

DEVELOPING PEDAGOGICAL REFLECTION IN STUDENTS THROUGH INDEPENDENT LEARNING

Pazilova Meruert Ermekbaevna,

Doctor of Pedagogical Sciences, Professor,

Republic of Karakalpakstan Nukus State Pedagogical Institute

Abstract

The article analyzes the role of the independent learning process in the development of pedagogical reflection in students. It is shown that the effective organization of independent learning directs students to activity, critical thinking, self-assessment and professional development. It also highlights the extent to which the student's knowledge, skills and competencies are formed in the process of reflection and the importance of pedagogical support in this process. The results of the study confirm that independent learning and pedagogical reflection are closely related, and one creates the necessary conditions for the development of the other.

Keywords: Professional development, competence, educational effectiveness. Independent learning, pedagogical reflection, critical thinking, self-assessment.

Introduction

The comprehensive development of students' personalities, the process of their independent thinking, work on themselves and improving their professional skills is one of the main tasks in the higher education system. Reforms in the education system, new generation state educational standards and modern methodological approaches require students not only to acquire knowledge, but also to independently master it, to connect theoretical knowledge with practice, to analyze their own activities and draw conclusions. In this sense, pedagogical reflection - that is, the ability to critically evaluate their own educational and professional activities, to observe themselves, analyze results and plan future activities - is of great importance for students. Reflection, by its very nature, is an activity aimed at improving their own thoughts, feelings, decisions and actions inwardly. The development of reflection in the pedagogical process serves to form

the student's personal responsibility, the ability to make independent decisions and professional competencies. Such a process, naturally, is carried out through independent educational activities. Because independent education allows the student to work on himself, use various sources, independently solve problems, engage in creative research and critical thinking.

In higher education institutions, students deepen the theoretical knowledge they acquire not only during the lesson process, but also through independent learning activities. It is in this process that they are forced to evaluate their knowledge, understand their own learning style, monitor the effectiveness of their learning, and, if necessary, revise their strategies. Such experience creates effective conditions for the development of reflective thinking. Therefore, the correct organization of independent learning in the formation and development of pedagogical reflection in students is an important pedagogical task. This process not only improves academic performance, but also helps future teachers to self-manage in their professional activities, feel personal responsibility, and consciously choose their professional path.

The research methodology involves analyzing the issue of developing pedagogical reflection not only theoretically, but also from a practical and pedagogical perspective. Therefore, methodological approaches were used in this work in a multifaceted way:

1. Epistemological basis. The concepts of independent learning and reflection were considered from the point of view of theories of knowledge. The student's process of acquiring knowledge was interpreted not only as a process of assimilating information, but also as a process of processing, evaluating and transforming it into a new personal experience.
2. Reflexive-pedagogical basis. The ideas of Dewey and Schön about reflexive pedagogy served as the basis for the research. According to them, a student or pupil must critically view his or her own activities, analyze mistakes and consciously improve his or her future activities.
3. Activity approach. Based on the concepts of Leontiev and Vygotsky, independent learning was interpreted as a mechanism that is at the center of the student's activities and leads him or her to reflection. Each practical task has become a means of assessing and controlling the student's own activities.

4. Competency approach. In modern education, reflection is considered an integral part of professional competencies. Therefore, the methodology is aimed at developing reflective thinking - strengthening pedagogical competence.

Research methods:

1. Content analysis - opportunities for developing reflection were identified on the basis of scientific literature, curricula and regulatory documents.

2. Diagnostic methods - special questionnaires and assessment criteria were developed to measure students' reflective competence.

3. Experimental method - reflexive elements were added to the independent learning process, and their effectiveness was tested in an experiment.

4. Statistical analysis - the results obtained were processed using mathematical and statistical methods, and scientifically based conclusions were drawn.

Thus, the methodology provided a multi-level approach to the issue of developing pedagogical reflection in students: theoretical substantiation, practical testing, diagnostics and scientific analysis of the results.

During the study, the process of developing pedagogical reflection in students was analyzed based on independent learning activities. The observations, interviews, and questionnaires conducted showed the following results:

1. The need for reflection. According to the results of the questionnaire, students often feel the need to evaluate their knowledge, identify their strengths and weaknesses during independent learning. However, they do this process more intuitively than through scientifically based methods.

2. The effectiveness of the methods. It was observed that the use of reflective diaries, portfolio preparation, and self-assessment tables used in the experimental-testing process enhanced students' ability to analyze their knowledge and think independently. Such methods increased their critical approach and sense of responsibility.

3. The combination of practice and theory. Students had the opportunity to analyze their activities not only on the basis of theoretical knowledge, but also through practical tasks. This turned reflection into a practical skill that is applied to real activities, not just a theoretical process.

4. Results of statistical analysis. When reflective elements were added to independent learning tasks, students in the experimental group showed significant positive changes in their self-assessment and control of their knowledge. In the control group, such changes were observed to a much lower extent.

5. The need for pedagogical support. It was found that students encountered certain difficulties in independently forming reflective activities. Therefore, the need for guiding questions, methodological instructions and advice from the teacher was high.

The analytical results show that the purposeful and systematic use of independent learning tools significantly develops students' reflective thinking. At the same time, in order to effectively organize this process, it is necessary to improve methodological approaches and strengthen pedagogical support.

The study involved 100 students from higher education institutions (50 in the experimental group, 50 in the control group). In the experimental group, independent learning activities were organized on the basis of reflexive elements (diary, self-assessment tables, portfolios), while in the control group, traditional forms of independent learning were used.

Statistical analysis of the questionnaire and test results showed the following:

- Level of formation of reflexive skills:

- o In the experimental group, students were able to independently assess their knowledge in 78% of cases.
 - o In the control group, this figure was 52%.

- Self-control ability:

- o In the experimental group, students were able to independently check assignments and identify their errors in 82% of cases.
 - o In the control group, this figure was only 55%.

- Effectiveness of pedagogical reflection (average of total scores):

- o Experimental group: 4.3 points (out of 5 points)

- o Control group: 3.1 points

- Statistical significance: The results obtained using the χ^2 (chi-square) test showed a significant difference between the groups ($p < 0.05$).

Independent learning is an important pedagogical tool that helps students actively participate in the learning process, independently acquire and control their knowledge. At the same time, it forces students to analyze their activities, see their mistakes and find ways to eliminate them. This process directly leads to the formation of pedagogical reflection. Reflection is essentially related to the student finding answers to questions such as "What did I know?", "What did I learn?", "Where did I make a mistake?", "What should I pay attention to next time?" Such

questions arise regularly during independent learning and develop the student's skills in critically evaluating their own knowledge.

Conclusion

The independent learning process helps students not only acquire knowledge, but also develop pedagogical reflection through analyzing their own activities and understanding their mistakes. Independent work organized on the basis of a reflective approach forms important competencies in students, such as responsibility, critical thinking, self-assessment, and the desire for professional growth. Therefore, the effective organization of independent learning not only increases the quality of the educational process, but also improves the professional training of future teachers.

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