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# Innovative Approaches to Elementary Education Subjects in a Digital Society

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**Abstract:** This article provides an in-depth analysis of modern and innovative approaches used in teaching primary education subjects in the context of a digital society. Digital pedagogy, STEAM, CLIL, gamification, systems thinking, virtual laboratories, adaptive teaching, gamified environments, and learning analytics technologies that monitor student activity are scientifically examined to show how they impact the primary education process. A number of theoretical issues related to the psychological characteristics of elementary school students, their specific needs as a digital generation, learning motivation, and the age-specific development of perception and memory are also analyzed in depth in this article. Additionally, the article provides an in-depth examination of digitization processes in Uzbekistan's education policy, the national education system's innovative development strategy, digital resources designed for primary education, their quality indicators, and efficiency metrics.

**Keywords:** digital society, innovative technologies, primary education, STEAM, CLIL, gamification, digital literacy, adaptive learning, digital pedagogy, virtual laboratories, learning analytics.

Today's world is moving rapidly into a digital ecosystem. Artificial intelligence, Big Data, digital platforms, virtual reality and augmented reality, automated education systems — all of which are deepening not only into the economy or technological sphere, but also into the educational system itself.oday's world is moving rapidly into a digital ecosystem. Artificial intelligence, Big Data, digital platforms, virtual reality (VR) and augmented reality, automatedf.

Primary education is the stage in which changes will be most noticeable. Because a child in grade 1-4:

- learns to perceive the world,
- discovers the environment,
- forms the first principles of working with information,
- assimilates the methodology of" learning", not the practice of" reading". Primary education is the stage in which changes will be most noticeable. Because a child in grade 1-4:
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Representatives of the digital generation — alpha generation — are the first generation to grow up with smartphones, tablets, interactive games and Multimedia. This in itself requires a completely new methodological view from the elementary teacher.

Digital society refers to a society in which the daily life activities of people are managed through digital technologies, knowledge, information, communication and services are provided in digital form.

One of the main signs of a digital society is flexibility. Any profession, any activity requires constant updating. So the educational system should also adapt the child to this process.

The digital society has had the following effects on education:

1) knowledge has become important, not knowledge itself, but the ability to apply it. The time of enskilopedia memorization is over. Now it is necessary to interpret them, apply them, draw conclusions from them.

2) The Reader has become a creator, not just a consumer. The child himself creates a video, writes Code, guides the project, presents the result in digital form. The digital society has had the following effects on education:

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2) The Reader has become a creator, not just a consumer. The child himself creates a video, writes Code, guides the project, presents the result in digital form.

3) the teacher became a "guide", not a "knowledge giver". This change is especially relevant for the primary class.

4) Multimodal education became a priority. Text + image + sound + animation + interactive elements — a form suitable for children's perception.

5) in the process of training, analytical thinking came to the primary place. Critical thinking, creativity, logical analysis are the main competencies of digital society.

In the theory of Constructivism (Piaget, Vygotsky), the child does not receive knowledge in the finished form — he builds it himself during the activity. In our social construct, the environment in which the child learns best is the collaborative environment. Multichannel learning theory (multimodal learning) in younger learners, visual information is 72% rapidly acquired. In the theory of learning through play, play is the natural developmental environment of a child. heory of Constructivism (Piaget, Vygotsky), the child does not receive knowledge in the finished form — he builds it himself during the activity. In our social construct, the environment in which the child learns best is the collaborative environment. Multichannel learning theory (multimodal learning) in younger learners, visual information is 72% rapidly acquired. In the theory of learning through play, play is the natural developmental environment of a child. That's why gamification is so effective at the initial stage. In the field of neuropedagogy, the child's brain develops most actively between the ages of 6 and 10. It is during this period that it will be most effective to teach critical thinking, observation, logical search.

In the main innovative approaches used in primary education, each approach is analyzed in depth, extensively. In the integration of STEAM — knowledge with life, STEAM education forms the following skills in the child's mind:

- analytical thinking (Science

- digital skills (Technology
- creating a solution in problem situations (Engineering)It is during this period that it will be most effective to teach critical thinking, observation, logical search.

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- analytical thinking (Science
- digital skills (Technology
- creating a solution in problem situations (Engineering)
- Creative Thinking (Art
- Logical Reasoning (Mathematics

Examples of STEAM in primary education:

Grade 1: project" transport without breaking eggs " — physics + art.

