Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

METHODOLOGY FOR IMPLEMENTING SOFTWARE THAT IMPROVES INFORMATION TECHNOLOGY IN PRIMARY GRADES IN THE CONDITIONS OF DIGITALIZATION

Nazarov Ilkhomjon Usmanalievich
Uzbekistan National Pedagogical University named after Nizami
Acting Professor, Department of Information Technologies

Abstract
The article is devoted to the development and substantiation of methodological approaches to the effective implementation of innovative software solutions in the educational process of primary schools. The paper examines the issues of adapting content to the age characteristics of students, integrating software into the existing curriculum, as well as training teachers to work with new digital tools. The advantages of using advanced software for the development of algorithmic thinking, creative abilities and the formation of digital literacy of younger schoolchildren are analyzed. The research is aimed at improving the quality of information technology education in primary schools in the context of digitalization of education and the formation of students with the necessary competencies for successful adaptation to the modern information society.

Keywords: Implementation methodology, software, information technology, elementary grades, digitalization of education, digital resources, pedagogical technologies, digital literacy, content adaptation, effectiveness assessment, monitoring of results.

Introduction

In the current conditions of developing digital technologies, improving the teaching methodology of various subjects, including the subject of "BSAT", has become a requirement of the times. The emergence of new technical and software tools creates conditions for changing teaching methods, from reproductive to productive education, from a unified approach to individualization of education.

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

The methodology for introducing improved software for the subject of "BSAT" in the context of digitalization is a systematic and scientifically based approach aimed at integrating new or updated software into primary education practice in order to increase the effectiveness of teaching this subject and develop the digital knowledge of future primary school teachers.
The methodology for introducing improved software for the subject of "BSAT" is a multi-stage process that requires consideration of the following main aspects:

I. Analysis and justification.
1. "Conducting and justifying an analysis of the current situation": assessing the current level of the primary education information technology infrastructure of the educational institution, the software used in the process, the level of digital competence of teachers and students, as well as an objective assessment of the needs and problems that need to be solved with the help of new software.
2. Substantiating the choice of software: determining the criteria for selecting improved software (compliance with the state educational standard, didactic principles, technical requirements, etc.), analyzing various software options and justifying the choice of the most suitable one.
3. Determining the goals and objectives of implementing improved software: clearly formulating the goals of implementing the software (for example, increasing motivation to learn IT, forming basic computer skills, developing algorithmic thinking, developing creative abilities, etc.) and the tasks that need to be solved to achieve these goals.

II. Planning.
1. Development of an implementation plan: determination of the stages of software implementation (preparatory, main, final), their implementation period and necessary resources.
2. Development of educational and methodological support: creation or improvement of the curriculum, methodological recommendations for the teacher, didactic materials for students, interactive tasks, test options and other resources necessary for using software in the educational process.
3. Determination of criteria for assessing the effectiveness of education: development of a system for assessing the results of software implementation (for

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

example, increasing the effectiveness of software mastery by students, developing their digital competence, increasing motivation for learning, etc.).

III. Implementation:

1. Preparation of information technology infrastructure: provision of necessary equipment and software, verification of their functionality and compatibility.
2. Introduction of software into educational processes: gradual introduction of software into the educational process, starting from individual lessons or sections of topics, expanding their use based on the results of mastering knowledge by future primary school teachers.
3. Organization of support for future primary school teachers: provision of consultation, technical, methodological assistance on the use of new software.
4. Monitoring and adjustment: constant monitoring of the software implementation process, listening to students' feedback and drawing conclusions, making adjustments to the work plan and methods.

IV. Assessment of learning outcomes:

1. Data collection: collection of data on the effectiveness of software implementation through various methods (testing, monitoring educational activities and conducting an analysis of acquired knowledge, etc.).
2. Preparation of reports: preparation of reports on the results of software implementation in educational processes (development of conclusions and recommendations).

The main principles of the methodology for implementing software in the subject "BSAT":

1. taking into account the requirements of the state educational standard;
2. selection of software for future primary school teachers that corresponds to the age characteristics of younger schoolchildren and their cognitive abilities;
3. widespread use of software that provides information visualization and active interaction of students with educational materials;
4. ensuring the widespread use of game software aimed at increasing the motivation and activity of younger schoolchildren for future primary school teachers;
5. adapting education to the individual needs and speed of mastering of the student;

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

6. practical orientation of education: focusing on the formation of students' practical skills in working with computers in educational processes and using information technologies in everyday needs;
7. systematicity and consistency: ensuring the gradual introduction of software, from simplicity to complexity;
8. reflection and evaluation: conducting reflection and evaluation to record the results of the software implementation in order to identify problems and make necessary adjustments.
9. constantly improving the practice of software implementation and searching for new opportunities to increase the effectiveness of education.

