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Development of Comparative Analysis and Algorithms of Methods of Teaching Computers in Primary Classes on the Base of Artificial Intelligence

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Abstract: The article discusses a comparative analysis of methods of teaching computer science in primary schools with an emphasis on the integration of artificial intelligence (AI) into educational processes. Various pedagogical approaches are examined to evaluate their effectiveness in increasing student engagement and understanding of computer science concepts.

The work also includes the development of algorithms specifically designed to facilitate educational processes and improve learning outcomes. Using AI technologies, the research aims to propose innovative educational strategies to help young students learn essential skills in the digital age. The results are expected to contribute to the field of education by offering actionable advice and recommendations.

Key words: Artificial intelligence, primary classes, Computer Science, teaching methods, comparative analysis, algorithms, pedagogical approaches, educational processes, student participation, digital skills.

Enter.

Nowadays, artificial intelligence (AI) is increasingly being applied to educational processes. Teaching informatics in primary grades is important in forming students' digital skills. In this study, a comparative analysis of computer science teaching methods based on SI is carried out, which serves to interest students in computer science and deepen their knowledge. Pedagogical approaches are also changing with the development of information and technology. This study analyzes various pedagogical methods and evaluates their effectiveness in increasing student engagement and understanding of computer science concepts. Also, specially developed algorithms are presented to facilitate the educational processes and improve the results.

As a result, the research aims to develop innovative strategies to improve computer science teaching in elementary grades through the use of artificial intelligence technologies and to introduce new ideas into the field of education.

"Comparative analysis of computer science teaching methods in elementary grades based on artificial intelligence and development of algorithms" — this is a study aimed at studying and analyzing the processes of teaching computer science in elementary grades using artificial intelligence technologies. In this work, different methods are compared in order to evaluate the effectiveness of teaching methods, pedagogical approaches and educational processes. Also, the research will develop special algorithms to improve educational processes and develop students' digital skills. These processes serve to increase students' interest in computer science and strengthen their knowledge. Overall, this study aims to propose innovative teaching strategies by integrating artificial intelligence into the field of education.

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"Methods of teaching computer science in elementary grades based on artificial intelligence" — This is a study of pedagogical approaches and the use of artificial intelligence technologies in educational processes.

In this direction, the following main aspects are considered:

1. **Teaching methods:** Determining which AI-based teaching methods are effective, such as interactive lessons, games and simulations.
2. **Improving educational processes:** identifying the needs and difficulties of students with the help of artificial intelligence, as well as improving the quality of education.
3. **Algorithms:** Development of special algorithms to facilitate and adapt learning processes..
4. **Student participation:** Encourage students to actively participate, increase their interest and deepen their knowledge..

Benchmarking and algorithm development are processes aimed at making computer science education more efficient and innovative.

Comparative analysis

1. **The purpose of the research:** Comparison of different pedagogical methods and methods, to determine the effectiveness of which method..
2. **Data collection:** Collect data by conducting questionnaires with students and teachers or by observing the lesson process..
3. **Evaluation of results:** Analysis of the effect of each method on student participation, interest and understanding.

Development of algorithms

1. Problem identification: Identification of existing problems and difficulties in the educational process.Algoritm.

- *Example:* Developing an algorithm for adjusting lessons depending on the students' level of mastery.

2. *Testing and evaluation:* Testing the developed algorithm and evaluating its effectiveness.

Benchmarking and algorithm development represent two important aspects of the research process:

1. **Comparative analysis:** In this process, different teaching methods and pedagogical approaches are compared. During the analysis, the effectiveness of teaching methods, the interest of students, the level of knowledge and the impact on educational results are evaluated. Through comparative analysis, it becomes possible to identify the most successful methods and put them into practice.Algoritmlarini ishlab chiqish:
2. **In** this process, special algorithms are created to improve educational processes. These algorithms help to take into account the individual needs of students, adapt the teaching process and increase efficiency by using artificial intelligence technologies. Algorithms can be used to create interactive lessons, tests, games and other educational resources.

Creating educational content

Defining goals

- **Learning objective:** Development of knowledge of computer science based on artificial intelligence for elementary school students.
- **Outcomes:** Students should understand basic computer science concepts and learn to use artificial intelligence technologies

Choose a topic

- **Themes**:
- ✓ Introduction to Artificial Intelligence.
- ✓ Digital skills.
- ✓ Algorithm and programming fundamentals.
- ✓ Teaching methods: interactive games and simulations.

Content planning

- **Lesson Plans:** Develop a lesson plan for each topic, for example:
- ✓ Introductory lesson: Concept of artificial intelligence.
- ✓ Practical lesson: Algorithm development.
- ✓ Interactive lesson: Teaching through games.

Material development

- **Educational materials**:
- ✓ Textbooks and manuals (in PDF format).
- ✓ Graphs and diagrams (eg algorithm schemes).
- ✓ Interactive materials (programs for online platforms, simulations).
- ✓ Exercises and tests (quizzes, quizzes).

Testing and assessment. Test lessons. Testing created materials with students.

Fikrlar o'quvchilarning fikrlarini yig'ish va baholash.

Improvement

- Content improvement based on received feedback.
- Make necessary updates.

Distribution

- **Provision of materials:** Delivery of educational and methodological content to teachers and students (on online platforms, in the form of electronic textbooks).

Monitoring and evaluation

- Evaluating the effectiveness of educational and methodological content.
- Monitor student learning and progress.

This process helps to make the process of teaching informatics in elementary grades more effective and interesting, by integrating artificial intelligence, it serves to develop the digital skills of students.

Summary

This study was conducted on the topic "Comparative analysis and development of algorithms of computer science teaching methods in elementary grades based on artificial intelligence." The following main aspects were highlighted during the research:

1. **Effectiveness of teaching methods:** Different pedagogical approaches and teaching methods were analyzed and their role in increasing student participation and deepening knowledge was evaluated. Turli pedagogik yondashuvlar va o'qitish usullari tahlil qilinib, ularning o'quvchilar ishtirokini oshirish va bilimlarni chuqurlashtirishdagi roli baholandi.

2. **Algorithm development:** Special algorithms were created to make training processes more efficient. These algorithms help improve the quality of education through the use of artificial intelligence technologies.
3. **Creation of teaching-methodical content:** Interactive and interesting learning materials are developed according to the needs of students, which will serve to develop their digital skills.
4. **Monitoring and evaluation:** Learning materials are constantly improved based on the results obtained and the opinions of students.

As a result, the research suggests innovative strategies to improve the quality of education and increase student interest by integrating artificial intelligence into the computer science teaching process in elementary grades. It helps students acquire modern knowledge and be successful in the digital worldOlingan natijalar va o'quvchilarning fikrlari asosida o'quv materiallari doimiy ravishda takomillashtirilib boriladi.

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