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Levels of formation of diagnostic culture of future primary school teachers in an innovative educational environment and its contents

Khalimakhon Kadyrova
Tashkent State Pedagogical University named after Nizami of the Republic of Uzbekistan

Nargizakhon Toshkhodjayeva
Tashkent State Pedagogical University named after Nizami of the Republic of Uzbekistan

Ziyoda Muratkhodjayeva
Tashkent State Pedagogical University named after Nizami of the Republic of Uzbekistan

Munisa Adilova
Tashkent State Pedagogical University named after Nizami of the Republic of Uzbekistan

***Abstract*---**The article describes the level of formation of the diagnostic culture of future primary school teachers in an innovative educational environment. classification of skills, feedback on the implementation of experimental work on the formation of a diagnostic culture based on a general description of each level.

***Keywords*---**diagnostic culture, content, component, pedagogical practice, self-assessment, diagnostic ability, component level, experimental work.

Introduction

Creative modular technologies have been introduced in the world educational institutions to identify the priorities of continuing education, the formation of a diagnostic culture of future primary school teachers. In the UN Convention on Education, Science and Culture on the issue of "radical improvement of teaching through innovative pedagogical technologies" [6; 19-62], innovative educational methods are applied in the formation of diagnostic culture of primary school teachers, systematic implementation of major projects work is underway.

According to Yuzlikaeva, “Diagnostic methods for improving the quality of education in future teachers are divided into three groups; in psychological diagnostics: diagnostic tests, questionnaires, questionnaires, project techniques, psychophysiological methods, methods of scientific processing; psychology, in pedagogical diagnostics: observations, interviews, analysis, pedagogical diagnostics are important factors ”[26; 284].

Rustamova in pedagogical diagnostics should pay attention to the following spiritual and moral qualities of the person: respect for adults, care for children, diligence, responsibility, initiative, tolerance, active participation in education, creativity, love of country, love of people, beliefs and principles, culture, attitude to national culture , value-oriented, interested in the history of their homeland, respect for their group and community ”[24; 20]. Khimmataliev focused on the definition of criteria for expert assessment and pedagogical diagnostics of their organizational and functional capabilities, such as objectivity, interval, feedback, psychological flexibility.]. Akhmedjanov said, “For the first time in the research work on the diagnosis of pedagogical readiness of a teacher, he developed and clarified the special requirements for content analysis methods in pedagogical diagnostics. At the same time, he learned that content analysis methods can be combined with other methods ”[17, 8].

According to J. Yuldashev and others, “Students acquire independent knowledge, self-organization, self-management, self-control, self-critical approach, development of new rules in their activities, the most important qualities of their behavior are independence, to be able to stand and defend one's position, to help to develop initiative, ingenuity, intelligence, curiosity, ingenuity ”[20; 63]. H. Ismailova thinks that "in the diagnostic activity of a person's spirituality, education has a social nature and is the basis of spiritual and moral education" [21; 22].

Borytko N. M. The highest level of development of the teacher's diagnostic culture is diagnostic competence, which implies the unity of theoretical knowledge and practical skills in the field of pedagogical diagnostics, the selection of the necessary diagnostic methods. It is a systematic and conceptual level in which the teacher uses pedagogical diagnostics to build relationships with children and their parents, and to develop professionally and personally. The opinions of students and the results of their diagnostic processes are recognized by the teacher as valuable self-assessment [18; 4].

Apparently, the development and formation of such a complex structure cannot occur spontaneously, it takes a lot of time, in our opinion, it happens in the process of the whole professional and creative path of the teacher. Eremkina’s identification of components of a teacher’s diagnostic culture is based on the structure of the teacher’s personality. The researcher identifies components such as motivational-personal or meaningful, personal-activity, reflexive-cognitive. cognitive-creative and instrumental-technological. The central component is motivational and personal, which includes a humane and personality-oriented attitude to children, a diagnostic orientation, a personal reflex, ethical norms, and moral values [19, 23].

Palmova says that a teacher's diagnostic culture has a two-way effect: it allows the teacher's personality to "grow" as well as the student's personality, creating favorable conditions for his or her development [23; 32]. As an integrated education, the teacher's diagnostic culture includes a number of components, but is viewed in different ways by the authors. Thus, N.M.Boritko distinguishes the normative component, which involves determining the level of adaptation of the child to the conditions of life, the level of education.

