



SECONDARY EDUCATION INTEGRATION AND
TRANSFORMATION

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Annotation. This article is devoted to an in-depth analysis of the content and essence of the integration and transformation processes being implemented in the secondary education system. Integration is interpreted as the mutual harmonization of educational disciplines, curricula, technologies and methodological approaches. Transformation means the reorganization of the educational process in accordance with modern requirements, innovative changes aimed at developing student competencies. The article discusses the scientific basis of integrated approaches such as STEM, STEAM, CLIL in secondary education, digital transformation, a new model of teacher activity, as well as their impact on students' creative thinking and problem-solving skills. The analysis shows that integrative teaching frees students from one-sided knowledge and prepares them to perform complex life tasks. The transformation process is an important factor in increasing educational efficiency, developing digital competencies, and creating a person-centered pedagogical environment. The article is of scientific and practical importance for teachers, methodologists, and educational policy makers.

Keywords: integration, transformation, secondary education, innovative technology, STEM, CLIL, digital education, competence, pedagogical method.



The modern education system requires adaptation to changes in society, science, and technology that are rapidly developing. The processes of integration, modernization and transformation taking place in the educational process play an important role in the formation of students' competencies that meet the requirements of the new generation. Since the secondary education stage is the foundation stage that determines the formation of each student as a person, his worldview, creativity and future educational and professional direction, any changes made in this system directly affect the development of society.

Integration in the educational process is the strengthening of interdisciplinary connections, the formation of a single system of knowledge, the unification of different fields of knowledge into a single knowledge space. Transformation is the process of radically changing the content, form, methods of education, teacher activity and student participation in education. All this serves to form creative thinking, logical analysis, problem solving, digital competencies and social skills in students.[2]

This article covers the processes of integration and transformation in secondary education from a theoretical, psychological and methodological perspective, analyzes existing problems and ways of improvement on a scientific and theoretical basis.

Interdisciplinary integration involves transferring students from a system of knowledge divided into separate disciplines to a complex system of knowledge that is complementary, interrelated, and capable of solving life problems. For example:

mathematics + computer science + physics (STEM)

biology + chemistry + ecology

consciousness development + fine arts + creative thinking (STEAM)

language + science (CLIL technology)[1]

This integration teaches students to analyze multifaceted situations in real life.

Integration is carried out through the following methods:



1. Multidisciplinary lessons - one topic is covered in connection with several disciplines.
2. Project-based learning - the student applies the knowledge gained from different disciplines in the work process.
3. Modular education - a modular system based on general competencies.
4. Problem-based education - integration is carried out based on real situations.

Unlike previous systems that have remained unchanged for years, curricula are now being reworked to:

- competency-based,
- practice-oriented,
- digitally compatible,
- based on a person-oriented approach.[3]

Content transformation is aimed at forming the quality of a “knowledge creator” in a student, not a “knowledge holder”.

Digital educational platforms, multimedia, interactive methods, distance learning systems - all this is fundamentally changing secondary education. Digital transformation provides:

- develops students' independent learning skills
- simplifies the teacher's lesson management process
- visualizes the learning process
- enables rapid updating of educational materials[4]

The teacher is no longer a provider of information, but a motivator, guide, and facilitator of the learning process. Transformation requires:

- interactive methods
- reflective teaching
- differentiated approach
- gamification
- Unifying disciplines

Through integration, students:



determine cause and effect

analyze

develop solutions

think creatively

These are the competencies necessary for future professions.

As a result of transformation, students will acquire skills such as:

teamwork

time management

communication skills

IT literacy

problem solving

Since integrated lessons are interesting and creative, students are actively involved in learning.

Lack of experience in integrated lessons among teachers

Weak digital technical base in some schools

High lesson loads

Parents' lack of full understanding of modern education[5]

In conclusion, integration and transformation processes in secondary education are the main factors in raising a new generation with 21st century competencies. While integration strengthens students' understanding of interdisciplinary connections, transformation makes the education system innovative, flexible, and in line with modern requirements. The further development of school education is closely related to the improvement of teacher training, the widespread introduction of digital technologies, and the implementation of an integrative approach.

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