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USE OF PROJECTS METHODS IN STUDY OF SECOND CONTEXT LINE OF COMPUTER SCIENCE

Abstract

The relevance of the topic is justified by the many existing interpretations of the cognitive interest of students. The authors note the lack of scientific and methodological research on the problem of the development of the cognitive abilities in the study of computer science and propose to focus on only one aspect of the research. The aim of the study is to develop the content and procedural components of the educational process using the project method to develop the cognitive interest of students in teaching the omputer science. Research objectives: determination of the psychological and pedagogical foundations of the project method for the development of students' cognitive interests in teaching and studying computer science; development of a structural and functional model of the project; development of a methodology for organizing project activities of students in teaching computer science. The article presents the results of the experiment, which testify to the successful use of the project method in teaching informatics.

Keywords: project method; skills; system approach; project; computer science; programming; self-study; psychological; pedagogical characteristics.

Introduction. The most important way to solve this problem, that is, to keep the cognitive interest stable, is to use the project method. As a result of combining different types of activities and learning activities, using non-traditional teaching methods, students involved in project-project activities have the opportunity to fully realize their personal potential and thus develop their cognitive interests. It is true that the project method is not new, but now there is a need to re-apply this method creatively. Using different aspects of the project method G.V.Golub, V.A.Dalinger, C.Dewey, P.F.Kapterov, V.H.Kilpatrick, E.Collings, M.V.Krupenina, V.Matyash, N.Y.Pakhomova, E.S.Polat, V.D.Simonenko. It is reflected in thescientific works of D.Chechelin and others.

Main body. In modern pedagogy, the project method is used not as a substitute for systematicsubject training, but as a component of the education system. In addition, it corresponds to one of the main tasks of the school. This task is not only to provide students with knowledge, but also to arouse in them a personal motive, to create interest in learning, to prepare students for modern society. The "project method" is primarily didactic in nature, it is a set of methods and operations used to acquire theoretical and practical knowledge in a particular field. This is the way of cognition, the way of organizing the cognitive process. Given this, students should know the following:

- be able to easily adapt to life- changing situations by acquiring the necessary knowledge;
- have an independent critical thinking, be able to anticipate the difficulties that arise in real life and look for rational ways to overcome these difficulties using modern technology;
- be able to use information rationally, analyze information necessary for the research;
- work independently to develop personal intelligence and cultural level.

Teaching computer science is the most optimal field for developing students' cognitive interests. Therefore, the project method is of special importance in the teaching of this subject.

Methods. Psychological-pedagogical and methodological analysis conducted by us allowsus to draw the following conclusions.

There are many interpretations of cognitive interest by scientists. As a rule, they consider it important to focus on only one aspect. Therefore, there are various recommendations for developing cognitive interest. So, there is a need for a single recommendation.

1. There is no developed mechanism for using the project method to develop students' cognitive interest in the learning process when teaching computer science.

Thus, the problem under consideration shows the need for new solutions in school theory and practice. The results of our confirmatory experiment, conversations with teachers, questionnaires conducted with them, and observation of computer science classes show that there is no systematic work to develop students' cognitive interest. The term "learning process" is often replaced by the words "fun game", "attention". Even those who are purposefully engaged in the formation and development of the process of perception, are unable to complete this work, because the application of various means creates considerable difficulties. "I think the mental and social aspects are organically interconnected. Education should not be seen as a compromise or an advantage over another. We are told that the psychological definition of education is formal and has no product, because it gives us ideas for the development of mental abilities, but does not show how to use these abilities" [3, P.7].

Finally, there is a serious discrepancy between the development of students' cognitive interests and its practical organization and the potential of the project method.

The projects are aimed at resolving the conflict between the potential of the method and the need to develop students' cognitive interests. Especially if we aretalking about the teaching of computer science, the issue becomes even more relevant, because computer science is one of the key subjects for the teaching of all subjects. A subject that is rich in a wide range of virtual tools cannot be impossible to teach at the required level.

Speaking about the problems related to the organization of the teaching process and the content of the subjects taught, it should be noted that the teaching of «Computer Science» begins in secondary schools. This course covers the basics of theoretical information in terms of content: sampling and coding, modeling and algorithmization and programming.

Problems related to the organization of the training process are primarily related to the methodology of using information technology in the training process.

In general, "when the Project method is applied to teaching, it ensures the development of students as intellectual, civic and social beings".

