STRATEGIC TEACHING IN COMPUTER SCIENCE: THE POWER OF ASSESSMENT AND REFLECTION

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ABSTRACT

This article addresses the central role of assessment and self-reflection in computer science education. It's noted that these components are incredibly important for an effective learning process. They allow students to not just analyze their accomplishments, but also to delve deeper into the subject matter, refine problem-solving skills, and build meta-cognitive abilities. Evaluation encourages students to recognize their current knowledge level and aim to enhance their outcomes.

Evaluation and introspection are some of the most crucial parts of effective computer science development. They are significant not only because they allow pupils to gauge their progress autonomously, but also because they spur a richer comprehension of the topic and foster the capacity to address problems.

Within the realm of computer science, assessment carries out multiple vital functions. Initially, it gives students a notion of how effectively they have absorbed the content they've studied and mastered programming proficiencies. It enables learners to spot their strong points and shortcomings, and pinpoint areas needing extra training or exertion [1]. Secondly, the evaluation process itself encourages students to delve deeper into the subject and enhance their academic results. The understanding that their accomplishments will be valued impels pupils to work more intensely on the content and aim for the best outcomes.

From another perspective, the reflective approach allows students to analyze their learning

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journeys, extracting valuable understanding from them. By reflecting on the learning process, students can comprehend which teaching methods are most effective, how they can refine their programming abilities, and how the knowledge gained is applicable in real-world situations. This process stimulates the development of metacognitive skills, allowing students to recognize and manage their learning process [2].

It should be stressed that assessment and introspection of the educational process are inextricably linked and mutually enrich each other. Qualitative assessment initiates reflection, while reflection helps students grasp the meaning of assessment and utilize it as a way of improving their knowledge and skills. This article is devoted to the significance of assessment and introspective reflection in the process of studying computer science. It also contains descriptions of methods and practical suggestions for productive application, discussing various approaches to assessing programming skills, understanding essential computer science concepts and offering advice on reflective practices and analyzing student learning experiences. We genuinely hope this material will be helpful to educators and students striving for effective learning and excellent outcomes in information technology.

Assessment in Computer Science Education

Evaluating students' knowledge in the process of learning computer science goes beyond simply recording the results. This is a key mechanism that stimulates the growth and honing of programming skills, as well as the development of algorithmic thinking. In this discipline, where practical experience is crucial, the use of a variety of assessment methods is necessary so that students can not only assimilate theoretical knowledge but also successfully apply it in practice.

Practical work involves writing code or solving specific programming problems. The evaluation takes into account not only the correctness of the result, but also aspects such as efficiency, readability, and the overall structure of the code. The student must demonstrate the ability to write code that not only functions but also has sufficient optimization and clarity for other developers.

2. Projects are large-scale tasks covering the development of software products, the creation of web applications, data analysis, and other similar activities. The evaluation of computer science projects should take into account both the development process and the final result. This means that the planning, development, implementation, testing, and documentation of the project as a whole are evaluated.

3. Tests are used to check students' assimilation of theoretical material and their ability to apply it in practice, but tests, due to their specificity, do not cover the entire range of knowledge and skills. Therefore, they need to be supplemented by other forms of control.

4. Self-assessment is an integral part of the assessment process, allowing students to analyze their own work and identify their strengths and areas for improvement. Self-evaluation contributes to the development of independent work skills and self-control.

When assessing students' knowledge of computer science in the educational process, it is necessary to strive for maximum objectivity and impartiality. It is important to consider the

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uniqueness and educational needs of each student. This implies the application of clear assessment criteria, discussing them with students, as well as providing detailed feedback on each completed work or project [4]. Only this approach will make it possible to use assessment as effectively as possible as a tool for developing skills and academic success.

Reflection on the learning process of computer science

Reflection, an integral part of computer science education, plays a key role in deepening understanding and developing programming skills. Self-analysis of the acquired experience helps students identify both successful and difficult aspects, which contributes to more effective development. Let's take a closer look at the reflection methods used in the learning process of computer science.:

1. Diary of reflection. This method allows students to keep a record of their learning journey, recording important moments, impressions, and reactions to specific lessons, projects, or assignments. In the diary, students have the opportunity to analyze their achievements, acquired knowledge, as well as encounters with difficulties. This helps to assess the dynamics of progress and identify areas for improvement [4].

2. Group discussion. After completing a project or a study assignment, students participate in a collective discussion, sharing their experiences and knowledge. Group discussions stimulate the exchange of ideas and methods, allowing students to see problems from different perspectives and find new solutions.

3. Reflective essay. Writing a reflective essay on the experience of learning computer science helps to systematize students' thoughts and ideas. The essay can outline an understanding of the topic studied, ways to apply knowledge in practice, as well as highlight important conclusions and lessons learned. This process allows students to conduct a deeper and more informed analysis of their experiences [5].

The use of such reflexive techniques in computer science teaching contributes to the development of students' introspection and independence skills. This helps students better understand themselves as students, recognize their strengths and weaknesses, and develop strategies for further improvement [6]. As a result, students become more efficient and confident in their knowledge and skills in the field of computer science.

Conclusion

Assessment and self-reflection play a crucial role in the field of computer science. They allow students not only to evaluate their progress but also to deepen their understanding of the material. This, in turn, contributes to the development of logical thinking, which is essential for programming and algorithm development, as well as promoting independence and initiative.

To ensure the effectiveness of assessment and self-reflection, teachers must carefully plan and implement a variety of methods. These methods should take into account the unique characteristics of each student and their individual learning styles. Using various assessment techniques, such as hands-on projects, practical assignments, and tests, allows for a comprehensive evaluation of knowledge and skills.

Additionally, encouraging introspection through diaries, group discussions, and essay writing

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helps students realize their progress, identify their strengths and weaknesses, and create a plan for future growth.

Based on these principles, teachers can effectively support and develop students in computer science, creating an inspiring and motivating learning environment. In this environment, every student has the opportunity to achieve their full potential and succeed in this important academic discipline.

List of used literature

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