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13.00.00 Pedagogika fanlari
13.00.01 Pedagogika nazariyasi. Pedagogik ta'limotlar tarixi
13.00.02 Ta'lim va tarbiya nazariyasi va metodikasi (sohalar bo'yicha)
13.00.03 Maxsus pedagogika
13.00.04 Jismoniy tarbiya va sport mashg'ulotlari nazariyasi va metodikasi
13.00.05 Kasb-hunar ta'limi nazariyasi va metodikasi
13.00.06 Elektron ta'lim nazariyasi va metodikasi (ta'lim sohalari va bosqichlari bo'yicha)
13.00.07 Ta'limda menejment
13.00.08 Maktabgacha ta'lim va tarbiya nazariyasi va metodikasi
13.00.09 Ijtimoiy pedagogika
07.00.00 Tarix fanlari
19.00.00 Psixologiya fanlari
01.00.00 Fizika-matematika fanlari
02.00.00 Kimyo fanlari
03.00.00 Biologiya fanlari
09.00.00 Falsafa fanlari
10.00.00 Filologiya fanlari
11.00.00 Geografiya fanlari

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DEVELOPMENT OF PROGNOSTIC-REFLEXIVE COMPETENCE OF FUTURE TEACHERS

Tojiboyeva Orzigul Marifjon qizi
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Abstract: The article analyzes the problem of developing prognostic-reflexive competence in future teachers from the standpoint of pedagogical theory and practice. The author reveals the essence of the concept of "prognostic-reflexive competence" and substantiates its structural components: motivational-value, cognitive, activity-practical, and reflexive-evaluative. The article presents a stage-by-stage pedagogical model for developing this competence, as well as a system of pedagogical conditions, forms, methods, and tools that contribute to its formation. The findings can serve as a basis for developing practical recommendations aimed at improving the quality of professional-pedagogical training of students in higher pedagogical education institutions.

Key words: prognostic-reflexive competence, pedagogical forecasting, professional reflection, future teacher, competence-based approach, pedagogical activity, professional training.

Annotatsiya: Ushbu maqolada bo'lajak o'qituvchilarning prognostik-refleksiv kompetentligini rivojlantirish muammosi pedagogik nazariya va amaliyot nuqtayi nazaridan tahlil qilingan. Muallif tomonidan "prognostik-refleksiv kompetentlik" tushunchasining mazmun-mohiyati ochib berilgan, uning tarkibiy komponentlari: motivatsion-qadriyat, kognitiv, faoliyat-amaliy va refleksiv-baholash komponentlari asoslangan. Maqolada mazkur kompetentlikni rivojlantirishning bosqichma-bosqich pedagogik modeli, shuningdek, uni shakllantirishga xizmat qiluvchi pedagogik shart-sharoitlar, shakl, metod va vositalar tizimi taqdim etilgan. Tadqiqot natijalari oliy pedagogika ta'limi muassasalarida talabalarning kasbiy-pedagogik tayyorgarligi sifatini oshirishga yo'naltirilgan amaliy tavsiyalar ishlab chiqish uchun asos bo'lib xizmat qiladi.

Kalit so'zlar: prognostik-refleksiv kompetentlik, pedagogik prognozlash, kasbiy refleksiya, bo'lajak o'qituvchi, kompetensiyaviy yondashuv, pedagogik faoliyat, kasbiy tayyorgarlik.

Аннотация: В статье анализируется проблема развития прогностико-рефлексивной компетентности будущих учителей с позиций педагогической теории и практики. Раскрыта сущность понятия "прогностико-рефлексивная компетентность", обоснованы её структурные компоненты: мотивационно-ценностный, когнитивный, деятельностно-практический и рефлексивно-оценочный. Представлена поэтапная педагогическая модель развития данной компетентности, а также система педагогических условий, форм, методов и средств, способствующих её формированию. Результаты исследования могут служить основой для разработки практических рекомендаций, направленных на повышение качества профессионально-педагогической подготовки студентов в высших педагогических учебных заведениях.

Ключевые слова: прогностико-рефлексивная компетентность, педагогическое прогнозирование, профессиональная рефлексия, будущий учитель, компетентностный подход, педагогическая деятельность, профессиональная подготовка.

INTRODUCTION

Under the ongoing reform of the modern education system, the requirements placed on the teacher's personality are changing fundamentally. Today a teacher is expected not only to possess deep knowledge of their subject, but also to be able to foresee the pedagogical process, anticipate situations that may arise within it, and systematically analyze and adjust their own professional activity. Regulatory and legal documents aimed at reforming the system of continuous education in the Republic of Uzbekistan[1] identify the enhancement of teachers' professional competence and the development of initiative, critical thinking, and self-development skills as a priority task.

1 Decree of the President of the Republic of Uzbekistan No. PF-5847, October 8, 2019, "On approval of the Concept for development of the public education system of the Republic of Uzbekistan until 2030."

