DUAL EDUCATION IN BUKHARA REGION: INTEGRATING STUDENT COMPETENCIES, EMPLOYER NEEDS AND EMPLOYMENT

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Abstract. *Dual education has increasingly become an important mechanism for strengthening the relationship between higher education and the labour market. Unlike traditional education, the dual model combines academic learning at a higher education institution with practical training in an enterprise, allowing students to acquire professional competencies in real working environments. The thesis proposes an integrated approach in which employers participate in identifying competency requirements, universities adapt educational content, and enterprises provide structured practical training. Such cooperation can contribute to improving graduate employability and strengthening the human-resource potential of the regional economy.*

Keywords: *dual education, higher education, employer needs, student competencies, graduate employment, university–industry integration, Bukhara Region, practical training, labour market.*

Introduction

The transition from university education to professional employment remains an important challenge for higher education systems. Academic knowledge alone is often insufficient for successful professional adaptation because employers increasingly require graduates to demonstrate practical, technical, digital, communication and problem-solving competencies.

Dual education provides an opportunity to address this problem by combining theoretical instruction with practical training at an enterprise. In this model, the university remains responsible for the educational component, while the

enterprise becomes an active participant in professional preparation. Therefore, the student is simultaneously exposed to academic knowledge and real workplace requirements.

For Bukhara Region, the development of dual education is particularly relevant because the regional economy includes industrial enterprises, energy companies, agricultural organisations, textile production, construction-materials manufacturing and other sectors requiring qualified specialists. The presence of higher education institutions and enterprises creates an institutional basis for closer cooperation between education and production.

Dual Education as an Integration Mechanism

The main feature of dual education is that practical training is not considered an additional activity separated from the educational process. Instead, it becomes an integral component of professional preparation.

The relationship can be represented as:

Employer requirements → university curriculum → practical training → student competencies → employer assessment → employment

This sequence demonstrates that dual education can connect three elements that are often examined separately: **competency formation, employer demand and graduate employment**.

An effective dual education system therefore requires active participation from enterprises. Employers should not only accept students for internships but also communicate their expectations regarding professional knowledge and skills. Universities, in turn, should use this information when updating curricula and practical modules.

Student Competencies and Workplace Requirements

One of the main advantages of dual education is the opportunity to develop competencies in an authentic professional environment. Students can observe production processes, use professional equipment, participate in workplace tasks and interact with experienced specialists.

For analytical purposes, student competencies can be divided into four

groups:

1. **Professional competencies** – knowledge and skills directly related to the student's speciality.
2. **Technical and digital competencies** – ability to work with modern equipment, software and technological systems.
3. **Communication competencies** – teamwork, professional communication and interaction with colleagues.
4. **Problem-solving competencies** – ability to identify workplace problems and develop practical solutions.

Employer assessment is particularly important at this stage. A university may consider a student well prepared academically, while an enterprise may identify weaknesses in practical application. The dual model creates an opportunity to identify these differences before graduation.

Employer Needs and Curriculum Alignment

The effectiveness of dual education depends considerably on how accurately educational programmes reflect the requirements of regional enterprises.

For this reason, universities should establish regular mechanisms for receiving information from employers. These may include:

- employer surveys;
- expert meetings;
- joint curriculum committees;
- enterprise representatives participating in teaching;
- joint practical modules;
- professional competency standards;
- analysis of vacancies and emerging occupations.

Such mechanisms allow universities to move from a supply-oriented model of specialist preparation towards a more demand-responsive approach.

For example, if an enterprise identifies insufficient digital, engineering or technological competencies among graduates, the university can introduce additional practical modules, laboratory work or enterprise-based training. In this

way, employer feedback becomes an instrument for curriculum improvement rather than simply an evaluation after graduation.

For **students**, the main benefits include practical experience, professional networking, better understanding of workplace expectations and improved employment prospects.

For **universities**, cooperation with enterprises provides information for curriculum development, opportunities for practical research and access to modern industrial technologies.

For **enterprises**, dual education creates an opportunity to participate in the preparation of future employees and reduce the gap between required and available competencies.

At the regional level, these effects may contribute to better utilisation of human capital and stronger correspondence between the educational system and the economic structure of Bukhara Region.

Conclusion. Dual education should be considered not simply as an alternative form of practical training but as an important institutional mechanism for integrating higher education with the regional labour market. Its effectiveness depends on the strength of the relationship between three components: **student competencies, employer requirements and employment outcomes**.

For Bukhara Region, the development of this model can provide a practical mechanism for strengthening cooperation between higher education institutions and enterprises. However, the success of dual education should be measured through concrete outcomes rather than through the number of agreements or participating students alone.

The most informative assessment should therefore combine **student participation, competency development, employer satisfaction, internship outcomes and subsequent employment**. Such an approach would allow higher education institutions and enterprises to identify competency gaps, improve practical training and establish a stronger transition from education to employment.

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