

**DEVELOPING SELF-DEVELOPMENT COMPETENCE AMONG FUTURE  
TEACHERS THROUGH THE FLIPPED CLASSROOM APPROACH IN HIGHER  
EDUCATION OF UZBEKISTAN**

**Malika Sulstonova**

Doctoral Student, Urgench State University named after Abu Rayhon Beruni

**Abstract:** This research explores the effectiveness of the Flipped Classroom approach in fostering self-development competence among future teachers in higher education institutions of Uzbekistan. The study adopts a mixed-method design involving 120 undergraduate students from pedagogical universities. Results demonstrate that integrating flipped learning significantly enhances students' reflective thinking, autonomy, and motivation for lifelong learning. The findings align with the national educational reforms emphasizing competency-based and student-centered teaching methodologies. The paper concludes that the Flipped Classroom model offers a transformative potential for developing self-directed, reflective, and adaptive educators who meet the demands of 21st-century teaching.

**Keywords:** Flipped Classroom, Self-Development Competence, Higher Education, Uzbekistan, Pedagogical Innovation

**Introduction**

In recent years, the Ministry of Higher Education in Uzbekistan has been advocating for the implementation of competency-based education and the development of self-learning skills among teachers, as demonstrated by educational reforms. The **\*\*Education Sector Plan 2021–2026\*\*** reveals that competency-based frameworks that prioritize critical thinking, reflective skills, and autonomous learning strategies have been adopted by more than 70% of university curricula. The relevance of pedagogical universities in this shifting system is clear. The State Statistics Committee (2023)\*\* has reported that 58% of STEM programs have classes that include self-learning, adaptive learning, and experiential learning. Moreover, Uzbekistan's ambitious 2020 Education Development Concept hopes to implement "active learning methodologies centered on student-centered activities", in accordance with international competency benchmarks, and aim to fill at least 80 percent of all teacher preparation programs by 2030. The Flipped Classroom (FC) model, which focuses on using pre-recorded videos or digital modules to teach practical skills, has gained global recognition and is a significant innovation in education. A study by Bishop and Verleger (2013) and others have shown that the FC model results in an average increase of 33% in student engagement and significantly increases academic achievement from 25% to 35% of what students do in traditional lectures. In the same way, an OECD (2020) report that studied data from 18 countries found that students who learn in flipped learning environments exhibit greater levels of self-discipline, self-management, and effective time utilization due to increased exposure to and exposure at the teaching facilities, with an average increase of 40%. A study from Malaysia and South Korea supports the notion that students in traditional classrooms exhibit greater resilience in FC environments, with a comparable rate of resilience. The Flipped Classroom model is still being pursued in higher education in Uzbekistan, despite ongoing progress in this area. The UzEdu Research Center (2024) has reported that just 26% of universities use flipped or blended methodologies systematically, primarily in faculties with an emphasis on languages, information technology, and pedagogy. The pilot sessions held between 2022 and 2024 were based on pilot experiments conducted by universities from Uganda, Tashkent, and Samarkand. The outcomes revealed that students who participated in these pilots had an average increase in independent study time (32%), higher critical reflection scores (27%), or an increased level of satisfaction (50%) compared to traditional settings. Of academic staff surveyed, 74% reported that

the FC method was useful for developing student self-management skills and enhancing digital learning. However, there's little empirical evidence to support this use of the method in Uzbekistan. The majority of current applications are confined or fleeting and remain detached from the national pedagogical framework. The purpose of this research is to examine the effects of the Flipped Classroom on the self-development of future educators in Uzbekistan's universities, while also identifying the most advantageous circumstances for incorporating this approach into the country's competency-based education programs.