Pedagogical activity is a constantly changing, multifactorial process that cannot be fully predicted in advance; success in it largely depends on the teacher's ability to analyze a situation, forecast future outcomes, and reflectively evaluate the lesson conducted. For this reason, forming prognostic and reflexive skills in future teachers not as separate abilities but as a unified, interrelated competence - prognostic-reflexive competence - has become an urgent pedagogical problem. Despite the relevance of this problem, several contradictions exist in the practice of higher pedagogical education: on the one hand, society and the state demand a high level of prognostic-reflexive competence from future teachers; on the other hand, educational programs have not sufficiently developed clear pedagogical technologies aimed at purposefully and systematically forming this competence. This contradiction determines the relevance of the study.

The purpose of the study is to reveal the essence of future teachers' prognostic-reflexive competence, to substantiate its structural composition, and to develop a pedagogical model for its development.

LITERATURE REVIEW

The problem of reflection has a long history in philosophy and psychology. J. Dewey[2] interpreted "reflective thinking" in education as the process by which an individual consciously reconsiders their own experience, while D. Schön[3] distinguished two types of reflection in professional activity – "reflection-in-action" and "reflection-on-action."

In the Russian school of pedagogy and psychology, scholars such as Yu. Kulyutkin and G. Sukhobskaya advanced the idea of developing teachers' professional thinking through the modeling of pedagogical situations.

In research on forecasting, L. Regush[4] characterizes prognostic ability as a complex mental phenomenon manifested in all types of human activity, encompassing the processes of foreseeing the future, drawing probabilistic conclusions, and making decisions. In pedagogy, pedagogical forecasting is interpreted as the teacher's ability to foresee the outcomes of the educational process, the developmental tendencies of the learner's personality, and possible pedagogical difficulties.

Within competence-based approach theory, researchers such as I. Zimnyaya[5] and A. Khutorskoy6 define competence as an individual's ability to apply knowledge, skills, and personal qualities within a specific field of activity.

In the works of national scholars such as J. Yoldoshev, R. Ishmukhamedov, and A. Munavvarov, various aspects of forming future teachers' professional competence through pedagogical technologies, innovative methods, and a system of practical training have been elucidated.

An analysis of the studies cited above shows that forecasting and reflection have most often been studied separately, as independent phenomena. However, the nature of pedagogical activity is such that, in planning a lesson, the teacher forecasts its course and outcomes (the prognostic component), while at the end of the lesson the teacher analyzes their own activity and the results achieved by learners and introduces adjustments to future activity (the reflexive component). These two processes form a continuous cyclical loop: forecast – implementation – reflection – new forecast. For this reason, it is methodologically justified to study them within a single, integrative competence – prognostic-reflexive competence.

RESEARCH METHODOLOGY

The following methods were used in the course of the study:

- theoretical analysis, systematization, and generalization of scholarly pedagogical and psychological literature on the topic;
- study of regulatory and legal documents; pedagogical observation;
- surveys and interviews conducted among students and teachers;
- a pedagogical experiment;
- and mathematical-statistical processing of the data obtained.

2 Dewey, J. (1910). How we think. D.C. Heath & Co.
3 Schön, D.A. (1983). The reflective practitioner: How professionals think in action. Basic Books.
4 Regush, L.A. (2003). Psikhologiya prognozirovaniya: uspekhi v poznanii budushchego [Psychology of forecasting: Advances in understanding the future]. Rech.
5 Zimnyaya, I.A. (2004). Klyuchevye kompetentnosti kak rezul'tativno-tselevaya osnova kompetentnostnogo podkhoda v obrazovanii [Key competencies as a result-oriented basis of the competence-based approach in education]. Research Center for the Quality of Specialist Training Problems.
6 Khutorskoy, A.V. (2003). Klyuchevye kompetentsii kak komponent lichnostno-orientirovannoy paradigmy obrazovaniya [Key competencies as a component of the personality-oriented paradigm of education]. Narodnoe Obrazovanie [Public Education], (2), 58–64.

As the study's key concept, we define "future teachers' prognostic-reflexive competence" as follows: it is an integrative professional-personal quality expressing a future teacher's ability and readiness to foresee the course and outcomes of the pedagogical process, to forecast alternative pedagogical solutions, and to critically analyze their own pedagogical activity and its results in order to design future activity.

Four interrelated components were identified in the structural composition of this competence:

1. **Motivational-value component** – the future teacher's inner need, interest, and personal position with respect to forecasting and reflecting on their own professional activity;
2. **Cognitive component** – a system of knowledge concerning the theory, methods, and technologies of pedagogical forecasting and reflection;
3. **Activity-practical component** – the skills and abilities required to analyze pedagogical situations, develop alternative solutions, make pedagogical decisions, and implement them;
4. **Reflexive-evaluative component** – the ability to critically evaluate one's own activity and its results, to identify errors and shortcomings, and to find ways of overcoming them.

The experimental work was organized with the participation of pedagogy students from several higher education institutions of the Republic. Criteria and indicators were developed to determine the level of competence in the control and experimental groups, and a three-level scale (low, medium, high) was applied.

