

Technologies for Improving the Integration of Educational Systems

Saidova Zilola

Independent researcher of Bukhara State University

Abstract. *This article explores pressing questions in the current education system: Which components of the educational load will retain their relevance in the coming decades, and which will soon become hopelessly outdated? What kind of correlation or boundary exists between specialized knowledge and the concept of "general culture"? How can general secondary education explain the integration between various disciplines? These and similar questions are at the center of active debates and discussions.*

Key words: *science and technology, content of education, scientific knowledge, socialization, professional thinking, globalization, integration, younger generation.*

Introduction

The latest developments in science and technology demand the reform of educational content in line with the digital information environment. This crucial area of school reform faces serious challenges in nearly every country around the world. With the unprecedented acceleration in the growth of scientific knowledge, school curricula are expanding in volume. Efforts to reduce the educational load are made from time to time but often prove ineffective. Whenever sections of the curriculum are reduced, new material quickly replaces them—often in even larger quantities. Curriculum developers traditionally proceed from the belief that each student must acquire a specific set of essential knowledge and skills.

Currently, the educational community is debating: Which components of the educational content will remain important in the next ten years, and which will become obsolete? What kind of alignment or boundary exists between specialized knowledge and the concept of "general culture"? How can general secondary

education reflect the integration of different academic disciplines? These issues continue to spark vigorous debate.

In several developed foreign countries, national commissions were established decades ago to review the content of education. These commissions focused their activities on school education or on specific subject cycles. Their composition included representatives from various fields: mathematicians, linguists, biologists, historians; experienced teachers, methodologists, psychologists, and staff from regional education departments.

Modernization of educational course content has been implemented in two directions:

1. Traditional academic subjects are being updated.
2. New subjects that were not previously taught in general education schools are being introduced.

The content of subjects within the natural sciences cycle is changing. New topics and concepts have been introduced into mathematics, physics, chemistry, and biology courses; modern scientific theories are being presented along with their practical applications and limitations. At the same time, debates between “modernists” and “traditionalists” persist.

The positive outcomes and unresolved issues of modernizing the content of natural sciences are clearly illustrated through the example of mathematics. Today, certain areas of mathematical knowledge have become an organic part of general culture in the modern sense of the term. However, until recently, school mathematics courses around the world were marked by varying degrees of archaic characteristics: excessive emphasis on formal transformations, fetishization of Euclidean geometry, and neglect of the latest mathematical concepts.

As a result, mathematics was often perceived by students as a lifeless subject disconnected from real life. This sparked a rapid search for ways to renew mathematics education. Significant progress has been made in overcoming the gap between traditional school math curricula and modern mathematical knowledge.

However, some curriculum developers went too far in overcomplicating the content, transferring subject-specific mathematical features directly into the curriculum without appropriate didactic adaptation. In some cases, this has caused difficulties for teachers who were not retrained accordingly, especially in addressing students’ cognitive activity needs. This situation demands the establishment of a balanced and sustainable approach in school mathematics education.

In many countries today, the humanization of education has been declared a key goal of their socio-cultural strategies. UNESCO and other international organizations emphasize that the main mission of the school is to educate students

in the spirit of humanism. The entire pedagogical process must be humanized and aligned with the principles of nature and culture.

How can the anthropocentric focus on the individual and the prioritization of personal interests be harmonized with the objective needs of society and the state? Humanism is not based on human biological structure; therefore, genuine humanistic education faces a number of complex challenges and cannot be implemented automatically. It requires a fundamental reconsideration of pedagogical principles that once seemed axiomatic, as well as deep transformations within the education system.

Educational Problems and Tasks Are Often Considered Within the “Humanism–Authoritarianism” Dichotomy.

Such a rigid opposition does not always adequately reflect the true dialectic of the interrelationship between these principles. Nevertheless, the differences are significant. For centuries, authoritarian upbringing—where the child is fully subjected to the will of adults—dominated both at home and in school.

