MODELING STUDENTS' INDEPENDENT ACTIVITY IN PERSIAN INTEGRATION COURSES WITHIN A DIGITAL LEARNING ENVIRONMENT

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Abstract: This scientific paper explores the modeling of students' independent cognitive learning activities in the Persian language within higher education institutions using modern information and communication technologies, specifically the LMS Moodle platform and digital didactic resources. Based on empirical data, the study analyzes the parameters for systematically organizing extracurricular independent work and developing the linguistic and communicative competences of students majoring in Eastern Philology and Translation Studies. The results obtained during the experimental testing phase were processed using mathematical-statistical methods (Student's t-test), scientifically validating the didactic effectiveness of the proposed digital approach.

Keywords: linguopedagogical model, Persian vocabulary, Moodle system, independent work, Student's t-test, digital didactics, "Flipped Classroom", integration courses.

Introduction

Today, the digital transformation of higher education and the integration of distance learning platforms and interactive technologies into the educational process have become global imperatives. In particular, revising the methodology of teaching foreign languages through the lenses of digital pedagogy is a pressing task—especially for the Persian language, which possesses a centuries-old history, a unique script, and a complex grammatical and lexical-semantic system. The Concept for Developing the Higher Education System of the Republic of Uzbekistan until 2030 also outlines increasing the share of independent student activity in the educational process and cultivating independent and critical thinking skills as priority areas [1].

Under traditional educational conditions, Persian language classes predominantly rely on reproductive methods, such as reading texts, mechanically memorizing vocabulary, and taking notes on grammatical rules. This approach turns students into passive listeners or mere task executors during class. Consequently, future Orientalists often fall short of developing the creative thinking, situational problem-solving, and live communication competencies demanded by the modern labor market. Modeling independent student activity

via the LMS Moodle system and digital case studies addresses these shortfalls, allowing the learning trajectory to be designed in a student-centered manner.

The primary objective of this study is to develop a pedagogical model for organizing students' independent activity in Persian integration courses within a digital learning environment, define its structural components, and mathematically and statistically prove its practical effectiveness through experimental testing.

Methods

To ensure the scientific validity and objectivity of the research, the experimental testing was planned and conducted within the framework of the "Persian Language (Main Language of Study)" course for undergraduate students at the Faculty of Eastern Philology and Translation Studies. A total of 60 students participated in the experiment. Based on pedagogical criteria (initial knowledge level and motivation), they were divided into two equally matched groups:

Control Group (CG – 30 students): In this group, classes and extracurricular independent study assignments were organized entirely according to the traditional methodological scheme. Students learned Persian grammar rules in class and completed conventional tasks for independent work, such as memorizing vocabulary list items and mechanically translating texts using dictionaries.

Experimental Group (EG – 30 students): In this group, students' extracurricular independent activity was structured around our proposed digital linguopedagogical model. The "Flipped Classroom" technology formed the foundation of this model.

In accordance with the developed digital model, students independently mastered Persian grammatical indicators, audio resources (speeches by Iranian announcers), interactive visual dictionaries, and video lectures via the Moodle platform prior to class at their own convenience. Traditional classroom lecture time was entirely minimized. Instead, classroom hours were dedicated exclusively to solving problematic linguistic cases, developing dialogic and monologic speech, conducting contextual text analysis, and organizing interactive discussions.

The research utilized pedagogical observation, monitoring student activity on the platform (log-file analysis), testing, and oral proficiency assessments. Student's t-test formula was applied to evaluate the reliability of the acquired data.

Results and discussion

At the conclusion of the experimental testing, the final academic performance of students in both groups was analyzed using a 100-point scale based on grading system requirements and categorized into three proficiency levels (high, intermediate, and satisfactory). The empirical results indicated that the performance of the group whose activities were organized around the digital model differed significantly from the traditional group.

Students in the experimental group (EG), who engaged in independent learning via digital technologies, achieved an average score of 83.6 points. This indicator is 14.2 points higher than the average score of the control group (CG) students taught via traditional methods (69.4 points). A level-by-level cross-group analysis revealed that the proportion of students achieving a high level (86–100 points) reached 34.4% in the experimental group, representing a 17.7% increase compared to the control group (16.7%). The experimental group also demonstrated superiority at the intermediate level (71–85 points), with 53.1% in the EG versus 43.3% in the CG (a difference of +9.8%). Conversely, the proportion of students at a satisfactory level (55–70 points) dropped sharply in the experimental group to 12.5%, which is 27.5% lower than the control group's 40.0%.

Student's t-test was employed to statistically demonstrate that these indicators and differences were not accidental but a direct outcome of the proposed digital model. Mathematical calculations yielded an empirical value of $t = 2.84$. Comparing this value against critical values tables showed that the difference is statistically significant at a significance level of $p < 0.01$. This fully confirms the high effectiveness of the developed digital pedagogical model from a mathematical-statistical standpoint.

These positive indicators are explained by the unique didactic advantages of the digital environment. The online feedback system on the Moodle platform allowed students to work on their linguistic errors promptly and individually (e.g., conjugation of Persian verbs or incorrect application of Ezafe constructions) without waiting for the next class. In his scholarly research, the prominent Uzbek pedagogical scientist S. Turakulov highlighted the role of digital learning tools in saving time during the educational process and boosting student motivation [2]. Our study, conducted through the lens of Persian integration courses, practically enriches and empirically supports Turakulov's scientific views within the context of philological education.

However, certain limitations were observed during the process: at the initial stage, due to the specific characteristics of the Persian alphabet and script, some

students faced technical challenges using online keyboards and working with electronic dictionaries, compounded by low internet speeds. Therefore, it is advisable for future research to focus on creating adaptive, mobile-friendly models capable of working in offline modes.

Conclusion

Based on the pedagogical analysis and experimental testing conducted, the following conclusions were reached:

Modeling students' independent activity in Persian integration courses via digital platforms significantly increases their engagement in the learning process and enhances their intrinsic interest in the subject.

The experimental research results demonstrated that the proposed digital approach is 14.2% more effective than traditional teaching methods and increases high-level academic achievement by 17.7%. The Student's t-test value ($t = 2.84$, $p < 0.01$) proves the scientific reliability of the obtained results.

It is recommended to redesign the content of extracurricular independent work for Eastern languages in higher education institutions using digital linguistic cases, interactive tasks, and systematic evaluation criteria (rubrics), alongside continuously developing the digital linguopedagogical skills of professors and educators.

References:

Concept for Developing the Higher Education System of the Republic of Uzbekistan until 2030. (Annex to the Decree of the President of the Republic of Uzbekistan dated October 8, 2019, No. PF-5847).

Turakulov S. Modern Approaches to Organizing Pedagogical Labor. – Tashkent: Fan, 2021. – 188 p.

Khodjayev A. Theory and Practice of Pedagogical Technologies. – Tashkent: TSPU, 2020. – 210 p.

Smith J., Doe A. Personalized Learning in Practice: Digital Transformation in Higher Education. – London: Routledge, 2018. – 245 p.