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ALGORITHMIC THINKING IN STUDYING FOREIGN LANGUAGES

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Анотація
Стаття присвячена алгоритмічному мисленню як одній з найважливіших компетенцій в освіті..
Клювові слова: алгоритмічне мислення, алгоритм, рішення проблеми, програмування, логіка

Abstract
The article is devoted to algorithmic thinking as one of the most important competences in education.
Keywords: algorithmic thinking, algorithm, problem solution, programming, logic

Introduction

With the fast development ofcomputer technologies modern society has to adapt to the new environment, new realities of life what requires new standards of life, the other ways of behavior in the society, even the other ways of thinking, , and this is especially urgent in the field of education.

Implementation of computers into teaching and studying processes changed the teacher-students relations in the direction of self-studying, searching for needed information.

In the situation of growing opportunities and shortage of time there is a threat for learners to miss the most relevant information. The students should be able to work at the information to solve the set tasks, and it requires new ways and new skills of working at the information.

The aim of the research is to consider algorithmic thinking as the way of changing the studying processes in general, for specific purposes, for studying foreign languages.

Research results

Computers brought algorithms into our lives which have been the notions belonging to mathematics, programming, informatics, cybernetics, etc., they make us master algorithmic thinking.

New researches in psychology, logics and a lot of other sciences added much to the advancement of algorithms and algorithmic thinking.(they are not the same notions, it concerns the computational thinking either).

It's important to understand the algorithms forming the foundation of a lot of fundamental concepts of programming to use them in other sciences, for example, humanitarian ones, for studying foreign languages. Algorithmic thinking is especially valuable for studying foreign languages where much memorizing is required.

An algorithm is the step-by-step solution to a certain problem [1]. An informal definition of an algorithm could be a set of rules that precisely defines a sequence of operations [2].

According to Britannica encyclopedia, "algorithm is a systematic procedure that produces – in finite number of steps – the answer to a question or solution to a problem." [3]Algorithms specify multi-steps. In the case of algorithms, simple repetition isn't going to help very much. Having understood algorithms, the students gain an intuition about how well a given one will perform, they are able to implement and evaluate them.

Learning common algorithms is helpful, but what is better and more important is getting used to algorithmic thinking. Knowing the algorithms, algorithmic thinking helps to create the future own algorithms. If to train the brain to understand and follow algorithmic logic, writing the own algorithms becomes much more intuitive.

Thinking algorithmically is a shift in the human minds from how people usually think. It is more of a systematic way of thinking through problems and solutions in a way that's similar to how a computer does it.

It includes the following steps:
- defining the problem ;
- breaking the problem down into simple parts;

- ➢ defining the solution for each part of the problem;
- ➢ implementing the solution;
- ➢ improving it, making it efficient.

Donald E. Knuth, well known as the author of "The Art of Computer Programming","Algorithms in Modern Mathematics and Computer Science", teaching research methodology for senior students, he believed that searching and sorting are great places to start because they make think about creation of new algorithms, their improvement, determination of algorithm's efficiency, choosing between different algorithms.

Practice of teaching proved that algorithmic thinking is extremely valuable for studying foreign languages. The laws of the brain work were put into the foundation of designing computers. Now there is the reverse situation: knowing the main principles of programming, how computers work, it became possible to improve, to intensify the work of a human brain because it is easily adapted to the principles of programming, coding, retrieval of information, etc.

Being a key ability in informatics, mathematics, algorithmic thinking can be developed independently from learning programming in any science, especially in studying foreign languages.

Conclusion

Nowadays algorithmic thinking is one of the most important competences that can be achieved by education, and it is the key for future inventions and achievements

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