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PROBLEMS OF FORMING A SPECIAL ANALYTICAL THINKING STYLE AND BUILDING ALGORITHMS FOR SOLVING LOGICAL PROBLEMS

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Abstract: *This article discusses the main themes of the teaching program in higher education, the formation of special style of thinking that is analytical to solve logical problems and the construction of algorithms.*

Keywords: *information technology, programming, pedagogy, analytical thinking,optimization algorithm, Crocodile ICT.*

The course program is one of the key disciplines, including the subject of preparing students for the information industry. Years of experience of the author in the teaching program students and students reveals a number of organizational and pedagogical aspects.

First of all, it should be noted the extremely low level of training students in the field of programming. Despite the fact that the study of the basics of structured programming is part of the state educational standard of general and secondary education in the field of informatics, many freshmen has some gaps in its development. This is due to the fact that in many schools in the "Programming" no qualified experts who could clear and accessible language to explain the subject. This situation is quite stable in recent years. Students learn the basics of programming within the school course of computer science, and experience considerable difficulties in a training program at the university. The successful development of the subject is only a small portion of students (10-15% of the total).

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State educational standard of higher professional education in the IT professions and areas of training includes the study of programming in object- oriented paradigm, which is practically impossible without the preliminary basic training of students. Therefore, if a teacher really wants to teach his students, he has to start from scratch.

Students consider programming one of the most difficult disciplines and experience difficulties in its development. Most of the students (60-70%) at the end of training remain at the level of reproductive studies (can only solve common problems).

The above reasoning is because programming is a specific kind of human activity, for the successful implementation of which requires not only the use of acquired in learning knowledge and skills, but needs and the availability of a certain style of thinking.

Under the style of thinking, understand the open system smart strategies, techniques, skills and operations to which the person is predisposed because of their individual characteristics. Some researchers define the style of thinking as a system of regulatory requirements, forming the approach to the work and its results.

Some psychologists are classified as mechanical problems affect the thought processes on the computer as people think. However, the implementation of the teaching and learning of students are often offered algorithms for solving certain classes or algorithm (sequence of operations or steps) task. It is assumed that the student should be able to do it. The difficulties are mainly related to misinterpretation of the original data and the lack of ability of the formal execution of the algorithm. Formed in this way is called analytical thought process. Thus, the analytical style of thinking is required for a student's ability to impact on the algorithm and the ability to perform it.

The components of the analytical style of thinking:

1. Analysis of the raw data and interpretation task in accordance with predetermined algorithm input data.
2. Selecting an algorithm from an existing set of ready-made algorithms, ie, problems and display algorithm.
3. Implementation of the solution process through formal and precise execution of the operations that make up the algorithm for solving this problem.
4. Analysis of the results and correction of the original data in the event

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of a discrepancy between the estimated results.

The specific properties of the analytical style of thinking:

- concrete that is that the student uses a common (abstract) algorithm for solving a specific problem with a specific input;
- Granularity (level of detail) – Turn-by algorithm.

Adequate scientific and methodological literature on the problems of teaching programming and schoolchildren use the concept of "algorithmic style of thinking", which is a specific way of thinking requires the ability to create an algorithm that requires a mental schemes that contribute to vision problems as a whole, its decisions in large blocks, followed by a detailed process and informed fixing obtain the final result in language form.

Undoubtedly, algorithmic thinking is an important part of human intellectual activity with the use of modern information technology. System thinking is defined as algorithmic thinking is determined (in its systematic, but not in the elemental composition), necessary and sufficient components that allow you to define a particular style of thinking.

Components algorithmic style of thinking:

1. The analysis and selection of the desired result on the basis of the input data for the problem.
2. Distribution of operations required for the solution.
3. Selection by artist, able to carry out these operations.
4. Ordering and model building process solutions.
5. Implementation of the decisions and relate the results to the fact that should get.
6. Correction of source data or the operating system in the event of a discrepancy between the results obtained with the proposed.