More than a century ago, in the West and in Russia, advocates of “free education” emerged. In the mid-20th century, American scholars such as A. Maslow, C. Rogers, and Freinet, as well as the Waldorf pedagogy model, emphasized learning environments that prioritize children’s wishes, inclinations, individual characteristics, and abilities.

Ideas highlighting the importance of emotional education have become widespread. According to the proponents of this approach, focusing solely on intellectual development does not necessarily make a child good or happy. On the contrary, it often impoverishes the personality, while developed emotions support humane impulses and help individuals make morally sound decisions in difficult situations.

The Humanization of Educational Content Applies to All Subjects.

In natural science courses, recent guidelines recommend placing greater emphasis on the “human factor” and demonstrating how scientific discoveries and inventions affect human lives. The goal of these courses is to harness the educational potential of science to acquaint students with the lives and struggles of scientists and to promote the defense of scientific truths.

The Leading Role in the Humanization of Education Belongs to the Humanities, which are, by definition, directly related to understanding the human being—his life purpose, place in society, and relationships with others. In most Western countries, the humanities have traditionally been regarded as the most essential component of general secondary education. This is reflected in modern curricula, where humanities subjects hold a dominant position in terms of instructional hours.

In recent decades, the process of modernizing the humanities has accelerated. The aim of these didactically revised humanities is to fully reflect the major social and moral challenges of the 21st century. However, international experience shows that while it may be relatively easy to formulate such goals, their implementation is far more complex.

Modern Educational Reform in General Secondary Education

under current conditions involves developing national educational standards that integrate the experience of advanced countries. These standards set the minimum required knowledge and skills that all students in a given country must acquire. In some countries, alternative terms are used instead of "standard"—such as “core content,” “national curriculum,” and so on—but in essence, they are all synonymous.

The Methods for Developing and Implementing Standards Depend on the Specific Features of Each Educational System.

In centralized systems, national standards have traditionally existed in the form of mandatory curricula and educational programs approved by the state education authority. However, for decentralized systems, nationwide educational standards are a fundamentally new phenomenon. That’s why countries like the United States and the United Kingdom have made the most significant efforts in this area.

About twenty years ago, the National Council on Education and Testing Standards was established in the U.S., under whose sponsorship commissions were formed to develop standards in mathematics, English, science, history, and geography. According to the U.S. Department of Education, these standards “clearly define what students should know and be able to do to live and work in the 21st century.”

Educational Problems and Tasks Are Often Considered Within the “Humanism—Authoritarianism” Dichotomy.

Such a rigid opposition does not always adequately reflect the true dialectic of the interrelationship between these principles. Nevertheless, the differences are significant. For centuries, authoritarian upbringing—where the child is fully subjected to the will of adults—dominated both at home and in school.

More than a century ago, in the West and in Russia, advocates of “free education” emerged. In the mid-20th century, American scholars such as A. Maslow, C. Rogers, and Freinet, as well as the Waldorf pedagogy model, emphasized learning environments that prioritize children’s wishes, inclinations, individual characteristics, and abilities.

Ideas highlighting the importance of emotional education have become widespread. According to the proponents of this approach, focusing solely on intellectual development does not necessarily make a child good or happy. On the contrary, it often impoverishes the personality, while developed emotions support

humane impulses and help individuals make morally sound decisions in difficult situations.

The Humanization of Educational Content Applies to All Subjects.

In natural science courses, recent guidelines recommend placing greater emphasis on the “human factor” and demonstrating how scientific discoveries and inventions affect human lives. The goal of these courses is to harness the educational potential of science to acquaint students with the lives and struggles of scientists and to promote the defense of scientific truths.

The Leading Role in the Humanization of Education Belongs to the Humanities, which are, by definition, directly related to understanding the human being—his life purpose, place in society, and relationships with others. In most Western countries, the humanities have traditionally been regarded as the most essential component of general secondary education. This is reflected in modern curricula, where humanities subjects hold a dominant position in terms of instructional hours.

In recent decades, the process of modernizing the humanities has accelerated. The aim of these didactically revised humanities is to fully reflect the major social and moral challenges of the 21st century. However, international experience shows that while it may be relatively easy to formulate such goals, their implementation is far more complex.