A meaningful component is the diagnosis of value relationships in a value system of skills that are vital to the child himself. The content component focuses on identifying the child's individuality, his or her creative abilities, as well as his or her meaningful relationship to himself or herself, to those around him or her, and to the whole world [18; 262-263]. Thus, the presented components are highlighted based on the area of interest of the teacher, i.e. the topic of diagnostic procedures. OV Eremkina, one of the researchers of the teacher's diagnostic culture, describes it as a "complex integrated psychological education of the teacher's personality", the core of which is the value-semantic feature that determines the orientation of his professional activity to diagnostics. Supporting the safe personal development of the child, it encourages creativity and enhances the professional skills of the teacher [19; 6].

In our view, a future primary school teacher should not be limited to integrating diagnostic knowledge into himself. The teacher is required to carry out pedagogical mobility on the basis of a cultural approach in the implementation of diagnostic activities [14; 498]. 86 people from Andijan State University, 167 people from Nizami Tashkent State Pedagogical University, 183 people from Jizzakh State Pedagogical Institute, 436 people from the bachelor's degree program "Primary Education and Sports Education" took part in the experimental work on the formation of diagnostic culture of future primary school teachers in an innovative educational environment. Phase 2 students participated. One control group was selected from each higher education institution.

The stages for carrying out experimental work on the formation of diagnostic culture are clearly defined, in each of which specific tasks are solved. In our case, these stages are interrelated with the specific social and professional state of teacher personality formation - joining new types of activities, communication, demonstrating different forms of independence, the content of subjects related to the formation of professionally significant personality traits. The first phase of the experimental work consists of the first two periods. The first period (the second year of study) is aimed at acquainting students with various aspects and structure of pedagogical activity, stimulating students' knowledge of pedagogical reality through the teaching of "Methods of educational work" in 3-4 semesters.

The second period was aimed at acquiring knowledge about the subjects of pedagogical interaction of the student, the pedagogical process and its components, its structure, laws, principles, methods, means of implementation, forms of organization, types of control and types of self-government. Awareness of the professional and important personal qualities of the teacher, the tasks of this period were carried out in 3-4-5 semesters through the subject "General Pedagogy". The second phase of the experimental work - formative experience -

was directly related to the formation of diagnostic knowledge, the acquisition of diagnostic skills, the algorithm of diagnostic activity, in general - the formation of diagnostic thinking, consciousness and student activity. The expediency of studying the subject "Pedagogy, innovation and integration of primary education" and "Pedagogical skills" in the 6th and 7th semesters is explained by the logic of pedagogical and psychological training of future primary school teachers.

The third stage of the experimental work is the stage of summarizing the results of the experiment. Objectives: statistical testing of hypotheses put forward at the beginning of the experiment, analysis of experimental data, analysis of the components of the diagnostic culture of future primary school teachers, generalization and systematization of test results on the basis of levels of diagnostic culture and its components is a description. Thus, we have formulated the general hypothesis of the experimental work as follows: the process of forming the diagnostic culture of future primary school teachers will continue to be effective and will be controlled to a certain extent. If:

- as a result of the implementation of the developed model.
- Continuity and gradual formation of diagnostic culture is observed;
- The process of formation is systemic in nature and includes the formation of diagnostic thinking, diagnostic consciousness, diagnostic activity;
- Systemic positive dynamics of components of diagnostic culture is defined.

Based on the results of the qualifying practice in the third stage and pedagogical practice in the fourth stage, the hypothesis of positive dynamics in the system of all components of the diagnostic culture of the experimental group students should be confirmed or rejected. Confirmation of all these working hypotheses allows us to talk about the possibility of forming a diagnostic culture of future primary school teachers using the model we have developed. However, the final conclusion about the effectiveness of this model can be made by comparing the system of all components of the diagnostic culture of the experimental group students with the relevant indicators of the control group students. In the course of the experimental work, we used the following methods of data collection: observation, interview, test, assessment and self-analysis of the student's own knowledge, skills and abilities, study of reporting documents on diagnostic research conducted by.

We doubted that small changes in the reflexive state could then be recorded using only meaningful analysis. The task was to find other ways to investigate changes that might have a pedagogical impact on the future teacher’s diagnostic issues. To address this, we have narrowed the boundaries of search to another component of the diagnostic culture, which is as important as knowledge to develop the thinking and consciousness of the teacher conducting diagnostics. Our acceptance of the diagnostic skills of future primary school teachers as criteria for assessment is related to the fact that they can be manifested in empirically defined procedures, actions in diagnostic activities, and assessed by the student himself.

