Published Date: - 25-07-2025
Page No: - 63-66

INTERNATIONAL EXPERIENCE IN DEVELOPING STUDENTS' PROFESSIONAL COMPETENCIES BASED ON THE INTEGRATIVE APPROACH

Mamajonova Kamola Akramovna
Jizzakh State Pedagogical University, Uzbekistan

ABSTRACT

The article analyzes the role of an integrative approach in training competitive personnel in the context of modern economic and technological development. The author, relying on the experience of the USA, Germany, Canada, Singapore, and Japan, substantiates the effectiveness of interdisciplinary integration in developing students' professional competencies through methods such as dual education, Co-op programs, STEAM, and PBL. The article also presents proposals for the institutional improvement of Uzbekistan's vocational education system, enhancement of teacher qualifications, and strengthening the practical orientation of the STEM approach based on a comparison with international practices.

KEYWORDS: Integrative approach, professional competencies, international experience, vocational education, interdisciplinary learning, dual education, STEM, educational innovation, competency-based education, workforce development.

INTRODUCTION

In the context of the rapid development of the modern economy and technologies, one of the main tasks facing the education system is to train competitive personnel who are adaptable to the demands of the labor market and, at the same time, possess a comprehensive understanding of several disciplines or fields. In this regard, the introduction of the integrative approach, which is widely practiced in global experience, is of great importance.

On the basis of the integrative approach, the development of professional competencies, on the one hand, enables the formation of practical skills in students by integrating knowledge from several fields, and on the other hand, provides the opportunity to scientifically and programmatically strengthen this process.

In foreign countries with advanced education systems, such as the USA, Canada, Germany, Singapore, and Japan, vocational training programs based on the integrative approach are very widespread. In these countries, through dual education, project-based learning, modular programs, and a number of other methods, several disciplines are combined and linked to specific industrial processes. In this way, the student does not move from one subject to another sequentially but rather learns to apply multiple subjects simultaneously to solve current problems. Exactly through such an approach, specialists are trained who are in demand in the market, open to innovation, and possess a strong theoretical and practical foundation.

The STEM model (later expanded to STEAM by adding A – art) integrates science, technology, engineering, and mathematics with creative thinking, aiming to foster students' ability to solve complex problems, effectively use digital technologies, and develop innovative approaches. Through interdisciplinary projects, laboratory sessions, and the Project-Based Learning (PBL)

methodology, students learn to apply multiple subjects simultaneously in real situations; as a result, they present a prototype, a digital application, or a research report, achieving continuous reflection.

This process in North America is enriched with "2 + 2" (2 years college + 2 years university) and Co-op programs, which closely connect students' theoretical courses with planned work experience. By graduation, the student acquires several semesters of real work experience, and the employer receives a well-prepared specialist. Large industrial corporations and educational institutions jointly develop curricula, organize teacher training, and continuously update the modern equipment base, thus strengthening this cooperation.

In Europe, the long-standing dual education system integrates enterprises and vocational schools into a single ecosystem. Students spend several days a week at the enterprise and the remaining days in class, mastering theory and practice not sequentially but organically. In this way, specialists quickly adapt to the working environment, and enterprises can assess the potential of young employees in advance; this model also helps to reduce youth unemployment.

In Asia, the integrative approach is harmonized with the philosophy of "lifelong learning" and the Kaizen principle: employees continuously reskill and upskill to master new technologies, and from the school stage, projects, excursions, and scientific research are organized in cooperation with enterprises. Step-by-step, module-based curricula, nationally coordinated standards, and tools such as artificial intelligence, VR, and 3D simulation further deepen interdisciplinary connections, expanding theoretical-practical and innovative thinking.

Table 1.3.1

Development of Students' Professional Competencies through the Integrative Approach: Experience of Uzbekistan and Foreign Countries (Generalized)

Comparison criteria	Uzbekistan	Foreign countries (generalized experience)
Legal framework	- National legal acts on vocational education; - Decisions regarding the introduction of dual education elements.	- In Germany, the Berufsausbildungs Gesetz (Vocational Training Act); - In the USA, federal support for STEM/CTE along with state laws; - In Canada, Co-op programs are regulated at the provincial level.
Integrative model	- Integration of interdisciplinary assignments, laboratories, and practical training; - Gradual expansion of dual education; - Modular elective courses.	- Germany: classical dual system; - USA: PBL & STEAM; - Canada: Co-op (college–enterprise–university); - Singapore: innovative modular system.
Pedagogical staff	- Professional development centers are active, but integrative programs are limited; - Experience exchange takes place through Erasmus+ and similar programs.	- Instructors have both theoretical and practical experience (Germany); - In the USA, CTE teachers are required to have industry experience; - In Singapore, continuous retraining is mandatory.

