison → argumentation → conclusion → reflection. The approach is aimed at strengthening students' scientific thinking while preserving the educational objectives of native language instruction. The study concludes that purposeful integration of digital technologies can expand teachers' methodological possibilities, support differentiated learning, and create conditions for the gradual formation of a scientifically oriented worldview in primary school students.

Keywords: primary education, native language, scientific worldview, scientific thinking, digital technologies, digital literacy, innovative education, problem-based learning, interdisciplinary integration, text-based learning, independent thinking, formative assessment.

Introduction. The development of a scientific worldview is an important component of the intellectual and personal development of primary school students. At this stage, children begin to understand the world through observation, comparison, classification, explanation, and elementary reasoning. Therefore, primary education should not be limited to the transmission of ready-made information. It should create conditions in which learners can ask questions, identify relationships, analyze information, provide evidence, and formulate independent conclusions.

Native language lessons have significant potential in this regard. Although the main objective of the subject is the development of speech, reading, writing, and linguistic knowledge, language activities are closely connected with cognition. Texts describe natural, social, cultural, and everyday phenomena; questions encourage pupils to interpret information; and language exercises require comparison, classification, generalization, and explanation. Consequently, native language education can function as an important environment for the gradual development of scientific thinking.

The relevance of this issue is particularly evident in the context of digital transformation in education. Contemporary digital resources allow teachers to combine text, audio, images, animation, interactive questions, and other forms of presentation. These opportunities can make learning more visual and interactive and can provide additional possibilities for individual practice and feedback. However, the use of technology should not become an independent goal. Digital tools are pedagogically valuable only when they support clearly defined educational objectives.

The present paper is directly related to the master's dissertation topic “Improving the Methodology for Developing Primary School Students’ Scientific Worldview in

Native Language Lessons." The purpose is to identify and substantiate methodological possibilities for integrating digital technologies into native language lessons in order to strengthen students' scientific worldview.

Theoretical and Methodological Foundations. The concept of a scientific worldview at primary school level should be understood in accordance with the developmental characteristics of young learners. It does not imply the mastery of complex scientific theories. Rather, it involves the formation of elementary habits of rational cognition: observing facts, asking meaningful questions, distinguishing information from personal assumptions, comparing objects or events, identifying simple cause-and-effect relations, and drawing conclusions based on evidence.

From this perspective, the development of scientific worldview is closely connected with active learning. A pupil should become not only a recipient of information but also an active participant in its analysis. Problem-based learning, questioning, discussion, observation, comparison, and independent tasks create conditions for such activity.

The methodological framework of the proposed approach can be represented by the sequence: knowledge → activity → analysis → evidence → independent opinion → conclusion. Digital technologies can strengthen each stage when they are used purposefully. For example, a multimedia text can provide initial information; an interactive question can identify a problem; a digital image can become an object of observation; a comparative table can support analysis; and a formative assessment tool can help pupils check their understanding.

The approach is also consistent with learner-centered and competency-based education. Instead of focusing only on the reproduction of information, the teacher organizes activities through which pupils apply knowledge, explain their reasoning, and communicate conclusions. Thus, scientific worldview formation becomes an integrated pedagogical process.

Digital Technologies in Native Language Lessons. Digital technologies can expand the methodological possibilities of native language lessons through the integration of different information channels. A traditional text can be supplemented with photographs, diagrams, audio materials, short videos, or interactive questions. Such combinations can help primary school students establish relationships between verbal information and real-world phenomena.

One effective direction is the use of digital text-based activities. After reading a text, pupils can identify factual information, compare two statements, determine cause-and-effect relations, classify information, and formulate a conclusion. Interactive platforms can provide immediate feedback and allow the teacher to identify which part of the task requires additional explanation.

Problem-based digital tasks are another useful method. For example, pupils can be presented with a short text and an accompanying visual situation and asked: What happened? Why did it happen? What evidence supports your answer? What conclusion can be drawn? Such questions transform reading from simple reproduction into analytical activity.

Digital visual materials are particularly valuable for younger learners. An image, sequence of pictures, diagram, or short animation can become the basis for observation and language production. Pupils can describe what they see, compare elements, establish sequence, and explain relationships. In this way, language development and scientific cognition are developed simultaneously.

Interactive group tasks can also be organized in a digital environment. Pupils may work together to classify information, complete a concept map, formulate questions, or prepare a short conclusion. Collaborative digital activities support communication, independent thinking, and responsibility for a shared result.

Methodological Model for Scientific Worldview Formation. The proposed methodological model consists of several interconnected stages. The first is the

motivational and problem-setting stage, in which the teacher presents an interesting question, situation, image, or short digital text. The second is the observation stage, where pupils identify relevant information. The third stage involves comparison and analysis. Pupils determine similarities and differences, establish relationships, and organize information.

The fourth stage is argumentation. Learners are encouraged to explain why they reached a particular conclusion and to support their opinion with information from the text or visual material. The fifth stage is conclusion, where pupils formulate the result of their reasoning in their own words. The final stage is reflection, during which students evaluate what they learned, what evidence they used, and what remains unclear.