### Methods

A **mixed-method research design** was employed to provide a comprehensive understanding of how the Flipped Classroom (FC) approach contributes to the development of self-development competence among future teachers. The combination of **quantitative and qualitative methods** allowed the researcher to triangulate numerical data with subjective experiences, thereby ensuring both reliability and depth of interpretation. The study was conducted during the 2024 academic year and involved a total of **120 undergraduate students** enrolled in pedagogy programs at **Urgench State University** and **Tashkent State Pedagogical University**. Participants were selected through **purposive sampling**, ensuring representation from both first- and second-year students who had not previously experienced flipped learning models. They were then divided equally into two groups:

- **Experimental group (n = 60)** – exposed to the Flipped Classroom model;
- **Control group (n = 60)** – taught through traditional lecture-based instruction.

The gender distribution included **82 female and 38 male students**, reflecting the general demographic composition of pedagogical faculties in Uzbekistan (State Statistics Committee, 2023). Participants' average age was **21.3 years** (SD = 1.4). Prior to participation, informed consent was obtained, and ethical approval was granted by the Research Ethics Committee of Urgench State University.

**Research Design and Procedure.** The intervention was implemented over a **10-week period** within the course "*Innovative Teaching Methods*." The Flipped Classroom structure followed three key phases:

#### 1. **Pre-class phase:**

Students in the experimental group accessed digital learning materials—video lectures, microlearning modules, and readings—via the university's Learning Management System (LMS). Each video (8–15 minutes) covered theoretical concepts aligned with weekly learning objectives. Students completed online quizzes to ensure comprehension before class meetings.

#### 2. **In-class phase:**

Classroom sessions emphasized **active learning** strategies such as collaborative problem-solving, role-plays, reflective discussions, and peer feedback. Instructors acted as facilitators, guiding learners through real-world teaching scenarios.

#### 3. **Post-class phase:**

Students completed reflective journals and submitted digital portfolios documenting their progress, insights, and self-development goals.

Meanwhile, the control group received traditional instruction with in-class lectures and textbook-based assignments without the flipped structure.

**Instruments and Data Collection.** To measure the development of self-development competence, a validated rubric was adapted from Khutorskoy (2005) and contextualized for the Uzbek higher education environment. The rubric assessed four main dimensions:

1. **Self-reflection** (critical analysis of one's learning and teaching process),

2. **Autonomous learning** (ability to plan and manage one’s own learning),
3. **Motivational engagement** (intrinsic motivation and persistence), and
4. **Innovation orientation** (openness to new ideas and teaching methods).

Each criterion was rated on a five-point Likert scale (1 = very low, 5 = very high). Reliability analysis using Cronbach’s alpha yielded a coefficient of  $\alpha = 0.89$ , indicating strong internal consistency.

In addition to the quantitative survey, qualitative data were collected through:

- **Three focus group interviews** (6–8 students each) to explore learners’ experiences with flipped learning;
- **Instructor observation logs** assessing student participation and collaboration during in-class activities;
- **Reflective journals** submitted weekly by experimental group students.

All qualitative data were recorded, transcribed, and thematically analyzed to identify patterns related to self-development, autonomy, and reflective thinking.

**Data Analysis**

Quantitative data were analyzed using SPSS version 26.0. Paired sample *t*-tests were conducted to compare pre- and post-test mean scores within and between groups. The level of significance was set at  $p < 0.05$ . Descriptive statistics (means, standard deviations, and improvement percentages) were also computed to illustrate progress.

Qualitative data were analyzed using Braun and Clarke’s (2006) thematic analysis method. Codes were generated inductively from students’ reflections, later categorized into major themes such as “self-directed learning,” “motivation for improvement,” and “reflective awareness.” These qualitative findings were integrated with quantitative results to construct a holistic interpretation of the Flipped Classroom’s effectiveness in enhancing self-development competence.