Grade 2:" making a bird's nest " — Engineering + Natural Science.

3rd grade:" change of Shadow " — astronomy + experience + mathematics.

Class 4:" drawing a Mini-robot path " — programming + algorithmic thinking. 1: project" transport without breaking eggs " — physics + art.

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STEAM classes make the child an active researcher, not a teacher listener. CLIL-the combination of the content of Science and a foreign language

This method is in the child:

- interest in language learning,
- expansion of the circle of understanding,
- a deeper assimilation of the content of science forms skills. For example: in the 3rd grade lesson, the states of water are explained through the words "solid–liquid–gas".

The problem is the child in the process of basic education: analyzes the situation, guesses, experiments, writes the result, draws conclusions. This process increases the child's cognitive flexibility.

In the process of Project-Based Learning (Project-Based Learning), in this the child- a deeper assimilation of the content of science forms skills. For example: in the 3rd grade lesson, the states of water are explained through the words "solid–liquid–gas".

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In the process of Project-Based Learning (Project-Based Learning), in this the child:

- solves a real problem,
- works in a team,
- plans time,
- defends his opinion. For example: the project "Environmental problems in our neighborhood

Gamification-gamification in the process of training through game mechanics at an early age:

- increases motivation by 2.5 times,
- reduces stress,
- concentrates attention in one place.

Examples: "mathematical safari", "nature seekers", ”word hunters"

In the reverse class (Flipped Classroom) process, it effectively distributes time, makes it possible to see what kind of knowledge it has mastered, enhances independent learning.

In adaptive education-the creation of an individual educational trajectory based on artificial intelligence. Difficult places for a younger student are analyzed, assignments are automatically graded, a model of training suitable for the individual is created.

With the help of digital technologies, real practical tools are widely covered in the teaching of elementary education subjects.

AR (augmented reality) — 3D animals in augmented reality, anatomical models, solar system — these make a strong impression on the child. adaptive education-the creation of an individual educational trajectory based on artificial intelligence. Difficult places for a younger student are analyzed, assignments are automatically graded, a model of training suitable for the individual is created.

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AR (augmented reality) — 3D animals in augmented reality, anatomical models, solar system — these make a strong impression on the child.

VR (virtual reality) — in a virtual environment, the reader “flies” into space, “dives” into the depths of the ocean.

Artificial intelligence detects the reader's mistakes, provides an explanation, offers an automatic exercise. In Virtual laboratories, experiments in physics, biology, chemistry are carried out in a safe, clear and interesting form. It is convenient to use the first manifestations of programming adapted for children. Management of the teaching process based on student activity statistics.

Original 7-step lesson model for primary education Artificial intelligence detects the reader's mistakes, provides an explanation, offers an automatic exercise. In Virtual laboratories, experiments in physics, biology, chemistry are carried out in a safe, clear and interesting form. It is convenient to use the first manifestations of programming adapted for children. Management of the teaching process based on student activity statistics.

Original 7-step lesson model for primary education

Stage 1: Spark (Spark of interest) mini video, puzzle, real object.

Stage 2: Wonder (question stage) “why?” , "How?" questions are asked by the reader.

Stage 3: Explore (research) experience, observation, measurement, work in a small group.

Stage 4: A Brief, clear, visualized explanation of the teacher in Decode (understanding).

Step 5: write a project, layout, model, code in Create (create).

Stage 6: in the Presen, each group or reader tells the result. Explore experience, observation, measurement, work in a small

**Problems and ways to solve them**

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|---|---|
| **Low digital content** | • Creating local interactive lessons |
| **Low teacher digital skills** | • Online courses in digital methodology |
| **Lack of attention in the student** | • Lack of infrastructure |
| **Lack of infrastructure** | • Hybrid lesson - paper + digital resource |
| **Lack of parental preparation** | • 3 minute video tutorials |

In the context of a digital society, primary education is not just knowledge — it is the education of a person who can think, solve problems, correctly apply technology, be creative and flexible. Innovative approaches-STEAM, CLIL, PBL, gamification, reverse class, adaptive learning — take this process to a new level.

As a result, the reader is armed with competencies, which are the demand of the future, and not just today.

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