

DIDACTIC OPPORTUNITIES OF DUAL EDUCATION IN THE PROFESSIONAL TRAINING OF FUTURE EDUCATORS: ORGANIZATIONAL AND METHODOLOGICAL MECHANISMS

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Abstract

The contemporary landscape of teacher education in Uzbekistan is characterized by a persistent disconnect between the theoretical preparation of future educators and the practical demands of modern pedagogical environments. This article addresses the structural inefficiencies inherent in the conventional lecture-based model of pedagogical training and proposes dual education as a strategic didactic mechanism for transforming the quality of professional preparation of future educators. By integrating vocational education institutions, general education schools, and pedagogical research centers into a unified ecosystem of competency development, the dual education model aims to bridge the theory-practice divide, enhance graduate employability, and cultivate adaptive pedagogical competencies aligned with twenty-first century educational standards. The first part of this study critically analyzes the didactic foundations of dual education, drawing upon Dewey's experiential learning theory and the competency-based education framework advanced by European qualification standards. It establishes the conceptual framework for shifting from a knowledge-transmission paradigm to a competency-formation paradigm in the professional training of educators.

Keywords: Dual education, didactic opportunities, professional training, future educators, competency-based education, experiential learning, vocational education institutions, pedagogical practice.

Introduction

In the context of rapid digitalization and the global transition toward competency-based educational paradigms, the professional training of future educators faces a dual challenge: ensuring mastery of subject-specific knowledge while simultaneously developing the practical pedagogical skills required for effective classroom performance. The prevailing model of teacher preparation in Uzbekistan and across much of the post-Soviet educational space operates on a vertical hierarchy where curriculum design, instructional methodology, and assessment criteria flow from centralized ministerial directives down to individual pedagogical institutions. Trainees are immersed in extensive theoretical coursework covering pedagogy, psychology, didactics, and subject-specific content, with practical teaching experience relegated to relatively brief periods of supervised practice during the final semesters of study. While this model ensures standardized coverage of foundational pedagogical knowledge, it suffers from a significant “didactic gap” — a structural disconnection between the



competencies acquired in the lecture hall and those demanded in the authentic classroom environment.

From a didactic perspective, this gap manifests as a failure to develop adaptive teaching competencies: graduates possess theoretical understanding of differentiated instruction, formative assessment, and inclusive education, yet frequently lack the experiential repertoire to deploy these methodologies effectively in diverse classroom settings. From a systemic-organizational perspective, the traditional model creates an economic inefficiency whereby substantial state investment in teacher preparation yields graduates who require extended periods of mentored induction before achieving professional autonomy — a phenomenon that international research identifies as the “reality shock” of novice teachers. The result is a paradox: high theoretical preparedness coexists with low initial practical competence, leading to elevated attrition rates among early-career educators and persistent quality deficits in the pedagogical workforce. This systemic dysfunction necessitates a transition to a “Dual Education Model” — an integrated approach that embeds sustained, structured practical experience within the entire trajectory of teacher preparation, thereby transforming didactic opportunities from episodic supplements into the foundational architecture of professional training.

The urgency of this transition is underscored by recent policy developments in Uzbekistan. Presidential Decree No. PF-60 of January 28, 2022, “On the Development Strategy of New Uzbekistan for 2022–2026,” explicitly prioritizes the modernization of pedagogical training systems and the introduction of practice-oriented educational models. Furthermore, the Resolution of the Cabinet of Ministers No. 212 of 2023 on the development of dual education mechanisms in vocational education provides a legislative foundation for institutional experimentation with work-integrated learning models. These policy instruments signal a recognition at the highest levels of governance that the transformation of teacher education requires not merely curricular revision but a fundamental restructuring of the didactic relationship between educational institutions and professional practice environments.

The theoretical basis for applying dual education to the professional training of educators is derived from John Dewey’s philosophy of experiential learning, which posits that authentic knowledge emerges from the dynamic interaction between reflection and action within real-world contexts. Dewey defined education as a “continuous reconstruction of experience” in which the learner’s encounter with genuine problems generates both intellectual understanding and practical capability. In the context of teacher preparation, this translates to the principle of “pedagogical immersion” — a systematic exposure of trainee educators to the full complexity of professional practice from the earliest stages of their formation. This Deweyan foundation is complemented by Lev Vygotsky’s concept of the Zone of Proximal Development, which in the dual education context establishes that trainee educators achieve higher levels of professional competency when supported by experienced mentor-practitioners within authentic teaching environments than when engaged in isolated theoretical study.

