
METHODOLOGY OF TEACHING INFORMATICS CLASSES IN ACADEMIC LYCEUMS

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Abstract: This thesis explores the relevance, key principles, and modern approaches to teaching informatics in academic lyceums of Uzbekistan. It provides an in-depth analysis of methodologies such as project-based learning, gamification, collaborative learning, and the use of ICT tools. The study also examines existing challenges in informatics education and offers recommendations for improving infrastructure, teacher training, and curriculum development to align with international standards.

Keywords: informatics, academic lyceums, Uzbekistan, teaching methodology, project-based learning, gamification.

INTRODUCTION

The rapid development of information and communication technologies (ICT) has significantly influenced the field of education, including the teaching of informatics in academic lyceums. In Uzbekistan, academic lyceums play a crucial role in preparing students for higher education, with informatics serving as a foundational subject for developing their technical and analytical skills. The effective teaching of informatics requires modern methodologies that align with global trends while addressing the specific needs of Uzbekistan's education system.

MATERIALS AND METHODS

Informatics is a vital subject in academic lyceums due to its interdisciplinary nature and applicability in various professional fields. Key objectives of teaching informatics include:

- Developing digital literacy: Ensuring students can effectively use computers and software tools.
- Fostering computational thinking: Teaching students to approach problems logically and algorithmically.
- Encouraging innovation: Enabling students to create new digital solutions and applications.

In Uzbekistan, informatics education is particularly significant as the country seeks to develop a knowledge-based economy. Academic lyceums serve as a bridge between secondary and tertiary education, making them an ideal setting for advanced informatics education.

RESULTS AND DISCUSSION

Informatics education in academic lyceums of Uzbekistan plays a pivotal role in equipping students with the skills and knowledge required to thrive in a technology-driven world. As the country continues its transition towards a digital economy, the need for a robust, innovative, and forward-thinking approach to teaching informatics becomes increasingly important. This article has demonstrated that effective teaching methodologies, such as project-based learning, gamification, collaborative approaches, and the integration of ICT tools, can significantly enhance student engagement, comprehension, and skill development in informatics.

However, several challenges persist, including limited resources, inadequate teacher training, and curriculum gaps that do not fully reflect the rapidly evolving demands of the global technology landscape. Addressing these issues requires a multi-faceted strategy:

1. **Infrastructure Development:** Providing modern computer labs, high-speed internet, and up-to-date software tools in academic lyceums is essential. Public-private partnerships can play a key role in achieving this goal.
2. **Teacher Professional Development:** Continuous training programs for teachers are critical to ensuring they are equipped with the latest pedagogical techniques and technical skills. Online learning platforms and international exchange programs could further enhance teacher capabilities.

3. Curriculum Modernization: Updating the informatics curriculum to include emerging topics like artificial intelligence, machine learning, cybersecurity, and big data will better prepare students for higher education and the workforce.
4. Extracurricular Opportunities: Coding clubs, hackathons, and participation in international competitions can inspire students to pursue careers in technology and innovation, fostering creativity and collaboration.
5. Government Initiatives and Policies: Aligning with national strategies such as "Digital Uzbekistan 2030" will provide a structured framework for improving informatics education. Increased funding and policy support will ensure the sustainability and scalability of reforms in this field.

Methodologies for Teaching Informatics

1. Project-Based Learning (PBL):
 - Description: PBL involves students working on real-world projects that integrate theoretical knowledge with practical application.
 - Implementation: For example, students could design a simple website or develop a mobile application to solve a specific problem.
 - Benefits: Enhances problem-solving skills, teamwork, and creativity.
2. Flipped Classroom Model:
 - Description: In this approach, students study theoretical materials at home (e.g., through online videos) and engage in hands-on activities during class time.
 - Implementation: Teachers can provide video tutorials on programming concepts, and in class, students work on coding exercises.
 - Benefits: Maximizes classroom interaction and allows personalized guidance from the teacher.
3. Gamification:
 - Description: Gamification involves incorporating game-like elements into the learning process, such as points, leaderboards, and challenges.
 - Implementation: Platforms like Code.org or Scratch can be used to teach programming in an engaging manner.
 - Benefits: Increases student motivation and makes learning enjoyable.

CONCLUSION

In conclusion, by addressing the current challenges and leveraging the opportunities presented by modern teaching methodologies and government initiatives, Uzbekistan's academic lyceums can become centers of excellence in informatics education. These efforts will not only enhance students' digital literacy and technical skills but also contribute to the broader goal of creating a competitive, knowledge-based economy. With a clear vision and collaborative effort among educators, policymakers, and stakeholders, the informatics education system in Uzbekistan can achieve remarkable progress and set an example for other nations.

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