



ASSESSMENT OF THE FORMATION OF UNIVERSAL LEARNING ACTIVITIES IN MATHEMATICS LESSONS

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Abstract

The basis for achieving the developmental goals of education is the activity of learners. In this case knowledge is not transferred to students in a ready-made form, but is obtained by students themselves in the process of cognitive activity. The transition from presenting a knowledge system to active task-based learning can therefore be seen in contemporary education. Therefore, it is important for vocational schools to ensure that students acquire new knowledge, skills and competencies, including the ability to learn, independently and effectively. Universal learning activities provide a good opportunity to address this issue.

ARTICLE INFO

Article history:

Received 6 Jan 2023

Revised form 5 Feb 2023

Accepted 22 Mar 2023

Ключевые слова: *universal learning activities, mathematics, different types of text tasks.*

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Introduction. The concept of forming universal learning activities (UMOA) has been developed on the basis of the systemic-activity approach. It discloses the regularities of their formation in children at different stages of their age development. The priority task of the modern education system is the formation of a set of universal learning activities, which provide the competence of "learning to learn", and not only the mastery of specific subject knowledge and skills of individual disciplines by schoolchildren.

The aim of the study is to evaluate the formation of universal learning activities in mathematics lessons when teaching problem solving to students in a vocational school.

Material and research methods. The object and subject of the research is the process of forming the universal learning activities in teaching problem solving to the 2nd year students of professional school №1 in Chilanzar district of Tashkent city. The group of research consisted of 27 students. In the process of work a set of methods of theoretical analysis of scientific and methodological literature, study and analysis of psychological and pedagogical literature on the problem of research, pedagogical supervision, questioning, interviews, mathematical processing of experimental data was used.

Results of the study. The subject "Mathematics" has great opportunities for the formation of all types of universal learning activities. The realization of these opportunities at the stage of elementary mathematical education depends on the ways of organizing the learning activities of younger students. For more qualitative assessment and purposeful planning of lessons several types of activities were defined, each of which is oriented to the solution of specific goals.

The main criterion of formation of communicative actions can be considered as communicative abilities of vocational school students at mathematics lessons, which include the ability to organize communication, including the ability to listen to the interlocutor, the ability to solve conflict situations. The result of the formation of cognitive universal learning activities will be the ability of students in vocational schools to identify the type of tasks and ways of solving them, as well as to search for the necessary information that is needed to solve the tasks. The ability to plan the results of one's activities, to start and finish one's activities at the right moment can be a criterion of the formation of regulatory actions. The result of the formation of personal universal learning activities should be considered as the completeness of students' orientation to the moral content of the situation.

A special place in teaching mathematics is occupied by plot tasks, which are a traditional means of teaching. The issue of the purpose of story tasks is central in mathematics teaching methodology. The learning functions of tasks are aimed at forming a system of mathematical knowledge, skills and abilities. Through the system of tasks, vocational school students at mathematics lessons learn not only to apply the theoretical knowledge obtained, but also to convince themselves at the motivation stage to acquire new knowledge; in the process of solving tasks they receive information on the methods of their solution. Thus, the aim of teaching problem solving in vocational schools is to form students' skills (general and individual), which is manifested in students' ability to successfully solve a problem of any mathematical structure.

Analyzing different types of text tasks, we can notice that the main criteria in the development of universal learning activities of vocational school students are the development of personal, cognitive, and regulative CCS. The first stage of the experimental work was the initial diagnostics of the 2nd year students. In order to substantiate the conclusions obtained during the theoretical study of the problem, we conducted a study in a group of 27 students. For the validity of our experiment one group was taken and statistics of its development after one year of study in mathematics classes were recorded. Students were offered independent work. After the pupils had completed the tasks, the work was checked and processed by us according to specially selected criteria. Cognitive, regulative and personal skills were chosen as the criteria. The results of students' independent work were entered into the table where we indicated the presence or absence of each criterion with the help of symbols. When analyzing the results of the primary diagnostics, we found out that almost all students in the group had difficulties in checking the correctness of the result obtained (Personal skills); 14 students failed in the ability to correctly formulate the solution process in the form of individual arithmetic operations, expressions or by making an equation (Regulatory skills). The majority of students also failed to do arithmetic operations correctly (Regulatory Skills). Almost all of the pupils could not cope with the task, understand the meaning of what they had read and imagine the situation (Cognitive skills) at this stage.

In order to change this situation one year later, in the same class we piloted a second stage of experimental work - the formative stage. In order to implement this goal, we conducted classes aimed at developing skills in solving text problems. The system of work and selected tasks were aimed at improving the process of learning to form students' skills in solving text tasks, namely, to develop such skills as distinguishing structural elements in a text task; analyzing a task and searching for ways of solving a task; implementing the found plan of solving a task and exercising control and correction of solutions.

In order to compare the results achieved during the formative experiment with the initial level of formation of the abilities to solve textual tasks in pupils we have conducted a control experiment. After our experimental work on the implementation of the traditional system of identifying the formation of universal learning activities (ULA) in the process of solving text tasks, we found out that students have well developed cognitive, poorly developed personal and regulative actions. At the end of the experimental work, we carried out a repeat diagnostics as a way of checking whether the formative stage of our experimental work had been effective. For this purpose, we again offered the students a control task, with different levels of difficulty. The tasks were selected in order to form the skills of goal setting, planning, control, correction, evaluation and volitional self-regulation of students in mathematics lessons.

Having analyzed the results obtained, we conventionally divided all students into groups according to the levels of universal learning activities (ULA) and the ability to solve text tasks:

A high level (5-6 points) consisted of 24 pupils who could independently and correctly choose an action when solving simple equations; correctly comprehend the meaning of a read and present a situation; correctly outline the way to solve a textual problem; retell a read or heard (e.g., problem condition 11); correctly identify and name components of basic arithmetic actions; determine the order of actions in a given problem, independently compose solution actions in a problem, conduct a check on a problem's solution.

An intermediate level (3-4 points) consisted of three pupils who made mistakes when choosing actions to solve text tasks; made mistakes when identifying and naming components of basic arithmetic operations; made mistakes when determining the order of actions in a given task; made mistakes when composing solutions to text tasks; matched the completed task to the model offered by the teacher; did not perform verification actions after solving text tasks.

The low level (0-2 points) did not affect pupils, all of them at the end of the practical experiment were able to choose the correct action when solving text problems; they found the condition of the problem; they did not make mistakes when identifying and naming the components of basic arithmetic operations; they correlated the result of the solution with the original condition of the problem;

The results show a positive dynamics in the skills of the pupils. As we can see, the implementation of our proposed tasks in the learning process has contributed to the increase in the level of formation of students' skills in solving text problems and the general development of universal learning activities. During the year students' interest in knowledge and motivation for studying the subject increased, they started to work more intensively in class, asked more questions and gave more detailed answers, began to express their point of view more often and learned to find solutions to problems in several ways.

Conclusions: The implementation of the development of the ATCs in vocational schools is ensured by methodological recommendations on the development of certain ATCs, logic, helping students to understand the content of the task and its structure. Teaching mathematics in vocational schools lays the foundation for the formation of mental activity, and well-organized learning activities contribute to the development of abstract thinking skills in the search for problem solving. The development of universal learning activities becomes a priority, which shapes the learning skills of vocational school students and reveals their abilities for self-improvement and self-development.

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