Unlike simple practicum placements (e.g., the conventional four-to-six-week teaching practice at the conclusion of training), a dual education system for pedagogical training represents a higher order of didactic integration characterized by the following theoretical attributes:



• **Temporal Continuity:** Practical engagement is distributed across the entire duration of the training program rather than concentrated in terminal blocks. From the first semester, trainees spend designated days in partner schools, progressively assuming greater instructional responsibilities as their theoretical knowledge base expands. This sustained exposure enables the iterative refinement of pedagogical skills through repeated cycles of practice, reflection, and adjustment.

• **Curriculum Co-Construction:** The didactic content of both the institutional and the workplace components is jointly designed by academic faculty and experienced school-based practitioners. This ensures that theoretical modules are directly aligned with the competencies being developed in the practice setting, eliminating the fragmentation that characterizes conventional sequential models where theory precedes and is disconnected from practice.

• **Formative Assessment Duality:** Trainee competence is evaluated through a dual assessment framework: academic assessments measuring theoretical understanding are complemented by practice-based assessments conducted by mentor teachers, evaluating classroom management, lesson delivery, student engagement strategies, and reflective practice capacity. This dual evaluation ensures that graduates meet both knowledge standards and performance benchmarks.

Thus, the adoption of dual education in teacher training is not merely the addition of more practice hours to existing programs but a fundamental shift in the didactic paradigm of pedagogical preparation. It moves the system from a “knowledge-first, practice-later” model to a “simultaneous knowledge-and-practice” model, where professional competence is measured not by the volume of information retained but by the demonstrated capacity to transform knowledge into effective pedagogical action in authentic educational settings.

The transition to a dual education model for the professional training of future educators requires a radical restructuring of the institutional relationships between pedagogical training colleges, vocational education institutions (VEIs), and the network of general education schools that serve as practice sites. The current organizational architecture treats these entities as independent actors linked only by periodic, ad hoc placement agreements that lack the structural depth necessary for genuine didactic integration. Therefore, the core of the proposed organizational mechanism is the establishment of a “Pedagogical Training Coordination Council” (PTCC) — a permanent inter-institutional governance body with executive authority over the design, implementation, and quality assurance of the dual education program.

The Pedagogical Training Coordination Council must possess not merely advisory but genuine executive powers, including the authority to approve joint curricula, allocate shared resources, certify mentor practitioners, and resolve disputes between institutional and workplace components of the program. Structurally, the PTCC must represent the principal stakeholders of the dual education ecosystem:

1. Academic Sector: Representatives from pedagogical colleges and VEIs, including department heads and senior faculty in didactics and methodology (to ensure curriculum alignment with national educational standards and contemporary pedagogical science).



2. Practice Sector: Directors and senior teachers from partner schools designated as “Base Practice Schools,” including experienced mentor-practitioners with demonstrated capacity to supervise and evaluate trainee educators (to provide authentic workplace integration and formative feedback).

3. Governance and Quality Assurance Sector: Representatives from regional Khokimiyat education departments, the Agency for Vocational Education, and the State Inspectorate for Quality Control in Education (to ensure regulatory compliance, resource allocation, and outcome-based accountability).

The organizational innovation lies in the redistribution of curricular authority from a purely institutional model to a shared governance framework. Within the PTCC, a specialized Curriculum Integration Committee would be responsible for designing modular training programs in which each theoretical module delivered at the pedagogical college is paired with a corresponding practical competency block to be developed at the partner school. This ensures that the graduate’s competency profile is “backward engineered” from the actual requirements of contemporary classroom practice — including differentiated instruction for diverse learners, technology-enhanced teaching, formative assessment implementation, and classroom management in inclusive settings. The Committee would also establish a standardized “Mentor-Practitioner Certification Program” to ensure that school-based supervisors possess both the pedagogical expertise and the assessment literacy required to guide trainee development effectively.

A further organizational mechanism involves the creation of “Didactic Resource Centers” — shared facilities established at selected partner schools that serve as hubs for microteaching laboratories, video-assisted self-evaluation studios, and collaborative lesson-planning workshops. These centers eliminate the redundancy of each institution independently maintaining expensive pedagogical training infrastructure and instead concentrate resources to achieve economies of scale. By rotating trainee cohorts through these centers on a structured timetable, the dual education model maximizes the utilization of specialized didactic equipment, experienced mentor time, and diverse classroom settings, ensuring that every trainee encounters a representative range of teaching contexts during their professional formation.