Practical classes	- Cooperation with enterprises varies; dual education experience has been introduced in pilot mode.	- Germany: 3–4 days a week at an enterprise; - Canada: Co-op – several semesters of work experience; - USA: internships/apprenticeships are widespread.
Interdisciplinary integration	- PBL/case study is being piloted in Presidential schools and some colleges; - Traditional lessons still predominate.	- In the USA, PBL is widely implemented; - In Singapore, the connection between modular subjects is clear; - In the EU (Germany, Finland), case study and project assessment are well developed.
Material and technical base	- IT and technical colleges are well-equipped, but the overall level is uneven; - Updates are being implemented through PPP (Public-Private Partnership).	- Singapore: VR/AR, AI, simulators; - USA/EU: STEM labs and research equipment; - Modern technology in enterprises.
Employment	- Due to targeted orientation and practical training, graduates are entering the market more quickly, but the system still needs strengthening.	- Germany: dual education graduates are employed immediately → low unemployment; - Canada: those who complete Co-op programs find jobs quickly; - USA: employment based on CTE certification.
Lifelong education	- Short courses (IT, languages) and professional development centers are available; - Expansion of lifelong learning is planned.	- Japan: continuous reskilling/upskilling; - Singapore: SkillsFuture program; - USA/EU: in-company online courses.

The analyses in the table show that, in today's market conditions, interdisciplinary and integrative approaches play a decisive role in the formation of professional competencies. This is because, in the real working environment, a specialist is required to apply knowledge and skills from several fields simultaneously.

Firstly, it is necessary to raise the integrative approach not only within educational institutions but also to the level of cooperation between education, the labor market, and social service systems. The European experience demonstrates that effective development of students' practical competencies is achieved precisely through such inter-system cooperation; in Uzbekistan, this direction should become a priority of national policy.

Secondly, in Germany's dual education model, enterprises, government oversight, instructors, and assessment standards operate on an independent, institutional basis. In Uzbekistan, the weakness of the connections among these components hinders students from gaining complete practical experience. Therefore, it is important to adapt the dual system in a modular and institutional form to local conditions.

Thirdly, the STEM approach develops analytical thinking, research skills, and technical competencies in tandem. However, without widespread implementation of practical laboratories, workshops, and PBL projects, the effectiveness of this approach remains limited.

In conclusion, educational outcomes should be evaluated not only by tests or exams but also by graduate employment rates. Integrating labor market demands into educational content is the most effective way to guarantee the "real-life" impact of competencies.

To improve vocational education in Uzbekistan, it is a priority to expand the integrative approach through inter-system cooperation, fully implement the dual model in institutional form, enrich STEM programs with practical bases, and link educational outcomes to labor market indicators. These measures will increase the effectiveness of national education and help train competitive specialists for the international labor market.

REFERENCES

1. Tursunov B.O. Kasbiy ta'limda integratsiyalashgan yondashuvning nazariy asoslari. Toshkent - 2021.
2. Qodirov M.T. Professional ta'limda dual tizimni joriy etish tajribalari. Kasbiy pedagogika jurnali - 2022.
3. To'xtasinov K.T. O'quvchilarda kasbiy kompetensiyani shakllantirishda amaliy mashg'ulotlarning o'rni. ToshDTU. - 2020.
4. Usmonxo'jaeva M.X. Ta'limda integrativ yondashuv: nazariya va amaliyot. O'zbekiston pedagogika yangiliklari. 2019.
5. Isroilova D.A. Kasbiy ta'lim va mehnat bozori o'rtasidagi integratsiyani kuchaytirish yo'llari. Toshkent - 2023.
6. Зеер Э.Ф. Психология профессионального образования. Москва: Академия. - 2006.
7. Махмутов М.И. Проблемное обучение и формирование познавательной активности учащихся. Москва: 1975.
8. Сластёнин В.А., Чижакова Г.И. Профессиональное образование в условиях модернизации: концепции, технологии, перспективы», Москва, 2012.