The formation of cognitive interest has attracted the attention of famous educators due to its practical significance. Thoughts about the developmental trend of cognitive interest date back to ancient times. The great Czech pedagogue and thinker R.R.Massirova and V.Saveleva in their article "Project activity as innovative process in education" relate professional experience to project competencies. The authorsbelieve that this is especially important for bachelors' project activities, as project activities are one of the evolving teaching methods. It is through this that students gain research skills. Thus, they develop logical and creative thinking, they are able to summarize the knowledge acquired in the learning process. Project activities allow students to realize themselves [9, P.72]. The co-authors also note that there is a need to create a model for the formation of project activities after the creation of pedagogical conditions.

Model is a set of elements (goal, objectives, principles, components, criteria and levels of the formed project activity), where the interrelationships between them ensure the implementation of the process of formation of personality neoplasms. Based on the ideas of Y.A.Comenius, the English philosopher and pedagogue J.Locke developed the theoretical

basis of the purposeful work of teachers and educators on the development of students' cognitive processes: It is important to pay attention to what signs are most visible in these items. At this point, it will be clear what the answer is to the question posed in each part of it. After the above-mentioned issues are explained, all the darkness will be removed [15, P.34].

Similar problems have attracted the attention of Russian educators. Scientists have equated cognition with the needs of the heart and mental activity. Such an attempt was made by P.F.Kapterev. According to him, the development of cognitive interests in school is impossible without the application of heuristic techniques in training. It brings work, mood, heuristic form and school life. P.Kapterev considers the repetition of other people's ideas and ideas far from creativity as "renting information" [7, P.56].

E.A.Krasnovsky considers the idea of "preparation for problem solving, the complexity of teaching, which is the basis of training" [8, P.17] as cognitive activity. M.A.Danilov, in contrast to E.A.Krasnovsky, called cognitive activity a special activity: "Cognitive activity is a lively and energetic type of activity aimed at fulfilling the given task" [5, P.95]. Groshev A.S thinks differently from the authors mentioned above. He believed that cognitive activity is "a sign of personality, which manifests itself in initiative and independence, and leads to the management of a person's will and character, the effective acquisition of knowledge, skills and habits " [6, P.43].

To summarize, it is clear that cognitive activity is a sign of personality manifested in action. The main activity in school is training. In this regard, Ya.A.Ponomarev considered training to be a type of activity. However, he noted that the general structure of training is labor-intensive and radically different from the game. According to him, the ultimate goal of training is to prepare for independent work. Y.A.Ponomarev emphasized that training did not occur suddenly and linked it to the history of human labor. As a result of the historical process, the form of labor has gradually improved. Improvement, in turn, required complication [11, P.155]. Thus, the existing knowledge and skills were not enough to engage in complex labor activities. People needed training to continue their productive work. The main task of this training was to summarize the results of the work of previous people. For this reason, human society has set aside a special period in the life of the rising generation. S.L.Rubinstein using the words of V.Hete, he expressed his opinion as follows: the years of training in the labor process were replaced by the "years of mastery". He sees the preparation of students for future independent work as the main goal of the training. Here is to summarize the results of the work of previous people as the main tool. The preparation of a person for personal independent work is carried out by mastering the results of past social work.

Ya.A.Ponomarev notes that the learning process is not spontaneous and arbitrary. He notes that it has a social character. Because it is focused on the creative skills of students and is carried out under the guidance of the teacher.

A number of scholars have contrasted teaching and learning. However, Y.A.Ponomarev, on the contrary, writes about the unity of these processes: The teacher and the student participate in a certain relationship. It turns out that training is a specific type of general activity and is of a derivative nature.

M.P.Lapchik, I.G.Semakin, E.K.Henner structurally analyzed the activity. They noted that memorization and revitalization depended on the student's learning environment, and concluded that it was not appropriate to include only knowledge, skills, and habits in the learning content. According to them, general training skills should not be overlooked. The skills of planning the work ahead, of carrying it out rationally, of exercising self-control, and of working at a certain pace are among the general training skills .

According to N.Yu.Pakhomova, activity is the basis of personality. The author states that he

sees a contradiction between a person's physical and psychophysiological variability and the stability of his personality. That is why "I" has been put forward as a problem of personality psychology. The signs that determine something in a person, the psychological characteristics of the personality. It is against these problems thatthe permanence of his "I" stands [10, P.2].