The specific properties of algorithmic style of thinking include:

- discrete (step by step action algorithm specifications, structuring transactions);
- abstraction (ability of abstraction from the specific input data and move to the problem as a whole);

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- conscious expression in forms of language (ability to present an algorithm using a formal language).

It should be noted that the concept of "algorithmic style of thinking" has developed in that period of time when the dominant paradigm of structured programming. It is based on the use of algorithmic decomposition to solve the problem.

We went down the transition to object-oriented paradigm of creation and use of information technology does not deny the necessity of forming algorithmic style of thinking, but extends it.

Education programming in schools should include not only the study of one or more programming languages, but is also aimed at the formation of students' thinking styles mentioned above, without which this training will not be effective. This requires a review and search for new methods, forms, means and methods of teaching programming. We distinguish complex methodological procedures, the use of which contributes to the development of each of the above styles of thinking.

For the analytical style of thinking:

1. Trace – Stepping finished algorithm (linear, branched, cyclic). Algorithms should be represented in various forms (verbal description, block diagram programming language).
2. Building a statement of the problem should be solved by the algorithm presented.
3. Find and fix syntax errors in the algorithm.
4. Finding and fixing logical (semantic) algorithm error.

The optimization algorithm is finished. For algorithmic style of thinking:

Create a new algorithm, its entry, verification and implementation of training or the selected artist.

1. Acquisition of basic algorithms for solving typical problems.
2. Find and correct syntactic and semantic errors in the algorithm.
3. The optimization algorithm finished. For an object style of thinking:
4. Select the domain objects, their static and dynamic properties, the construction of the object hierarchy.

Construction of a model problem.

A description of the events and the behavior of objects.

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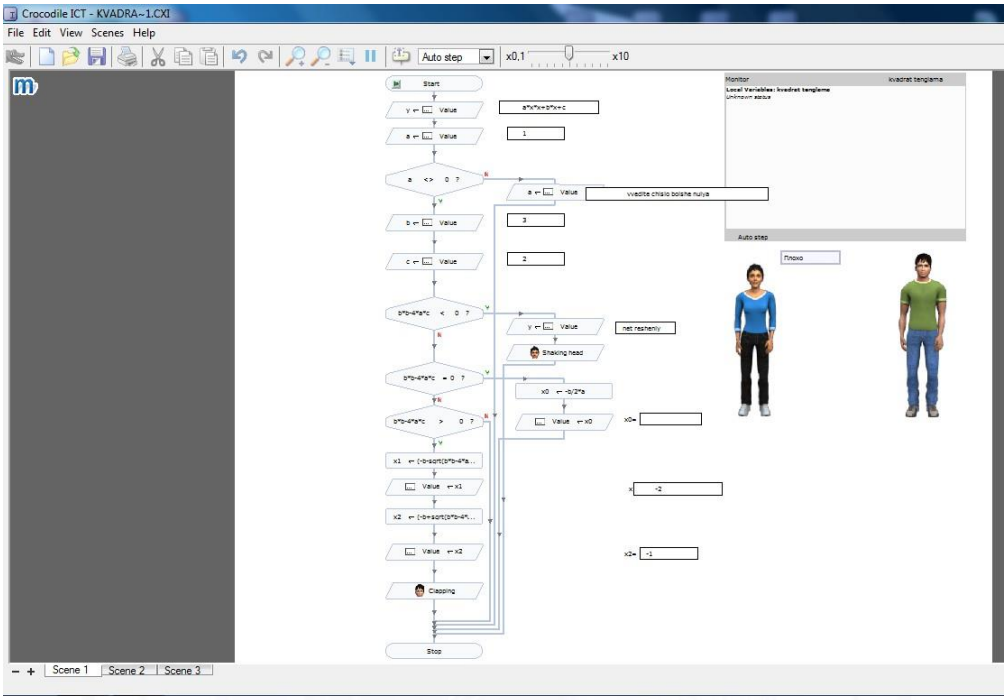

Fig.1. The algorithm of the problem
of the quadratic equation program Crocodile ICT

The use of these teaching methods in the educational process will allow students to learn the ways of thinking necessary for the successful implementation of the training program, as well as for other types of education and cognitive and practical activities.

