

**DEVELOPING INDEPENDENT LEARNING AUTONOMY AND DIGITAL
COMPETENCE IN FUTURE PRIMARY SCHOOL TEACHERS WITHIN
THE CREDIT-MODULE SYSTEM**

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Abstract: This paper investigates the theoretical framework and pedagogical mechanisms for enhancing independent learning autonomy and digital competence among future primary school teachers in higher education institutions operating under the European Credit Transfer and Accumulation System (ECTS). The study addresses the shift from traditional instructor-led teaching methodologies to student-centered, autonomous learning paradigms. By integrating digital tools, learning management platforms (such as HEMIS), and reflective assessment models into independent study hours, the research demonstrates a structured pathway to improve pedagogical problem-solving, cognitive activity, and professional readiness. The validity of the proposed model was confirmed through empirical evaluation involving 355 undergraduate students using Student's t-distribution statistical analysis.

Keywords: Credit-module system, ECTS, independent learning, academic autonomy, digital competence, primary education, reflective assessment, blended learning.

1. INTRODUCTION AND BACKGROUND

The global modernization of higher education requires a fundamental transition from passive knowledge transmission to active, autonomous skill acquisition. Within the framework of the European Credit Transfer and Accumulation System (ECTS), student workload is measured comprehensively, allocating a significant portion—typically 50% to 60%—to independent study hours. In Uzbekistan, the national concept for developing the higher education system through 2030 explicitly targets the widespread implementation of credit-module frameworks to align national teacher training with international standards.

For future primary school teachers, mastering independent learning is double-edged: they must build personal academic autonomy to navigate rapidly changing

educational technology, while simultaneously preparing to foster independent, critical thinking in young learners. However, empirical observations indicate that first-year university students frequently encounter difficulties transitioning from highly structured secondary education to autonomous university study. Common challenges include poor time management, low reflective self-assessment skills, and an over-reliance on rote memorization rather than creative problem-solving.

2. RESEARCH OBJECTIVES AND METHODOLOGY

Objective:

To design, implement, and statistically validate an integrative pedagogical model aimed at fostering independent learning autonomy and digital-reflective competence in pre-service primary school teachers operating under the credit-module structure.

Research Tasks:

1. To analyze the didactic prerequisites of ECTS workload distribution (1 credit = 25–30 academic hours) and its structural alignment with independent learning.
2. To formulate a four-stage technology for independent learning: *Goal-setting, Methodological Routing, Action-Reflection, and Authentic Evaluation*.
3. To evaluate the efficacy of digital platforms (e.g., HEMIS, Kahoot, Wordwall, Google Workspace) and interactive methods (Case-Study, Peer-Review, e-Portfolio) in elevating student performance.
4. To analyze experimental data collected across multiple pedagogical universities in Uzbekistan using mathematical-statistical methods.

Methodological Framework:

The study utilizes an interdisciplinary approach combining activity-based, context-based, synergetic, and person-centered learning theories. Data collection methods included diagnostic questionnaires, direct observation, expert evaluation grids, and Student's t-test statistical validation.

3. THE DIDACTIC MODEL OF INDEPENDENT LEARNING

The core of the proposed pedagogical model restructures independent study hours from traditional, passive tasks (e.g., simple summarizing or rewriting lecture materials) into dynamic, task-oriented learning tracks:

Diagnostic & Goal-Setting Stage: Assisted by academic advisors (tutors), students conduct self-diagnostics to identify learning gaps and articulate individual professional goals.

Modular Routing & Digital Integration: Independent assignments are structured into clear difficulty tiers (reproductive, reconstructive, heuristic, and creative). Digital

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platforms and open educational resources (OERs) are embedded directly into the syllabus.

Collaborative & Reflective Practice: Students work individually and in small groups on problem-based learning (PBL) scenarios, peer-evaluating lesson plans and recording reflections in digital journals.

Authentic Assessment (e-Portfolio): Student progress is evaluated continuously through cumulative e-Portfolios, case presentations, and interactive tests rather than relying solely on traditional high-stakes exams.

4. EXPERIMENTAL RESULTS AND STATISTICAL ANALYSIS

The empirical research was conducted across Termez State University, Karshi State University, Gulistan State University, and Kokand State Pedagogical Institute, involving **355 undergraduate students** divided into Experimental Groups (EG, $n=177$) and Control Groups (CG, $n=178$).

Diagnostic Criteria:

Progress was measured across four criteria: *Motivational-Value*, *Intellectual-Cognitive*, *Information-Communicative*, and *Emotional-Volitional/Reflective*.

Baseline (Initial) Stage: Initial evaluations showed no statistically significant differences between EG and CG across all criteria ($p > 0.05$). Up to 71.8% of students in both groups demonstrated low levels of independent learning readiness, characterized by an inability to plan study schedules independently or filter digital information critically.

Post-Intervention (Final) Stage: Following the implementation of the proposed model, the Experimental Group exhibited marked improvements:

High-level mastery in the EG increased from **8.5% to 22.2%**.

Low-level scores in the EG dropped from **71.8% to 20.0%**.

In contrast, the Control Group (taught using conventional guidelines) remained largely stagnant, with low-level scores persisting at 63.2%–70.8%.

Statistical Verification: Calculation of Student's t-statistic yielded an empirical value of $t_{\text{emp}} = 5.84$, which significantly exceeds the critical threshold of $t_{\text{crit}} = 1.97$ at a 95% confidence level ($\alpha = 0.05$). The overall efficiency coefficient reached $K_{\text{eff}} = 1.15$, proving the statistical validity and pedagogical effectiveness of the model.

5. CONCLUSION AND RECOMMENDATIONS

Shift in Pedagogical Role: Transitioning to the credit-module system requires university instructors to pivot from knowledge presenters to learning facilitators, mentors, and academic advisors who guide students' autonomous learning pathways.

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Task Diversification: Traditional independent assignments (e.g., standard essays) should be replaced with problem-based cases, virtual modeling, and collaborative projects that cultivate higher-order critical thinking.

Digital Infrastructure: University learning management systems (LMS/HEMIS) must be leveraged not merely for administrative attendance tracking, but as interactive learning hubs providing transparent rubric-based grading, OER repositories, and asynchronous feedback.

REFERENCES:

1. **Decree of the President of the Republic of Uzbekistan.** "On Approval of the Concept for Development of the Higher Education System of the Republic of Uzbekistan until 2030" No. UP-5847. October 8, 2019.
2. **Usmonov, B.Sh., & Khabibullayev, R.A.** (2020). *Organization of the Educational Process in Higher Education Institutions within the Credit-Module System: Study Guide*. Tashkent: Tafakkur Publishing, 120 p.
3. **Mamatqulov, S.** (2023). *Independent Education: Research, Foreign Experience, and Recommendations (Methodological Guide)*. Tashkent: Sano-Standart, 32 p.
4. **Nazarqulova, G.** (2023). Results of independent education quality control and its efficiency under credit-module conditions. *Bulletin of Gulistan State University*, 2(101), pp. 68–72.
5. **Fry, H., Ketteridge, S., & Marshall, S.** (2009). *A Handbook for Teaching and Learning in Higher Education: Enhancing Academic Practice*. New York: Routledge, 525 p.