As a result of adhering to these points and principles, a modern educational environment will be created for the comprehensive development of future primary school teachers and their adaptation to digital learning conditions, and the methodology for implementing the improved software for the subject "BSAT" will be improved to a certain extent.

The selection of modern materials in teaching the subject “BSAT” and their timely introduction into the educational process are inextricably linked to the level and characteristics of future primary school teachers, as well as their level of training, the capabilities of the audience, the skills of the teacher, the significant aspects of the chosen topic, the means, forms and methods of the modern educational and cognitive process.

The methodological system of teaching the subject “BSAT”, like in other subjects, consists of five hierarchically interconnected components: goal, content, teaching methods, means and organizational forms.

According to N.V. Kuzmina, the methodological system of teaching is an ordered set of interrelated methods, forms and tools aimed at planning, organizing, monitoring and analyzing educational processes aimed at increasing the effectiveness of student learning.

The features of the methodological system of modern education are manifested in the following: planning educational processes on a scientific basis; taking into account the unity and interaction of theoretical and practical exercises; high speed of mastering educational materials of high difficulty level; ensuring maximum activity and a sufficient level of independence of students; providing for individual and collective work; saturating the educational process with modern technical and software; an integrated approach to studying various topics.

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

Based on the conducted extensive analysis, the researcher developed an improved content for teaching the subject "BSAT". This was achieved by not changing the volume of general topics of this subject and by combining some topics (Table 1).

Improved content table for the BSAT subject

1. Conceptual foundations of information technology		
1.	1	The structure of educational technology.
2.	2	Conceptual foundations of modern educational technology. The concept of information technologies, their classification.
3.	3	Working with multimedia software applications. Using Ms.PowerPoint, FotoShOUPRO, SmartDraw, online Prezi software applications.
4.	4	Network and Internet technologies: protocols, web development and cloud technologies.
2. Using information technologies in teaching primary education subjects		
5.	5	Application of information technologies in professional activities. Practical cases.
6.	6	Methodology of using information technologies in teaching basic subjects in primary grades. Use of integrated education. Use of information technologies in teaching basic subjects. Organization of extracurricular activities.
7.	7	Use of information technologies in teaching native language and reading, mathematics, technology in primary grades.
8.	8	Information security. Fundamentals of cryptography, ways to protect data.
9.	9	Creation of game software products without coding (on the example of Game Maker, Construct 3). Working with simulators.
10.	10	Creation of digital educational resources (photos, videos, video tutorials, static and dynamic models, virtual reality objects and interactive modeling, graphic and cartographic materials, audio recordings, audiobooks, various symbolic objects and graphics).
11.	11	Use of information technologies in studying the coordinate angle in primary grades. Using information technologies in preparation for participation in international assessment programs PIRLS, TIMSS, PISA, TALIS.
3. Formation of information competence of young students		
12.	12	Methods of studying the concept of information, its types, information coding
13.	13	Algorithmization and programming. (Python, Java, C++).
14.	14	Use of online pedagogical software tools (Google Forms, Canva.com, Mentimeter.com, Quizlet, LearningApps.org, Genial.ly, Liveworksheets.com, etc.). Use of social networks in the activities of primary school teachers.
15.	15	Formation of a teacher's electronic portfolio.
Note: The topics in bold in the table above are the advanced topics of the BSAT subject.		

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

The graphic sequence of teaching the improved content of the "BSAT" subject proposed by the researcher in an interactive manner is presented in the figure below (Figure 1).

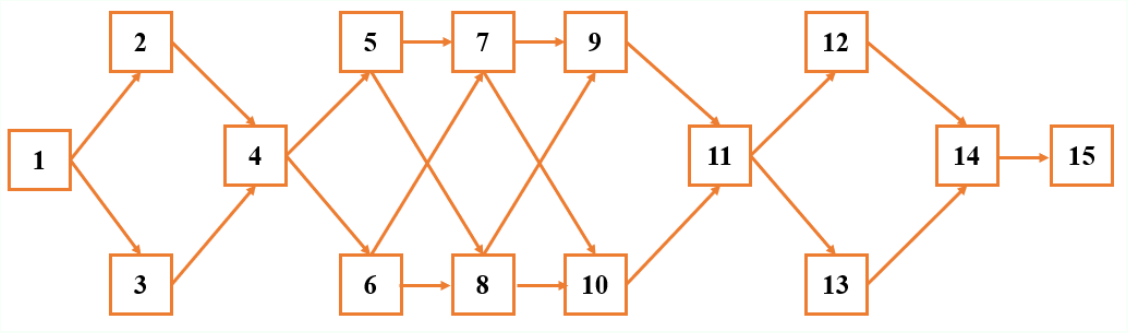

Figure 1. Graphic sequence of the content of the subject "BSAT"

According to the sequence presented in the graph, at the initial stage of teaching the subject "BSAT", future primary school teachers are introduced to the structure of educational technology, their conceptual foundations, information technologies and their classification. Then, based on the improved topics, when teaching topics related to the software of the subject, multimedia software applications, network and Internet technologies are first offered. This is because when studying the current topics, it was taken into account that they will perform presentation project work on various topics, and for this they will widely use Internet resources.