Modern Educational Reform in General Secondary Education

under current conditions involves developing national educational standards that integrate the experience of advanced countries. These standards set the minimum required knowledge and skills that all students in a given country must acquire. In some countries, alternative terms are used instead of “standard”—such as “core content,” “national curriculum,” and so on—but in essence, they are all synonymous.

The Methods for Developing and Implementing Standards Depend on the Specific Features of Each Educational System.

In centralized systems, national standards have traditionally existed in the form of mandatory curricula and educational programs approved by the state education authority. However, for decentralized systems, nationwide educational standards are a fundamentally new phenomenon. That’s why countries like the United States and the United Kingdom have made the most significant efforts in this area.

About twenty years ago, the National Council on Education and Testing Standards was established in the U.S., under whose sponsorship commissions were formed to develop standards in mathematics, English, science, history, and geography. According to the U.S. Department of Education, these standards “clearly define what students should know and be able to do to live and work in the 21st century.”

Significant updates are being observed in the modern organization of the educational process in higher education institutions. This aspect is evident in the experiences of developed countries, where the formation of knowledge and skills among personnel involved in the economy, culture, and governance, alongside the social elite, is actively pursued.

Social inequality in higher education has not yet been eliminated anywhere in the world. Numerous sociological studies conducted in Western countries show that students (especially in the most prestigious universities) disproportionately come from privileged families. Even though tuition fees are minimal or nonexistent in some cases, in certain private universities — particularly in the United States — they are extremely high. Nevertheless, the principle of accessibility to post-secondary education is gradually being implemented.

In the United States, Canada, France, and Italy, many universities admit all applicants who hold a certificate of successful completion of full secondary education. In a number of Western European countries, tuition fees at public universities are either completely abolished (as in Germany, the United Kingdom, Austria, and Scandinavian countries) or significantly reduced, sometimes to symbolic amounts. In France, academically successful students from low-income families receive small scholarships.

Higher education is the fastest-growing segment of the education system. Over the last 40 years (1970–2010), the total number of students worldwide has quadrupled, exceeding 100 million. In many developed countries, the expansion of the student population seems to contradict demographic trends: the number of young people of student age is decreasing, while the number of students is increasing.

Significant updates are being observed in the modern organization of the educational process in higher education institutions. This aspect is evident in the experiences of developed countries, where the formation of knowledge and skills among personnel involved in the economy, culture, and governance, alongside the social elite, is actively pursued.

Social inequality in higher education has not yet been eliminated anywhere in the world. Numerous sociological studies conducted in Western countries show that students (especially in the most prestigious universities) disproportionately come from privileged families. Even though tuition fees are minimal or nonexistent in some cases, in certain private universities — particularly in the United States — they are extremely high. Nevertheless, the principle of accessibility to post-secondary education is gradually being implemented.

In the United States, Canada, France, and Italy, many universities admit all applicants who hold a certificate of successful completion of full secondary education. In a number of Western European countries, tuition fees at public universities are either completely abolished (as in Germany, the United Kingdom,

Austria, and Scandinavian countries) or significantly reduced, sometimes to symbolic amounts. In France, academically successful students from low-income families receive small scholarships.

Higher education is the fastest-growing segment of the education system. Over the last 40 years (1970–2010), the total number of students worldwide has quadrupled, exceeding 100 million. In many developed countries, the expansion of the student population seems to contradict demographic trends: the number of young people of student age is decreasing, while the number of students is increasing.

In recent years, the organization of higher education institutions, the enhancement of human resource potential, and the evaluation criteria of management mechanisms are being improved in accordance with modern requirements. By introducing problematic and non-standard situations, attention is being paid to developing students' analytical skills and fostering interest in project work and small-scale scientific research. Naturally, such initiatives in educational institutions are not always implemented at the same pace.

Higher education systems that have developed over centuries reflect their important national characteristics. The ongoing integration processes have set the task of harmonizing higher education to increase its international competitiveness (especially in comparison with American universities) and to facilitate labor migration of professionals within the European community.