Statement of the problem. Everyone working in the field of education now understands that school training should not be limited to providing students with ready-made knowledge,but should help them to strengthen the system of knowledge and skills independently. In this case, the assimilation of information takes place consciously, which allows students to apply the acquired knowledge in their future lives. Therefore, the main task of the teacher is to activate the logical thinking of students, their ability to comprehend. That is why schooling is a fundamental part of life and has a cognitive interest. This serves as an incentive for the student's various learning and creative activities. When researching and solving any problem in the field of education, the following should be solved:

- comprehensive and timely development of children and youth, formation of self-educationand self-realization skills;
- the ability of children and youth to understand the world as a whole and to form a modern worldview, intra-ethnic culture;
- diversity of types and forms of educational institutions, variability of educational programs providing individualization of education;
- continuation of the levels and stages of education in the form of tradition;
- development of distance education, creation of programs implementing informationtechnologies in education;
- academic mobility of students;
- to develop the national tradition when working with talented youth, participation of pedagogical workers in scientific activity;
- training of highly educated people and highly qualified specialists distinguished by professional mobility in the process of informatization of society and development of new scientific technologies.

Every person working in the field of education is well aware that school training should not be limited to providing students with ready-made knowledge, but should help them to strengthen their knowledge and skills system independently. In this sense, the cognitive interest is very important for the implementation of the Projects method.

The problem of cognitive interest A.S.Belkin, X.J.Taneeva, V.A.Qusev, V.A.Kruteskiy, I.Y.Lanina, L.M.Friedman. It is reflected in the scientific works of scientists such as Shukina. It is not only difficult, but even impossible to activate learning activities without cognitive interest. Therefore, it is necessary to systematically develop and strengthen students' cognitive interest during the learning process. This is an important motive for training and a powerful tool for educational training. Cognitive interest also contributes to the formation of volitional qualities, because in the process of comprehension, the student inevitably encounters difficulties, and by overcoming these difficulties, voluntary qualities are formed in him. However, the student's self-confidence is strengthened, which plays a positive role in his future activities.

Cognitive curiosity also motivates students to constantly search. During his research, he learns to pay attention to the main, more important issues, to analyze and draw general conclusions. Cognitive interest activates any human activity. The point is that all activities have a cognitive basis: where a person goes – plans, struggles - plans, even defends – plans it. In this sense, the importance of cognitive interest is infinite.

However, the cognitive process is rarely stable. Usually, very obvious examples, illustrations, personal cases, experiments arouse students' interest in the subject. Unfortunately, if it does not continue, this interest soon fades. It is not easy to work to keep this interest alive, because it is not the children's cognitive interest through these illustrations, but simply the child's interest.

For this reason, many educators try to keep cognitive interest constant. The use of many creative tasks in the classroom also serves this purpose, because children present themselves through these tasks. The lack of sufficient scientific and methodological research on the problem raises the issue of using all the opportunities necessary for the development of students' cognitive abilities when teaching computer science.

Results and conclusion. The analysis of scientific, psychological-pedagogical and methodical literature on the researched subject allowed drawing the following conclusions:

1. Success in using the project method inthe teaching of computer science creates the following opportunities:

a) ensures the integrity of the pedagogical process;

b) promotes the full development of students. Creates conditions for the development of both their upbringing and education;

c) ensures the creative activity of students, turns them into active members of the learning process;

d) forms the cognitive motive of learning, because students see the end result of their activity;

e) students have a desire to improve and develop their knowledge. Thus the personal qualities of students are formed.

2. Another important feature of teaching computer science through the project method is that the projects are visual and practical, integrate the actions taken during the students' experience, set short-term goals for the student and inspire the student to achieve these goals; they become accustomed to acting independently.

They have the opportunity to interfere in the progress of the project, and sometimes even change the course of the project for their own purposes. In this way, the active personal position of the student is revealed. All this creates invaluable conditions for the formation of civic competencies. The student does not hesitate to fight for the truth he understands because he believes in his own intellectual power. These are very important qualities for future citizens and patriots.

3. Finally, the project method is implemented taking into account the age level of students, as it is the most optimal method of developing students' cognitive interest during the learning process. This aspect is a clear example of the fact that knowledge is taught in accordance with the age level in the learning process.

4. The contradiction between the existing reproductive nature of teaching computer science at school and the most important requirements for the informatization of society has been identified. Modern requirements require students to acquire productive skills, enhancing their ability to acquire knowledge independently.

5. Training projects for practical work on the proposed methodology have been developed and tested. As a result, it introduced itself as a new training project in the teaching of computer science. The methodology has shown its positive results and has been applied in the pedagogical practice of a number of schools.

