

THE DEVELOPMENT OF FUTURE TEACHERS' ICT COMPETENCIES IN MANAGING PROJECT ACTIVITIES AND IN THE PROCESS OF MUTUAL COLLABORATION

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Abstract

This article analyzes how the competencies of future teachers in information and communication technologies (ICT) can be developed in the process of managing project activities and mutual collaboration. ICT competencies provide teachers with the opportunities to effectively organize the educational process, manage students' activities, and develop interpersonal interactions. The article discusses the necessary methodological approaches, creative pedagogical methods, and ways to apply innovative technologies to enhance ICT competencies.

Keywords: Future teachers, ICT competencies, project activities, collaboration, creative approach, innovative technologies, pedagogical methods.

Introduction

Today, ICT is considered a crucial tool in organizing the educational process effectively and enhancing its quality. With the help of ICT, teachers can deliver necessary knowledge to students quickly and efficiently, making lessons interactive and more engaging. Additionally, ICT allows teachers to develop their pedagogical activities and assist in shaping students' cognitive abilities.

The process of developing future teachers' ICT competencies holds an important place in the education system. Teachers who have mastered modern pedagogical methods and technologies are not only capable of enhancing students' intellectual potential but also teaching them social and practical skills. Therefore, teaching future teachers the ability to apply modern technologies and further developing their pedagogical and technological skills has become one of the key tasks of the education system today. The development of teachers' ICT competencies is essential for organizing the educational process effectively and establishing high-level communication with students. This competency trains teachers to use interactive and creative methods with modern technologies, helping students clearly and fully express their thoughts, work in groups, and collaborate effectively.

At the same time, ICT competencies allow teachers to develop unique pedagogical strategies and apply them effectively. For example, organizing interactive lessons, managing students' independent work using internet resources, and extensively using technology to solve problems



all enhance the effectiveness of the educational process. Through this, teachers continually update their knowledge and adopt new pedagogical methods.

Applying project-based learning methods also plays a significant role in developing teachers' ICT competencies. During the management of project activities, teachers can apply their knowledge in practice and teach students to solve problems using creative approaches. This process develops students' independent thinking skills and helps them solve real-life problems. In the development of future teachers' ICT competencies, interactive methods and innovative pedagogical approaches are seen as key tools. Using interactive methods, the teacher can capture students' attention and create opportunities to reinforce new knowledge and develop practical skills. These methods not only ensure active participation of students in learning but also enhance teachers' pedagogical and technological skills. At the same time, applying creative methods in the educational process plays a significant role in the development of teachers' pedagogical skills. Through creative approaches, teachers can make their lessons more engaging and effective. Teaching students to think creatively, express themselves, work in groups, and collaborate helps enhance their overall intellectual and social potential.

The necessity of ICT competencies for teachers creates significant opportunities to enhance their active participation in the educational process and develop students' ability to work collaboratively. Therefore, preparing teachers for ICT competencies is crucial, as it emphasizes not only pedagogical but also technological preparedness. Developing these competencies ensures that not only the teachers but also the students are capable of mastering advanced technologies. As a result of this process, teachers and students will be able to organize the educational process effectively by applying modern technologies and creative pedagogical approaches together. Additionally, by developing ICT competencies, teachers can modernize the educational process, making it more interactive and creative, which in turn increases the effectiveness of education.

Main Part:

ICT competence refers to the ability of future teachers to effectively apply modern technologies in their professional activities. This competence encompasses the teacher's technological, pedagogical, and practical knowledge, as well as enabling teachers to use technologies to develop students' knowledge and skills. By applying modern pedagogical methods, interactive, and creative approaches, the educational process can be organized effectively.

Composition of ICT Competence

Competence component	Description	Goals and tasks
Technological knowledge	Teacher's skills in effectively using technologies	Mastering and applying modern educational technologies
Pedagogical knowledge	Organizing the educational process in an interactive and creative way	Developing students' cognitive and practical abilities
Practical knowledge	Skills in using technologies effectively in education	Applying innovative technologies in the learning process



The development of ICT competence helps the teacher integrate innovative technologies into the educational process and ensures the successful development of students.

Project activities provide teachers with the opportunity to test their ICT competence in practice. The teacher establishes effective communication with students, teaching them to work together and express their ideas clearly. Using ICT, the teacher enhances the effectiveness of education by applying innovative technologies in creating various projects and assignments.