M.N. Mirzaeva emphasizes that the role and advantages of Internet technologies in improving the methodology of teaching information technology for future primary school teachers in the conditions of digitalization cannot be denied, and that the Internet, as an integral part of the educational process, will become the basis for developing virtual conferences, distance learning, and collaborative educational projects.

The above-mentioned graph represents one of the possible manifestations of the structural and logical scheme of the curriculum for the training of future primary school teachers. The successful implementation of the educational program is also closely related to the resource base of the higher educational institution.

A distinctive feature of the presented methodology is the gradual involvement of future primary school teachers in the processes, from general ideas about the software of the subject to their detailed mastery. The study of integrated subjects based on acquired knowledge using information technologies is also provided.

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

Studying integrated subjects based on information technologies ensures that future primary school teachers have the following professional skills:

1. Organizing the design and implementation of educational processes based on information technologies;
2. Taking measures to ensure the information security of future primary school teachers;
3. Extensive use of information technologies to improve the quality and efficiency of education;
4. Implementing the organization of direct and feedback loops using information technologies.

These skills allow for the effective use of information technologies to create a high-quality, modern and attractive educational environment that contributes to the professional development and success of future primary school teachers.

Of course, it is necessary to emphasize the incomparable role of the teacher in improving the teaching of the subject "BSAT". The qualitative organization of educational processes is closely related to his professional skills and qualifications. The skill model of a modern teacher requires him to demonstrate new modern qualities based on the achievements of science and practice.

D.G. Levites emphasizes that the professional competence of a teacher can be interpreted as his inalienable feature, the ability to identify and understand professional problems, and the readiness to solve professional problems arising in real situations of professional activity.

Improving the methodology of teaching the subject “BSAT” is carried out in the context of the interrelation of pedagogy, didactics and the methodological system and can be described as follows.

In organizing training sessions on the basis of the improved software of the subject “BSAT” on a digital platform, work was carried out to develop the professional skills of future primary school teachers in groups and individually, to a variant educational trajectory of the form of work, as well as to adapt to the created digital platform. Also, when organizing a lecture session using a digital platform, the traditional lecture (informational model), the ADDIE (structured approach) model, the lecture with interactive elements (interactive model), the lecture-discussion (discussion model), the lecture using cases (case model), and the Khan model (adaptive model) were selected, and a methodology for using

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

these models was developed by combining them. The analysis of conducting lectures is presented in the table below (Table 2).

Models for conducting BSAT lecture classes on a digital platform

Lecture organization models	Description
Traditional lecture	Used to illuminate complex theoretical concepts and large topics
(informational model)	An effective tool for developing curricula and materials. The model is used in cases where a systematic approach and high-quality teaching are required
ADDIE model	Used to reinforce educational materials, encourage discussion of controversial issues,
(structured approach)	Develop problem-solving skills and prepare for practical exercises
Lecture with interactive elements	Used to discuss controversial issues, analyze student opinions, develop critical thinking
(interactive model)	Develop students' skills in solving various problems, apply theoretical knowledge in practice and prepare for professional activities

The choice of a model for organizing practical training for future primary school teachers is crucial in developing their professional skills. Unlike lecture training, here the focus is on the active activity of students. When organizing practical training using a digital platform, we aimed to use the Problem-Based Learning (PBL) model, Project-Based Learning (PBL) model, master class model, laboratory work model, and game-based models based on the needs of practical training.

REFERENCES:

1. O‘zbekiston Respublikasi Prezidentining 2018-yil 5-iyundagi PQ 3775-son “Oliy ta’lim muassasalarida ta’lim sifatini oshirish va ularning mamlakatda amalga oshirilayotgan keng qamrovli islohotlarda faol ishtirokini ta’minlash bo‘yicha qo‘shimcha chora-tadbirlar to‘g‘risida”gi Qarori. https://lex.uz/docs/-3765586
2. Кузьмина Н.В., и другие. Методы системного педагогического исследования. Учеб. пособие. / Ленинград : Изд-во ЛГУ, 1980. – 172 с.

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 06, June 2025
brightmindpublishing.com
ISSN (E): 3061-6964

3. Mirzaeva M.N. Technology forming professional competence of students of technical university in the lessons of foreign languages// Научные горизонты, 2019.
4. Левитес Д.Г. Куда уходит… педагогика? // Народное образование. 2013. № 6. – 210-216 с.