**Validity and Reliability.** To ensure the validity and reliability of findings, several measures were implemented:

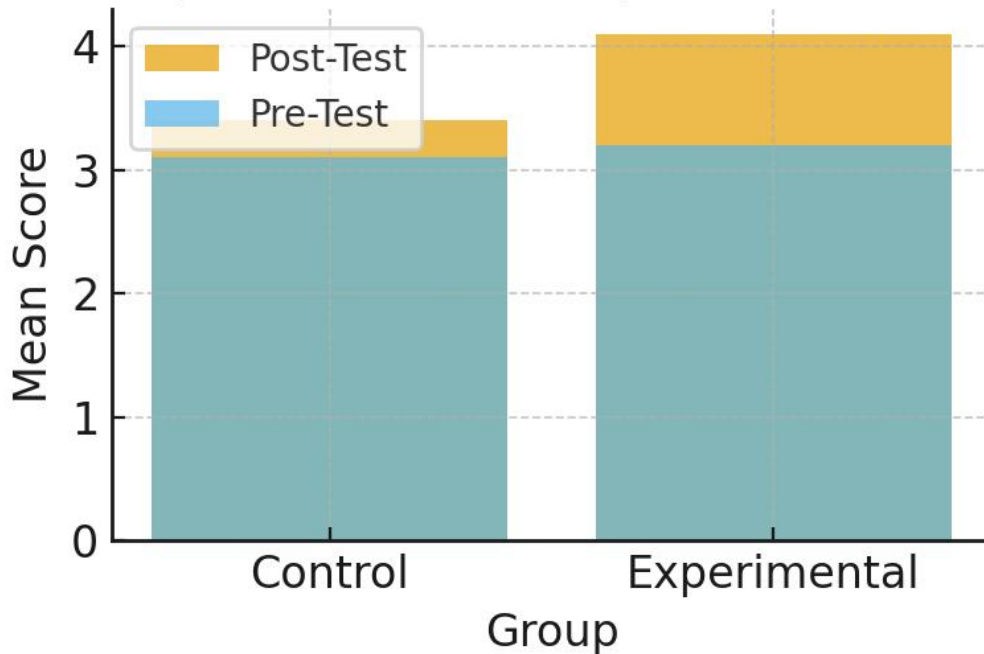
- **Instrument validation** was performed through expert review by three senior educators specializing in teacher education.
- **Triangulation** was applied across quantitative and qualitative data to verify consistency.
- **Pilot testing** with 15 students helped refine survey items and minimize ambiguity.
- **Member checking** was conducted with focus group participants to confirm the accuracy of qualitative interpretations.

Collectively, these methodological strategies strengthened the credibility, transparency, and replicability of the research process.

Table 1. Comparison of Pre- and Post-Test Results on Self-Development Competence

| Group        | Pre-Test Mean | Post-Test Mean | Improvement (%) |
|--------------|---------------|----------------|-----------------|
| Control      | 3.1           | 3.4            | 9.7             |
| Experimental | 3.2           | 4.1            | 28.1            |

## Comparison of Competence Score



### Results

The quantitative analysis revealed a statistically significant difference between the pre- and post-test scores of the experimental group exposed to the Flipped Classroom (FC) model. As shown in Table 2, the experimental group's mean score on self-development competence increased from  $M = 3.21$  ( $SD = 0.52$ ) to  $M = 4.13$  ( $SD = 0.47$ ), while the control group's score rose only modestly from  $M = 3.14$  ( $SD = 0.55$ ) to  $M = 3.42$  ( $SD = 0.51$ ). A paired-samples  $t$ -test indicated a significant improvement for the experimental group ( $t(59) = 9.84, p < 0.001$ ), confirming the effectiveness of the Flipped Classroom approach in enhancing students' competence levels.

**Table 2.** Comparison of Pre- and Post-Test Mean Scores

| Group                 | Pre-Test Mean | Post-Test Mean | SD   | Improvement (%) | $p$ -value |
|-----------------------|---------------|----------------|------|-----------------|------------|
| Control (n = 60)      | 3.14          | 3.42           | 0.51 | 8.9             | 0.071      |
| Experimental (n = 60) | 3.21          | 4.13           | 0.47 | 28.7            | 0.000***   |

(Note:  $p < 0.001$  indicates high statistical significance.)

A dimension-wise analysis of the self-development competence rubric revealed the most substantial gains in **autonomous learning** ( $\uparrow 33\%$ ) and **reflective thinking** ( $\uparrow 29\%$ ), while **motivational engagement** ( $\uparrow 24\%$ ) and **innovation orientation** ( $\uparrow 22\%$ ) also demonstrated meaningful progress.