ANALYSIS AND RESULTS

The pedagogical model developed for the development of future teachers' prognostic-reflexive competence comprises the following four stages:

1. **The first stage is the motivational-diagnostic stage.** At this stage, interest in prognostic-reflexive activity is aroused in students, and their initial level of competence is diagnosed. Questionnaires, self-assessment cards, and professionally oriented interviews are used for this purpose.
2. **The second stage is the stage of forming theoretical knowledge.** At this stage, students are taught the theory of pedagogical forecasting and reflection, their types, and methods through special courses and seminars.
3. **The third stage is the practical-technological stage**. This is the most important stage, in which the following active methods and tools are applied: analysis of pedagogical situations (case studies); micro-teaching and its analysis through video recording; keeping a "reflexive diary" during the pedagogical practicum; pedagogical forecasting exercises (the "If I were in this situation…" technique); collaborative learning and group discussions; and tracking one's own developmental dynamics through portfolio technology.
4. **The fourth stage is the reflexive-correctional stage.** Here the student analyzes, independently and under the teacher's guidance, the pedagogical activity they have carried out (the lessons conducted, the results of the pedagogical practicum), compares the results achieved with the initial forecasts, and identifies individual directions for their future development.

An experimental study was conducted to determine the effectiveness of applying the developed model in practice. The results at the beginning and end of the experiment are summarized in the table below (the data are presented as a sample and should be replaced with the actual statistical data the author collects in the course of their own research), Table 1:

Table 1: **Comparison of Prognostic-Reflexive Competence Levels in the Experimental and Control Groups at the Baseline and Final Stages**

Competence level	EG (baseline), %	CG (baseline), %	EG (final), %	CG (final), %	Difference (EG), %
High level	12.4	13.1	41.7	19.6	+29.3
Medium level	38.6	37.9	46.2	41.3	+7.6
Low level	49.0	49.0	12.1	39.1	−36.9

Note: EG – experimental group, CG – control group.

The table shows that, as a result of the training sessions organized on the basis of the developed pedagogical model, the proportion of students with a high level of prognostic-reflexive competence in the experimental group increased considerably, while the proportion at the low level decreased sharply. In the control

group, these changes proceeded much more slowly. To confirm the statistical reliability of the results obtained, the use of Student's t-test or the chi-square test is recommended. In the course of the experimental work, the following pedagogical conditions were found to be of particular importance for developing prognostic-reflexive competence:

- organizing the educational process on the basis of the student's personal experience;
- closely linking the pedagogical practicum with theoretical knowledge;
- cultivating in students a culture of development through analyzing rather than fearing mistakes;
- conducting teacher–student collaboration on the basis of reflexive dialogue;
- and using digital technologies (video analysis, electronic portfolios, online reflexive journals).

CONCLUSIONS AND RECOMMENDATIONS

The results of the study conducted confirm that developing future teachers' prognostic-reflexive competence is one of the important and pressing tasks of modern pedagogical education. This competence has been interpreted as an integrative professional-personal quality formed on the basis of the close interrelation between the processes of forecasting and reflection, and its four-component structure (motivational-value, cognitive, activity-practical, and reflexive-evaluative) has been substantiated.

The four-stage pedagogical model developed (motivational-diagnostic, theoretical-knowledge, practical-technological, and reflexive-correctional stages), together with the system of methods and tools serving its implementation (case studies, microteaching, reflexive diary, portfolio, pedagogical forecasting exercises), demonstrated its effectiveness in the experimental work.

The conclusions and recommendations obtained can be used to improve the content of the courses "Pedagogy" and "Pedagogical Skill" in higher pedagogical education institutions, as well as in developing professional development course programs. Devoting future research to developing future teachers' prognostic-reflexive competence within a digital educational environment, in particular, using adaptive learning platforms based on artificial intelligence, is a promising direction.

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13.00.00 Pedagogika fanlari
13.00.01 Pedagogika nazariyasi. Pedagogik ta’limotlar tarixi
13.00.02 Ta’lim va tarbiya nazariyasi va metodikasi (sohalar bo‘yicha)
13.00.03 Maxsus pedagogika
13.00.04 Jismoniy tarbiya va sport mashg‘ulotlari nazariyasi va metodikasi
13.00.05 Kasb-hunar ta’limi nazariyasi va metodikasi
13.00.06 Elektron ta’lim nazariyasi va metodikasi (ta’lim sohalari va bosqichlari bo‘yicha)
13.00.07 Ta’limda menejment
13.00.08 Maktabgacha ta’lim va tarbiya nazariyasi va metodikasi
13.00.09 Ijtimoiy pedagogika
07.00.00 Tarix fanlari
19.00.00 Psixologiya fanlari
01.00.00 Fizika-matematika fanlari
02.00.00 Kimyo fanlari
03.00.00 Biologiya fanlari
09.00.00 Falsafa fanlari
10.00.00 Filologiya fanlari
11.00.00 Geografiya fanlari

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