Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 04, April, 2025
brightmindpublishing.com
ISSN (E): 3061-6964

USING THE CASE STUDY METHOD IN TEACHING COMPUTER SCIENCES AND INFORMATION TECHNOLOGIES AT SCHOOL

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Abstract:
The article presents ideas for organizing the teaching of computer science and information technology to schoolchildren using the case method. The process of forming schoolchildren informational knowledge and skills was analyzed.

Keywords: Technology, interactive method, cases, "Case study" method, software.

Introduction

Today, reforms in the education system are aimed at the development of the young generation as an educated, intelligent, free-thinking person. Providing schoolchildren with in-depth knowledge required the use of various innovative methods in classroom and extracurricular activities.

The main task of education today is to teach schoolchildren to operate independently in an increasingly information-based educational environment and to use the flow of information wisely. To do this, it is necessary to create opportunities and conditions for them to work independently on a continuous basis.

The "Case-study" method is an educational methodology that allows schoolchildren to study different situations (cases) to explore real or potential problems and find solutions. This methodology teaches participants to apply theoretical knowledge to practice by working with practical cases. The case study methodology is often used in fields such as business, management, law, medicine, and social sciences[1,2].

This methodology is widely used in education, training, and research because it allows schoolchildren to develop practical skills.

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Case study methodology often involves analyzing real-world problems or situations, allowing students to gain practical experience. In this, schoolchildren analyze and solve problems given by the teacher. They study different situations, identify problems, analyze them, and propose solutions. Group work and discussions are also widely used in this process. They apply the theoretical knowledge they have learned to real-life situations. This helps to consolidate and deepen knowledge.

The main part. The effectiveness of the learning process in the education system can be increased through various approaches. Innovative approaches are a key condition for modernizing the education system and achieving educational efficiency[3].

The case study method gives schoolchildren the opportunity to make decisions and consider their results. In this method, there are not only correct answers, but it is important to consider different possibilities and perspectives.

The use of modern interactive methods in the classroom serves to interest students in the learning process and increase their activity. Considering the relevance of the above points, the study of the effectiveness of the case study method in the formation of knowledge about computer science and information technology was determined as a research project.

The purpose of the research work: To analyze the importance of the case study method in developing students' knowledge of computer science and information technology, to identify its effective aspects, and to study its use in the educational process.

Research task: Identifying the potential of using the case study method in teaching computer science and information technology.

Developing a case requires great methodological preparation from the teacher and involves a large amount of: it requires the preparation of methodological information, such as selecting and posing a problem, additional information (data sources, context), explanations of situations, questions and tasks for working with cases, and applications. The case study method gives schoolchildren the opportunity to look at a problem in different ways. This helps to explore different ideas and approaches. Schoolchildren are forced to find creative approaches to

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solving various problems. The process of analyzing and solving problems can take a long time. In this case, the teacher should try to use the time in the lesson effectively. Schoolchildren may interpret the given cases differently, which leads to confusion in the decision-making process.The teacher should help in this case to solve the results very accurately.

Let's look at examples of case studies in teaching computer science and information technology.

Case 1. The teacher assigned the schoolchildren to write a program for the following problem in the Python programming language. However, when the program text was entered into the computer, it was shown in the Python program that there was an error in the text of the branching operators. The included program did not work.

Example: The number a is given.

If $a \geq 17$ then $z=26a-13$;

If $a<17$ then $z=3a^2+2a+48$;

A program in the Python programming language:

```
a=int(input( ))
if a>=17 :
 z=26*a-13
then :
z=3*a*a+2*a+48
```

Case completion stages and tasks:

The main reasons that caused the problem in the case were explained, including which branching operator should be used in the problem.

Determine if there is an existing error in the program (work in pairs).

Solution

1. Learn to branch according to the content of the problem.
2. Define the meaning of the network operator.
3. Use the correct network operator and launch the application.

Result

If the solutions shown are followed, the program will definitely work.

Case 2. The teacher assigned the students to write a program for the following problem in the Python programming language. However, when the program text was entered into the computer, it was shown in the Python program that there was

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an error in the text when writing the recursive operator. The included program did not work.

Example. Write a program in Python to print even numbers from 0 to 80.

A program in the Python programming language:

```
for i in input (0,80,2):
        print(i, end=';')
```

Case completion stages and tasks:

The main reasons that caused the problem in the case were explained, including which operator should be used in the problem.

Determine if there is an existing error in the program (work in pairs).

Solution

1. Learn to repeat the problem in accordance with its content.
2. Define the meaning of the repetition operator.
3. Run the program, using the repetition operator correctly.

Result

If the solutions shown are followed, the program will definitely work.

Using the case method in the educational process can significantly increase its effectiveness.

Using cases in teaching computer science and information technology at school helps provide schoolchildren with practical skills and apply the theoretical knowledge they have learned in real-life situations. By using the case study methodology in teaching computer science and information technology, schoolchildren can be equipped with the skills to analyze problems, find different solutions, and apply technologies in practice.

Using the case study method in teaching computer science and information technology can be highly effective in studying real-life information technology problems.

Schoolchildren may be tasked with analyzing real-world issues such as internet security, data protection, or online personal data management as cases. Schoolchildren must study different situations and come up with solutions.

For example, "Security of personal data: If someone changes your password, what are the ways to recover your data?"

Schoolchildren study a case, analyze it, and make the necessary decisions.

Similarly, other cases can be given to schoolchildren by the teacher.

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Example: As a case study , Assigning schoolchildren the task of building computer systems or developing software.
Schoolchildren may be tasked with solving a specific problem through programming. For example, you may be asked to solve a math problem through programming, or to create a specific algorithm.
Similar to "Create a program that prints a given number in reverse order. What algorithm do you choose and how do you write the code?" or" What technologies should be used to optimize a computer network and ensure its efficient operation?" a case study like this can be given to students by the teacher as an assignment in class. The use of the case study method in teaching computer science and information technology helps to develop students' practical skills, teach them to analyze and solve problems.

In conclusion, it is worth noting that the use of the Case-study methodology in teaching computer science and information technology helps to develop schoolchildren practical skills, teach them to analyze and solve problems. schoolchildren learn to solve real-world problems. Case studies are often conducted in a group work and discussion format, which builds skills for working in the community.

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