The application of the developed methodology as a course project in schools with in-depth study of mathematics and computer science is considered. Research and experiments have shown that this method should be used as a course project in the in-depth teaching of computer science in secondary schools

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Информатиканың екінші контексттік бағытын зерттеуде жоба әдістерін қолдану

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Аңдатпа

Тақырыптың өзектілігі оқушылардың танымдық қызығушылығының көптеген қолданыстағы түсіндірмелерімен негізделген. Авторлар информатиканы оқытуда танымдық қабілеттерді дамыту проблемасы бойынша ғылыми-әдістемелік зерттеулердің жоқтығын атап өтіп, зерттеудің тек бір жағына тоқталуды ұсынады. Зерттеудің мақсаты – білім алушылардың информатиканы оқытудағы танымдық қызығушылығын дамыту үшін жоба әдісін қолдана отырып, оқу процесінің мазмұны мен проуедуралық компоненттерін дамыту. Зерттеудің міндеттері: информатиканы оқыту мен оқуда білім алушылардың танымдық қызығушылықтарын дамытудың жоба әдісінің психологиялық-педагогикалық негіздерін анықтау: жобаның құрылымдық-функционалдық моделін жасау; информатиканы оқытуда білім алушылардың жобалық қызметін ұйымдастыру әдістемесін әзірлеу. Мақалада информатиканы оқытуда жоба әдісін сәтті қолданғандығын куәландыратын эксперимент нәтижелері келтірілген.

Түйін сөздер: жобалау әдісі; дағдылар; жүйелік тәсіл; жоба; информатика; бағдарламалау; өзіндік оқу; психологиялық-педагогикалық сипаттама.

Использование проектного метода в изучении второго контекстного направления информатики

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Аннотация

Актуальность темы обоснована множеством существующих интерпретаций познавательного интереса обучающихся. Авторы отмечают отсутствие научных и методических исследований по проблеме развития познавательных способностей при изучении информатики и предлагаются сосредоточиться только на одном из аспектов исследований. Целью исследования является разработка содержательной и процедурной составляющих учебного процесса с использованием проектного метода для развития познавательного интереса обучающихся к обучению информатике. Задачи исследования: определение психолого-педагогических основ проектного метода развития познавательных интересов обучающихся при преподавании и изучении информатики; разработка структурно-функциональной модели проекта; разработка методики организации проектной

деятельности обучающихся при обучении информатике. В статье приводятся результаты проведенного эксперимента, которые свидетельствуют об успешном использовании проектного метода в преподавании информатики.

Ключевые слова: проектный метод; навыки; системный подход; проект; информатика; программирование; самообучение; психолого-педагогическая характеристика.

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ПСИХОЛОГО-ПЕДАГОГИЧЕСКИЕ И ОРГАНИЗАЦИОННЫЕ УСЛОВИЯ СОВМЕСТНОГО ОБУЧЕНИЯ ДЕТЕЙ С ОСОБЫМИ ОБРАЗОВАТЕЛЬНЫМИ ПОТРЕБНОСТЯМИ (на примере Аккольской средней школы № 4)

Аннотация

В данной статье рассматриваются психологические, педагогические и организационные аспекты совместного обучения детей с особыми образовательными потребностями на примере общеобразовательной школы № 4 Аккольского района Акмолинской области. Актуальность данного исследования состоит в том, что количество детей с особыми образовательными потребностями увеличивается с каждым годом и знание различных аспекты совместного обучения приобретают особую значимость. Авторами предпринята попытка обоснования необходимости созданиях для них соответствующих усло- вий и всесторонней поддержки детей с физическими и психоэмоциональными расстройствами. Приводится статистика количества детей с ограниченными возможностями, обзор основных положений Государственной программы образования, анализ текущего состояния инклюзивного образования и практики внедрения его в общеобразовательные учреждения. Также представлен опыт вышеуказанной средней школы по внедрению инклюзии в учебно-воспитательный процесс.

Ключевые слова: инклюзивное образование; дети с особыми потребностями; общеобразовательная организация; психолого-педагогические аспекты; потребность; опорно-двигательный аппарат; дети с нарушением опорно-двигательного аппарата.

Введение. На современном этапе развития независимого Казахстана в условиях ограничительных мер становятся особо актуальными проблемы людей с ограниченны ми возможностями, так как для них затруднительно адаптироваться исключительно в цифровой среде. Общеизвестно, что таким людям, особенно детям, требуется сенсорная интеграция, установление прямого визуального и физического контакта с тьюторами и педагогами. В связи с этим одной из важнейших задач является повышение эффективности социально-педагогической поддержки детей с ограниченными возможностями, для чего в первую очередь необходим детальный анализ существующего состояния инклюзивного образования в стране.

Методология исследования. Понятие «инклюзивное образование» закреплено в п.21-3 статьи 1 Закона Республики Казахстан «Об образовании», согласно которому под инклюзивным образованием понимается процесс преодоления барьеров и обучения людей с особыми образовательными потребностями [1].

Для индивидуальных потребностей детей создается адаптированная среда, в которой каждый ребенок может развиваться в соответствии со своими личными особенностями и образовательными нуждами.

По информации Министра образования