In the process of pedagogical practice in 3-4 stages, we also observed the activities of students, talked to them during group and individual consultations,

assessed the formed diagnostic skills. After the teaching practice, this information was supplemented by the results of the review of the reporting documents on the research assignments. We emphasize that not all 16 diagnostic skills offered by a student for self-assessment in a pedagogical practice can be recorded and evaluated by an external researcher because he or she cannot be a permanent participant or observer of each student's diagnostic activities. Therefore, from the total number of these skills, we selected those that could be called self-assessment and expert assessment. We classified the following as diagnostic skills:

1. Ability to determine the purpose of diagnostic research based on the needs of the educational process.
2. Ability to turn diagnostic goals into school activity and communication goals.
3. Ability to propose and formulate initial hypotheses.
4. Ability to identify events required to study quality, etc. (subject of diagnostics) and indicators characterizing their level of development.
5. Ability to select methodologies and tools appropriate to the purpose and topic.
6. Ability to adapt the finished equipment to specific conditions.
7. Ability to organize diagnostic research.
8. Ability to analyze and measure diagnostic results in accordance with the stated purpose and relate the result to the initial hypothesis.
9. Ability to make an objective pedagogical assessment of established events.
10. Formulation of conclusions and recommendations.

In conducting diagnostic activities, students found it difficult to find the necessary methods independently, and if they did, they focused primarily on their labor intensity and the possibility of reducing the time spent on it - their suitability depends on the age and level of development of students. Therefore, the ability to adapt ready-made techniques to specific conditions is not sufficiently formed.

An analysis of the actual diagnostic activities of prospective teachers has shown that in most cases there is a high self-esteem. On the one hand, this can be explained by subjective reasons related to a reluctance to acknowledge that diagnostic skills are poorly formed. On the other hand, such results may indicate that the students 'reflexive state is not sufficiently developed (similar results were obtained when testing the previous hypothesis. In our opinion, the results of the formation of knowledge and skills in the field of pedagogical diagnostics may be influenced by the trend that has emerged in recent years, as a small number of students majoring in pedagogy are planning to link their professional activities. with the education system.

The results of the study thus reveal one of the most serious problems of teacher training - the need to pay special attention to the development of pedagogical reflection and the formation of a reflective position of future primary school teachers. The study of pedagogical reflection in the context of the diagnostic culture of future primary school teachers provided an additional reason for reflection. Therefore, we proposed a working hypothesis related to improving the

composition of the components of the diagnostic culture among the students of the experimental group.

As a result of experimental work, we have identified different levels of formation and development of each component of culture, depending on the degree of manifestation of certain criteria, indicators and characteristics. Based on them, we described the level of general diagnostic culture. We will look at the level of formation and development of each component of the diagnostic culture of future primary school teachers.

Low degree

The low level of diagnostic thinking of future primary school teachers is characterized by a lack of motivation to carry out mental activity in the field of pedagogical diagnostics. The student does not see the need to organize pedagogical activity on the basis of diagnostics, is not able to set pedagogical goals on the basis of diagnostics. In general, there is a low level of pedagogical knowledge that does not allow for the implementation of theoretical and practical pedagogical thinking. No specific diagnostic information available. If a student has an idea about pedagogical diagnostics, it means that it is based only on daily experience. He cannot use these ideas to create a diagnostic model of the pedagogical object.

Due to the lack of specialized diagnostic knowledge, students at this level of diagnostic thinking are not independent in their opinions about pedagogical objects, they are invited to make diagnoses, they think according to a template, prone to long delays of already known mental actions; does not bring the idea to a logical conclusion. Such thinking is very superficial, the level of consciousness is very low.

Typically, the mental activity of students in the field of pedagogical diagnostics, if any, is carried out at the initiative of school teachers and methodologists who work with students during pedagogical practice and have a negative emotional background. When a student expresses a desire for this activity, he or she does not express a desire. In this case, diagnostic thinking is only a necessary step in the formal completion of the task for pedagogical practice. This reasoning is ineffective because the diagnostic task given to the student does not correspond to his previous experience. The knowledge gained in the process of such thinking is not novel and has no epistemological significance. The presence of students with low levels of diagnostic thinking, in our opinion, is primarily explained by their lack or low motivation for professional pedagogical activity.