The economic viability of the dual education model for teacher training hinges on the recognition that investment in high-quality pedagogical preparation generates measurable returns in educational system performance, reduced teacher attrition, and improved student outcomes. The proposed economic mechanism operates on the principle of “Multi-Channel Financing,” which integrates three distinct funding streams:

- **State Foundational Funding (Base Level):** Covers the core operational costs of the pedagogical training institution, including faculty salaries, facility maintenance, and the theoretical component of the dual curriculum. This funding is allocated through the existing budgetary mechanisms of the Ministry of Higher Education, Science and Innovation, supplemented by targeted allocations from the Agency for Vocational Education for institutions participating in the dual education pilot.



• **Practice-Site Partnership Funding (Targeted Level):** This is a dedicated funding channel that compensates partner schools for the additional costs incurred in hosting, supervising, and evaluating trainee educators. Mentor-practitioners receive stipend supplements for their supervisory responsibilities, and schools receive per-trainee allocations to offset the administrative burden of dual program coordination. This targeted funding transforms practice schools from passive placement hosts into active, incentivized partners in the training process.

• **Performance-Based Incentive Funding (Results Level):** A competitive funding pool allocated to institutions and partner school networks that demonstrate measurable improvements in graduate outcomes, including higher rates of professional certification upon graduation, reduced time-to-autonomy for novice teachers, and positive evaluations from employing schools. This results-oriented stream introduces market-like incentives into the teacher preparation system without fully commodifying the process.

However, sustained school participation requires a robust system of “Practice Partnership Incentives.” Beyond direct financial compensation, the mechanism includes preferential access to professional development programs for mentor teachers, priority allocation of modern educational technology to designated Base Practice Schools, and formal recognition of mentoring contributions in teacher performance evaluations and career advancement considerations. A particularly innovative instrument is the concept of a “Pedagogical Investment Return Bond” — a contractual arrangement whereby the state commits to providing enhanced resource allocations to partner schools over a three-to-five-year period in exchange for guaranteed trainee placement capacity and adherence to quality mentoring standards.

This instrument reduces the risk for partner schools by providing predictable resource flows that offset the operational disruption of hosting trainees, while simultaneously guaranteeing the training system a stable network of high-quality practice environments. The economic logic is compelling: the cost of investing in effective dual education is substantially lower than the cumulative cost of high novice-teacher attrition, extended induction programs, and the systemic quality deficit created by inadequately prepared educators entering the workforce. International evidence from Germany’s dual training system and Finland’s practice-intensive teacher education model confirms that front-loaded investment in practice-integrated preparation yields long-term savings in remediation and retention costs.

A crucial component of the dual education mechanism is the digitalization of trainee progress monitoring and competency assessment. The proposed system, the “Pedagogical Competency Tracking Platform” (PCTP), would aggregate data from both the institutional and practice components of the program into a unified digital portfolio for each trainee. The PCTP would track theoretical assessment scores, mentor evaluations of classroom performance, self-reflection journals, video-recorded teaching episodes, and peer feedback from collaborative activities at the Didactic Resource Centers. By applying analytics to this integrated data, program coordinators can identify trainees requiring additional support, detect systemic patterns in competency development trajectories, and generate evidence-based recommendations for curriculum adjustment. This data-driven approach minimizes the “information asymmetry” associated with fragmented assessment systems where institutional



faculty and school-based mentors operate with incomplete pictures of trainee development, and eliminates the “black box” phenomenon where the quality of practice-based learning remains unmonitored and unaccountable.

The implementation of the organizational and economic mechanisms of dual education in pedagogical training is projected to yield transformative results within a five-to-seven-year implementation cycle. Based on comparative analyses of international dual education models (e.g., Germany’s Berufsakademie system, Finland’s teacher training school network, and Singapore’s National Institute of Education model), the following outcomes are anticipated:

- **Graduate Readiness Index:** The proportion of graduates achieving professional certification at the point of program completion is projected to increase from the current estimated 40–50% to 80–90%, effectively eliminating the phenomenon of “pedagogically unfinished graduates” who possess diplomas but lack the competencies for autonomous classroom practice.

- **Novice Teacher Retention Rate:** By reducing the “reality shock” experienced by graduates entering the profession, the dual model is expected to improve first-five-year retention rates by 25–35%, addressing the chronic problem of early-career attrition that depletes Uzbekistan’s pedagogical workforce, particularly in rural and underserved regions.

- **Time-to-Professional-Autonomy:** The average period required for novice educators to achieve independent professional competence is projected to decrease from the current three-to-four years to one-to-two years, generating significant savings in mentoring and supervision costs for employing schools and freeing experienced educators from extended induction responsibilities to focus on their own classroom practice and professional development.