The general methodological algorithm can therefore be presented as follows: **digital stimulus → question → observation → comparison → analysis → argumentation → independent conclusion → reflection.** This algorithm can be adapted to different topics of native language lessons and to different levels of primary school.

For younger pupils, tasks should be short, visually clear, and supported by concrete examples. For older primary school pupils, tasks can include more complex texts, multiple sources of information, comparison of viewpoints, and independent formulation of questions. Such differentiation allows digital tools to support individual learning needs rather than imposing a single learning pace on all pupils.

Pedagogical Conditions and Expected Outcomes. Effective integration of digital technologies requires several pedagogical conditions. First, every digital activity should have a clearly defined learning objective. Second, the content should correspond to the pupils' age and cognitive level. Third, digital resources should complement, rather than replace, teacher guidance and direct communication. Fourth,

pupils should be encouraged to explain their reasoning instead of merely selecting correct answers.

An important condition is the systematic use of formative assessment. Short digital quizzes, interactive questions, self-checking tasks, and reflection activities can provide information about students' progress. The teacher can use these results to adjust subsequent instruction and provide additional support to individual learners.

The expected outcomes include improved ability to identify factual information, compare and classify information, establish simple cause-and-effect relationships, justify opinions, formulate conclusions, and reflect on learning results. At the same time, students' language competencies can develop through reading, oral explanation, discussion, and written expression.

It should be emphasized that these outcomes require systematic pedagogical intervention and should be confirmed through empirical research. The present paper proposes a methodological framework and does not present fabricated experimental percentages. The effectiveness of the model can subsequently be examined through diagnostic tasks and comparative pedagogical research.

Discussion. The proposed approach demonstrates that scientific worldview formation does not need to be separated from native language instruction. On the contrary, language activities can provide natural opportunities for observing, analyzing, explaining, and concluding. Digital technologies strengthen these opportunities by allowing information to be presented in multiple formats and by providing interactive forms of learner participation.

At the same time, technological innovation should be accompanied by methodological discipline. An attractive digital presentation does not automatically develop scientific thinking. If pupils only watch, click, or reproduce information, the cognitive potential of technology remains limited. The central role belongs to carefully

designed questions, problem situations, analytical tasks, and opportunities for independent reasoning.

The teacher therefore acts as an organizer and facilitator of cognitive activity. Instead of simply providing answers, the teacher guides pupils toward observation, evidence, comparison, and conclusion. This approach corresponds to the modern understanding of digital literacy as not only technical competence but also purposeful and critical use of digital information.

The integration of interdisciplinary content can further strengthen the proposed methodology. Texts related to nature, environment, technology, health, culture, or everyday phenomena can be used during native language lessons. Such materials allow pupils to develop language skills while simultaneously expanding their understanding of the surrounding world.

Conclusion. The formation of a scientific worldview in primary school is a gradual pedagogical process that should begin with age-appropriate forms of observation, questioning, comparison, analysis, and evidence-based conclusion. Native language lessons possess considerable potential for this purpose because text and language activities naturally connect pupils with different aspects of reality.

Digital technologies can improve the methodology by providing interactive, visual, multimedia, and differentiated learning opportunities. Their most effective use is achieved when digital resources are integrated into a clear pedagogical sequence: digital stimulus, question, observation, comparison, analysis, argumentation, conclusion, and reflection.

The proposed approach can contribute to the development of both linguistic competencies and elementary scientific thinking. Its practical implementation requires purposeful teacher guidance, age-appropriate digital content, formative assessment, and systematic differentiation. Further empirical research may be conducted to

determine the effectiveness of the proposed methodology in real primary school conditions.

Thus, digital innovation in native language education should be understood not simply as the introduction of technological tools, but as the purposeful transformation of learning activities toward greater inquiry, independence, evidence-based reasoning, and reflection.

References

1. Qosimova K., Matchonov S., G‘ulomova X., Yo‘ldosheva Sh., Sariyev Sh. Ona tilini o‘qitish metodikasi. – Toshkent: Noshir, 2009.
2. G‘ulomov A., Qodirov M., Ernazarova M. va boshq. Ona tili o‘qitish metodikasi. – Toshkent: Fan va texnologiya, 2012.
3. Roziqov O. va boshq. Ona tili didaktikasi. – Toshkent: Yangi asr avlodi, 2005.
4. Yo‘ldoshev J.G., Usmonov S. Umumiy pedagogika. – Toshkent: O‘qituvchi, 2017.
5. O‘zbekiston Respublikasining “Ta’lim to‘g‘risida”gi Qonuni. – Toshkent, 2020.
6. Vygotsky L.S. Thought and Language. – Cambridge: MIT Press.
7. Dewey J. Democracy and Education. – New York: Macmillan.
8. Leontiev A.N. Activity, Consciousness, and Personality. – Englewood Cliffs: Prentice-Hall.
9. Gardner H. Multiple Intelligences: New Horizons. – New York: Basic Books, 2006.
10. National Reading Panel. Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction. – National Institute of Child Health and Human Development.