In addressing challenges to consolidate knowledge using different approaches: a ready algorithm is proposed to be implemented in the program or change the existing algorithm, taking into account the conditions for other tasks. Unfortunately, the time allotted exemplary program of basic education in computer science and information and communication technology to study under "Algorithms and performers" clearly insufficient for successful mastery of skills.

Solving this problem requires specific methods and means of learning. One of these tools is a simulation program Crocodile ICT.

Working with Simulation Crocodile ICT Using panels

When you open a window on the left side there is a category where you can select the desired category. By clicking the sub-category appears. For example, if you

select the subcategory Introduction appears on the screen a program that shows the job, press start when the program starts and stimulates learning algorithm.

For example: Problem number 1 solution to a quadratic equation from the book “Fundamentals of Computer Appliances” 9th grade, see “The basic properties of the algorithm”. The figure shows how the algorithm is in the program Crocodile ICT (Fig. 1).

The program itself is simple to use, this storany it is very convenient.

This program can be widely used in secondary schools, and college and academic Lece. It facilitates the work of teachers at obesnenie programming algorithm and demonstrates the process. And you can easily catch students` interest.

The use of these methods and teaching aids in the educational process will allow the students to learn ways of thinking necessary for the successful implementation of the program of study, as well as for other types of education and cognitive and practical activities.

References:

1. Rizayev S. H. A., Jumaboyev B. O., Yuldashev X. M. ATSETILEN DIOLLAR SINTEZI VA ULARNING XOSSALARI //Journal of integrated education and research. – 2022. – T. 1. – №. 4. – C. 218-223.
2. Rizayev S. A., Jumaboyev B. O. «AZKAMAR» KONI BENTONITI NAMUNALARINI O ‘RGANISH //Journal of Integrated Education and Research. – 2022. – T. 1. – №. 6. – C. 149-152.
3. Egamnazarova F. D., Jumaboyev B. O., Rizayev S. A. REDOKS ORQALI NAFTADAN ETILEN ISHLAB CHIQARISHNI KUCHAYTIRISH, KREKING SXEMASI: JARAYONNI TAHLIL QILISH //O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI. – 2022. – T. 2. – №. 14. – C. 1061-1069.
4. Raxmatov E. A., Abdullayev A. A., Jumaboyev B. O. POLIETILEN ISHLAB CHIQARISH LINIYASIDA SOVUTUVCHI TIZIM QURULMALARINI TAKOMINLASHTIRISH //O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI. – 2022. – T. 2. – №. 14. – C. 246-250.
5. Rizayev S. A., Abdullayev B. M., Jumaboyev B. O. GAZLARNI KIMYOVIY ARALASHMALARDAN TOZALASH JARAYONINI TADQIQ QILISH

//Sanoatda raqamli texnologiyalar/Цифровые технологии в промышленности. – 2023. – Т. 1. – №. 1. – С. 71-75.