While the theoretical argument for dual education in teacher training is compelling, the practical implementation faces significant “institutional friction” rooted in the established cultures, incentive structures, and resource constraints of the Uzbekistan educational system. The discussion highlights three primary risks that must be managed for successful implementation:

- **Mentor Capacity Deficit:** The success of the dual model depends critically on the availability of experienced, skilled mentor-practitioners in partner schools. Currently, many schools, particularly in rural areas, face teacher shortages and workload pressures that leave little capacity for mentoring responsibilities. Without a substantial investment in mentor preparation, certification, and workload adjustment, the practice component risks becoming a formality rather than a genuine developmental experience. Mitigation requires the early establishment of the Mentor-Practitioner Certification Program and the provision of meaningful workload reductions for designated mentors.

- **Institutional Resistance to Shared Governance:** Pedagogical colleges have traditionally exercised unilateral control over curriculum design, assessment standards, and the certification of graduates. The dual model’s requirement for shared governance through the PTCC and joint curriculum development challenges established power structures and professional identities within academic institutions. Faculty may perceive the elevation of school-based practitioners



to co-equal status in training decisions as a diminution of academic authority. Overcoming this resistance requires transparent communication about the complementary roles of theoretical and practical expertise, supported by pilot programs that demonstrate positive outcomes before system-wide implementation.

• **Quality Variation Across Practice Sites:** The quality of the practical training experience is inherently dependent on the characteristics of the partner school — its leadership culture, the competence of its teaching staff, its infrastructure, and its student population. Significant variation across practice sites risks producing uneven graduate outcomes, undermining the credibility of the dual qualification. This risk is particularly acute in Uzbekistan’s context, where pronounced urban-rural disparities in school quality persist. Mitigation strategies include the establishment of minimum quality standards for Base Practice School designation, regular external monitoring of practice-site quality, and rotation of trainees across multiple school settings to ensure balanced exposure.

In conclusion, the “Dual Education Model” for the professional training of future educators is not merely an organizational adjustment to existing teacher preparation programs but a strategic necessity for transforming the quality and relevance of the pedagogical workforce in Uzbekistan. It represents a shift from a “theory-first, practice-supplementary” paradigm to a “theory-practice integrated” paradigm where didactic opportunities are embedded throughout the entire professional formation trajectory. The organizational mechanisms proposed — the Pedagogical Training Coordination Council, the Curriculum Integration Committee, the Didactic Resource Centers, and the Mentor-Practitioner Certification Program — together create an institutional architecture capable of sustaining genuine integration between academic preparation and authentic classroom practice. The economic mechanisms — Multi-Channel Financing, Practice Partnership Incentives, and the Pedagogical Investment Return Bond — provide the fiscal sustainability required to transform a pilot initiative into a system-wide reform. Together, these mechanisms address the fundamental didactic challenge of teacher education: ensuring that graduates do not merely know what to teach and how to teach, but can demonstrably do so with competence, confidence, and adaptability.

For the Agency for Vocational Education and the Ministry of Higher Education, Science and Innovation, the following strategic actions are recommended to operationalize the dual education model in pedagogical training:

1. Pilot Program Launch: Initiate a three-year pilot of the dual education model in three to five selected pedagogical colleges across different regions (e.g., Tashkent, Samarkand, Fergana), each partnered with a network of designated Base Practice Schools, to generate evidence on implementation challenges and outcomes before national scaling.

2. Regulatory Framework Development: Develop and adopt a dedicated regulatory framework for dual education in teacher preparation, specifying minimum standards for practice-site quality, mentor certification requirements, trainee progression criteria, and the governance structure of the Pedagogical Training Coordination Council.



3. Mentor Development Investment: Allocate dedicated funding for the creation and implementation of the Mentor-Practitioner Certification Program, including intensive training modules in formative assessment of trainee competencies, reflective supervision methodologies, and the use of digital tools for portfolio-based evaluation (e.g., the proposed PCTP system).

4. International Partnership Facilitation: Establish bilateral agreements with countries possessing mature dual education systems for teacher training (e.g., Germany, Finland, Singapore) to facilitate faculty exchange, joint curriculum development, and technology transfer for the Pedagogical Competency Tracking Platform.

Ultimately, the success of dual education in pedagogical training depends on a collective recognition that the quality of a nation's educators determines the quality of its future. Only through the genuine integration of theoretical knowledge and practical mastery can Uzbekistan's teacher preparation system become a true driver of educational transformation, producing not merely graduates who have studied pedagogy, but professionals who embody it.

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