Role of ICT competence in project activities

Activity type	technology tool	Results
Project management	Project management software (Trello, Asana)	Effectively grouping students, assigning tasks
Communication and collaboration	Zoom, Google Meet, Teams	Establishing effective communication among students, exchanging ideas
Creation and creativity	Canva, Google Docs	Creating educational materials, supporting teamwork

Proper application of ICT competence in project activities develops students' social skills and increases the effectiveness of the educational process.

Creative pedagogical approaches play a crucial role in the development of ICT competence. Interactive methods, flipped classrooms, case studies, and other innovative pedagogical approaches teach teachers how to manage projects and organize collaboration effectively.

Methodological approaches to developing ICT competence

Approach name	Description	Application areas
Interactive methods	Encourages active student participation	Clarifying and discussing students' opinions in lessons
Flipped classroom	Students learn lessons at home, with only discussion and practice in class	Provides opportunities for independent learning, group discussions
Case study	Learning based on problem-solving	Discussing practical examples, finding solutions

The use of innovative methods teaches teachers how to manage the educational process effectively and makes the learning process interactive for students. To enhance future teachers' ICT competence, it is essential to apply interactive methods and innovative technologies. These methods ensure active student participation and strengthen interpersonal interactions. Preparing teachers to use creative methods equips them with the necessary tools for managing project activities effectively.



Advantages of applying innovative technologies in the educational process

Technology tool	Advantages	Application opportunities
Google classroom	Provides online educational resources to students	Organizing online classes, distributing materials
Interactive whiteboards	Ensures active student participation	Interactive discussions and solution development during lessons
Quizlet, Kahoot!	Assessing students through tests and quizzes	Checking knowledge and motivating students

Innovative technologies increase the pedagogical effectiveness of teachers and stimulate students' interest. However, the practical application of creative approaches and ICT competence may sometimes be challenging for teachers. This is often related to a lack of pedagogical resources for teaching new technologies and limited exchange of experiences among teachers. Therefore, it is essential to provide teachers with adequate preparation in ICT, teach them new technologies, and provide them with pedagogical resources.

Key directions for promoting collaboration among teachers

Direction	Description	Implementation methods
Experience sharing	Sharing knowledge and methods among teachers	Seminars, educational forums
Professional development	Teaching teachers new pedagogical technologies	Online courses, masterclasses
Promoting collaboration	Encouraging group work among teachers	Team projects, group work

Developing collaboration and experience sharing among teachers is crucial for organizing the educational process effectively.

Conclusion

The development of ICT competence in future teachers significantly contributes to organizing an effective learning process and improving students' knowledge. This competence allows teachers to apply modern technologies in their work, providing students with opportunities for interactive and multifaceted learning. The use of ICT tools enhances students' cognitive abilities and development because these methods ensure active participation and strengthen interpersonal interactions.

Through the development of ICT competence, teachers can not only establish effective communication with students but also present educational materials in a clear and understandable way. With interactive technologies, teachers can teach students to apply knowledge in real-time. This increases students' interest in learning and makes the educational process more effective.

Innovative pedagogical approaches such as interactive methods, flipped classrooms, and case studies help teachers effectively organize collaboration, manage projects, and conduct creative lessons. These methods develop independent thinking in students during the process of



expressing their opinions and making decisions. The effective use of modern technologies by teachers in pedagogical processes helps students better master knowledge. One important aspect of ICT competence is preparing teachers for project management and teamwork. Through ICT tools, teachers train students for group work and collaboration, strengthening their interpersonal connections. Teaching future teachers to work in teams and providing them with necessary pedagogical resources ensures a more effective and systematic learning process. Challenges may arise in the development of ICT competence and the application of innovative technologies. Specifically, learning and effectively using new technologies may be difficult for some teachers. Therefore, continuous training for teachers in ICT, introducing them to new technologies, and developing special methodological guides is essential. These methods help teachers successfully apply new technologies in their work.

In the future, the role of ICT competence in the education system will increase. To succeed in the modern world and digital economy, it is necessary to introduce future teachers to modern technologies and teach them how to apply these technologies in the educational process. Furthermore, the development of ICT competence ensures the practical application of pedagogical innovations and contributes to the modernization of the educational process. This improves the quality of education for students and provides them with modern knowledge.

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