6. Б.О.Жумабоев, Ш.А.Исматов СВОЙСТВА И ТЕХНОЛОГИЯ МНОГОФУНКЦИОНАЛЬНЫХ ОРГАНОМИНЕРАЛЬНЫХ ПОКРЫТИЙ, УСТОЙЧИВЫХ К АГРЕССИВНЫМ СРЕДАМ, ДЛЯ КРУПНОТОННАЖНОГО ОБОРУДОВАНИЯ ПО СБОРУ, ХРАНЕНИЮ И ТРАНСПОРТИРОВКЕ НЕФТИ И ГАЗА.// JOURNAL OF MULTIDISCIPLINARY BULLETIN ISSN(Online): 2984-6722 SJIF Impact Factor |(2023): 5.887|me-6, Issue-4, Published |20-11-2023 86-92
7. Жумабоев, Б. О., & Егамназарова, Ф. Д. (2023). РАВНОВЕСИЕ ДВИЖУЩАЯ СИЛА И КИНЕТИКА АБСОРБЦИИ. *JOURNAL OF MULTIDISCIPLINARY BULLETIN*, *6*(5), 39-49.
8. Bobojon, J., & Jasur, Q. (2023). Karbonsuvchillarning qatlamda to ‘planishiga qarab neft va gaz konlarining turlari. *Research and Publication*, *1*(11), 10-13.
9. Bobojon, J., Yaxyobek, I., & Yigitali, I. (2023). Tabiiy gaz va gaz-kondensat konlaridagi gazlarning tarkibi. Tabiiy gazlar tasnifi. *Research and Publication*, *1*(11), 14-19.
10. Kuyboqarov, O., Egamnazarova, F., & Jumaboyev, B. (2023). STUDYING THE ACTIVITY OF THE CATALYST DURING THE PRODUCTION PROCESS OF SYNTHETIC LIQUID HYDROCARBONS. *Universum: технические науки*, (11-7 (116)), 41-45.
11. Бердиева Х. Б., Бердиева Н. У. Проблемы развития социокультурной компетентности у школьников начальных классов //Евразийское Научное Объединение. – 2019. – №. 12-5. – С. 408-410.
12. Бердиева Х. Б. Развитие социокультурной компетентности у будущих учителей начальных классов //Педагогическое образование и наука. – 2020. – №. 1. – С. 128-131.
13. Бердиева Х. Б. Пути развития духовно-нравственного воспитания через систему обучения у учащихся //Вестник науки. – 2019. – Т. 1. – №. 12 (21). – С. 30-34.
14. Бердиева Х. Б. Роль семьи в формировании социокультурной компетентности у будущих учителей начальных классов //Наука, техника и образование. – 2019. – №. 10 (63). – С. 80-82.
15. Boronovna B. H. Pedagogical Features and Opportunities for the Development of Social and Cultural Competence in Future Teachers //European Scholar Journal. – 2021. – Т. 2. – №. 12. – С. 30-34.

16. Bo’ronovna B. H. BO’LAJAK O’QITUVCHILARDA IJTIMOIY-MADANIY KOMMPETENTLIKNI RIVOJLANTIRISHNING PEDAGOGIK IMKONIYATLARI. – 2021.
17. Бердиева Х. Б., Бердиева Н. У. Проблемы развития компетентности у школьников начальных классов. – 2020.
18. Бердиева Х. Б. ВЛИЯНИЕ ПОСЛОВИЦ НА ФОРМИРОВАНИЕ МЫШЛЕНИЕ ДЕТЕЙ БАЙСУНА //Гуманитарный трактат. – 2018. – №. 27. – С. 73-75.
19. Бердиева Х. Б. ПСИХОЛОГО-ПЕДАГОГИЧЕСКИЕ УСЛОВИЯ ЭФФЕКТИВНОСТИ ВНУТРИШКОЛЬНОГО КОНТРОЛЯ //Вопросы педагогики. – 2018. – №. 2. – С. 15-17.
20. Boronovna B. H. Development of Socio-cultural Competence in Future Primary School Teachers on the Basis of an Axiological Approach //JournalNX. – С. 38-40.
21. Бердиева Халима Бо'Роновна, Бердиева Назира Ураловна. (2021). ТЕХНОЛОГИЯ РАЗВИТИЯ СОЦИОКУЛЬТУРНОЙ КОМПЕТЕНТНОСТИ У СТУДЕНТОВ. JournalNX - междисциплинарный рецензируемый журнал, 23-25. Извлечено из https://repo.journalnx.com/index.php/nx/article/view/641
22. Boronovna B. H. Development of Socio-cultural Competence in Future Primary School Teachers on the Basis of an Axiological Approach //JournalNX. – С. 38-40.