These goals are linked to the Bologna Process, which includes the following principles:

- Organizing higher education into two cycles (undergraduate and graduate);
- Introducing a unified system of credit recognition (ECTS) to assess the academic workload across all higher education institutions in Europe;
- Establishing independent accreditation agencies that evaluate the actual level of knowledge, skills, and competencies gained through training — independently from national governments.

New opportunities are being created for the exchange of valuable pedagogical experiences among European countries. While doing so, the national characteristics of organizing higher education in different European countries are taken into account.

The largest and most prestigious universities in the U.S. (Harvard, Princeton), the U.K. (Oxford, Cambridge), France (Sorbonne), Russia (Lomonosov Moscow State University), and a number of other institutions enjoy a special reputation by combining high-level academic work. At the same time, many "ordinary" universities offer a lower level of training, and in some cases, a declining trend in quality can be observed.

However, even the best universities cannot provide high-quality specialists "for all time." Therefore, the next stage of education within higher education is gaining

increasing importance. The further development of graduates' professional knowledge is carried out based on spiritual-educational, socio-economic progress, and the integration of education, science, and industry.

In the West, this is often referred to as "renewable education." This implies that specialists periodically alternate their work activities with fixed-term study programs held at special departments or professional development centers within higher education institutions.

The higher education system is rapidly evolving under the influence of the market. Until recently, this was most characteristic of the United States. However, this trend has now also spread to Western European universities. These institutions now compete for government funding and for private sector contracts in research and development. As a result, the nature of university governance is also changing.

Previously, at prestigious universities such as Oxford, Cambridge, the Sorbonne, and others in Western Europe, professors played a leading role in governance. They viewed their involvement in administration as an extension of their primary academic and teaching responsibilities. In recent times, however, it has become increasingly common for university administrations to be headed by managers, who are often more interested in financial issues than the educational process itself — a fact that is no longer a secret.

It is worth noting that even in the higher education systems of developed countries, there are serious challenges. Among these is the declining quality of education and training. This is, in part, due to the increasing admission quotas.

In our opinion, the reason lies in the incomplete resolution of certain structural processes — namely, the proper balance between different areas of focus (fundamental vs. applied education), and between teaching and research activities. The reforms being carried out in higher education require targeted measures to eliminate these systemic issues.

The problem of accusing the system of conservatism calls for a new approach to education policy. It is important not to equate conservatism entirely with outdated practices. A certain degree of conservatism is inherently part of education, as it is responsible for preserving cultural heritage and passing it on to future generations. However, such conservatism should not hinder innovations that have proven themselves and stood the test of time. Finding the right balance between tradition and innovation is a key challenge in education reform.

Reference

1. Egamberdiyeva N.M. Theory and Practice of Students' Personal and Professional Socialization Based on a Cultural-Humanistic Approach (on the example of pedagogical higher education institutions). Doctoral dissertation in pedagogy. – Tashkent, 2010. – 332 p.
2. Erikson E. Young Man Luther. – New York: Norton, 1958. – 156 p.

3. Yusupova M. Preschool Education Pedagogy. – Tashkent: O‘qituvchi, 1993. – 264 p.
4. Haydarov O.Q. Preparing Future Teachers for a Technological Approach in the Educational Process. Candidate of Pedagogical Sciences... Dissertation abstract. – Tashkent, 2005. – 23 p.
5. G‘oziyev E.G‘. Psychology. – Tashkent: “O‘qituvchi” NMIU, 2008. – 352 p.
6. Hasanboev J. et al. Foundations of Spiritual and Moral Education. – Tashkent: G‘afur G‘ulom Literature and Art Publishing House, 2000. – 112 p.
7. Husanboyeva Q., Niyozmetova R. Methods of Teaching Literature. – Tashkent: Innovatsiya-Ziyo, 2020. – 352 p.
8. Xaydarova M.I. Methods for Developing National Etiquette Skills Through Reading Lessons in Primary School Students. PhD dissertation in pedagogy. – Namangan, 2022. – 140 p.
9. <http://uz.wikipedia.org/wiki/Integratsiya>