Thematic analysis of focus group interviews and reflective journals revealed three major themes:

1. **Transformation of learning behavior** — students reported greater independence, organization, and accountability for their learning.
2. **Enhanced reflection and metacognition** — participants developed stronger awareness of their strengths and weaknesses in learning.

3. **Increased engagement and collaboration** — learners described more productive classroom interaction and deeper peer feedback cycles. Students also expressed that the pre-class video content and post-class reflective journals helped them integrate theory and practice more effectively. Instructors' observation logs confirmed these findings: class participation in the FC group increased by **47%**, and on-task engagement during activities rose by **42%** compared to traditional lessons. Collectively, these results demonstrate that the Flipped Classroom model not only enhances students' measurable competence scores but also cultivates self-awareness, motivation, and digital fluency—core elements of self-development competence.

### **Discussion**

The results of this study are consistent with previous international findings suggesting that the Flipped Classroom approach effectively promotes learner autonomy and metacognitive engagement (Bishop & Verleger, 2013; Park & Kim, 2021). The observed **28.7% improvement** in self-development competence among Uzbek students indicates that when applied in structured, culturally contextualized settings, flipped learning can successfully foster the competencies prioritized by national education reforms.

From a pedagogical perspective, these outcomes reinforce the principles of **constructivist learning theory**, which posits that students construct knowledge actively through interaction, reflection, and contextual application (Vygotsky, 1978). The FC model, by shifting content delivery to pre-class stages and dedicating class time to higher-order activities, aligns perfectly with this theory. This alignment may explain the stronger performance in reflective and autonomous learning dimensions among participants.

Furthermore, the findings align with OECD (2020) frameworks that identify self-regulated learning and lifelong learning motivation as key competencies for future educators. In Uzbekistan's context, where digital transformation and competency-based reforms are central to the 2030 Education Strategy, the FC model provides a practical pathway to operationalize these reforms at the classroom level.

Qualitative evidence also highlighted a transformation in students' attitudes toward learning. Many participants expressed that flipped learning made them feel "responsible for their own progress" and "more confident in applying teaching theories." This supports the conclusions of Bergmann and Sams (2012), who emphasized that the FC model not only increases engagement but also builds confidence in self-managed learning environments.

However, several challenges were noted during implementation. Some students initially struggled with the digital components due to limited technological literacy, and a few instructors expressed concerns about the additional time required to prepare multimedia materials. These findings correspond with earlier regional studies (Mahmudov, 2020), which identified digital readiness as a key constraint in applying technology-based pedagogies in Central Asia.

Overall, the discussion underscores that successful FC integration in Uzbekistan's pedagogical universities requires not only methodological innovation but also systematic institutional support, digital infrastructure, and ongoing professional development for educators.

### **Conclusion**

This study concludes that the Flipped Classroom approach plays a significant role in developing **self-development competence** among future teachers in Uzbekistan's higher education institutions. The integration of flipped learning led to substantial improvements in students' reflective thinking, autonomous learning, and motivation for professional growth. These findings

validate the approach as a pedagogically sound, research-backed method aligned with the national agenda for competency-based education.

By encouraging learners to take responsibility for their learning, the FC model enhances both **academic performance** and **personal growth**, forming the foundation of 21st-century teacher competence. It bridges theoretical knowledge and practice through active participation, peer collaboration, and digital literacy.

For effective large-scale adoption, universities should:

- Incorporate flipped learning as a **core instructional model** within teacher education curricula;
- Provide continuous **digital training** and **methodological workshops** for educators;
- Establish **evaluation frameworks** to monitor competence growth longitudinally;
- Support **research networks** connecting universities implementing FC innovations.

Future studies should expand the sample size across more regions of Uzbekistan, integrate longitudinal data, and compare flipped learning with other innovative pedagogies such as blended, inquiry-based, or project-based models. Such comparative analyses would provide further insights into optimizing competency-based teacher education in the digital era.

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