Intermediate level

The average level of diagnostic thinking has higher scores than the previous level. The student has the minimum knowledge required to perform mental and practical diagnostic activities. He has a general understanding of pedagogical diagnostics and the stages of its implementation. Since he does not have a clearly built algorithm of diagnostic activity in his mind, it becomes necessary to constantly refer to diagnostic theory. The level of independent thinking is not

high. The student is unable to independently plan and diagnose, interpret empirical data, and form conclusions in extended speech views, and needs templates or samples. Thinking is reproductive in nature; the visual-effective, visual-figurative forms of thinking are imperfect, although they are better developed than the verbal-logical forms.

Due to limited diagnostic knowledge, a student in a pedagogical situation does not always recognize a diagnostic condition that creates diagnostic tasks. A sufficiently high initiative in student thinking is manifested in the need to select diagnostic knowledge, in the independent search for solutions to diagnostic problems. The student's thinking remains relatively inactive, which is reflected in the tendency to organize a new diagnostic work on a previously mastered scenario, regardless of the characteristics of the new object and the diagnostic conditions. The lack of diagnostic thinking of future primary school teachers suggests that his views on diagnostic objects are superficial, and that his diagnostic conclusions are incomplete, despite the fact that he has excessive empirical data as a result of the diagnostic examination.

A student who has reached an average level of diagnostic thinking can generalize his / her experience of diagnostic activities, the experience of school teachers, even if the information obtained is not rich enough to be used to increase the effectiveness of pedagogical activities. The prospective primary school teacher is aware of the possibilities of pedagogical diagnostics as a means of professional development. Expresses readiness to improve knowledge and skills in diagnostics. He rarely takes such an initiative independently.

High level

The high level of diagnostic thinking of future primary school teachers is characterized by a high level of general pedagogical knowledge and diagnostic knowledge about both pedagogical diagnostic objects: knowledge of the role of the diagnostic component in the teacher's activity; knowledge of the goals and objectives of the teacher's diagnostic activities, its functions, essence, specific features, the operational content of diagnostic skills; knowledge in the field of diagnostic theory; levels of pedagogical diagnostics, knowledge of the requirements for the quality of diagnostic data; knowledge of the algorithm of pedagogical diagnostics, the features of its implementation at each stage; the primary school teacher needs to know the ethical aspects of the diagnostic activity.

Theoretical and practical diagnostic thinking is well developed, which allows diagnostic problems to be skillfully posed and solved. A high degree of independence of diagnostic thinking is manifested in the fact that the student, without anyone's help and encouragement, organizes the model of the upcoming pedagogical process on the basis of diagnostics, plans diagnostic procedures, interprets diagnostic data and forms pedagogical diagnosis. The high level of awareness of mental activity by primary school teachers is reflected in the prevalence of verbal-logical thinking relative to intuition. Such diagnostic thinking is often the subject of his thinking. The student tends to reflect. This level of diagnostic thinking is manifested by a positive attitude to mental activity in the

field of diagnostics, the desire to achieve high results in pedagogical activity. The student is satisfied with the results of such activities. But the criticality of his thinking, manifested in his ability to evaluate the results of thinking "from the outside," does not allow him to stop there.

The flexibility of the consciousness of future primary school teachers is confirmed by the speed of transition from one stage of diagnosis to another, the rejection of erroneous hypotheses. The high level of diagnostic thinking already achieved during the period of vocational training is a necessary condition for the conscious implementation of professional and pedagogical activities on the basis of diagnostics in the future. The correspondence of the levels of formation of each component to the levels of formation of the diagnostic culture is given in Table 4. Level of diagnostic culture and its components

Levels of formation of diagnostic thinking	Levels of formation of diagnostic consciousness	Levels of implementation of diagnostic measures	The degree of formation of diagnostic culture
Low	official	modeling	adaptive
Intermediate	methodical	reproductive	reproductive
High	technological	productive	heuristic

We give an overview of each level of formation of the diagnostic culture of future primary school teachers.

Adaptive degree

The adaptive level of diagnostic culture is characterized by a low level of development of diagnostic thinking. This is reflected in the low performance of all its criteria. Weak development of visually-effective diagnostic thinking: students do not create independently and do not show readiness, however, have to recognize emerging diagnostic situations. There is no readiness for independent diagnostic thinking and as a result this determines its low level of productivity. This degree is characterized by ineffective superficial and narrow diagnostic thinking. This is manifested only in the situational need for diagnostic information about the objects and subjects of the pedagogical process. Students organize their pedagogical activity not on the basis of diagnostics, but as a stereotype, according to the ideas and algorithms put forward. the lack of development of theoretical diagnostic thinking determines the underdevelopment of the student's practical diagnostic thinking. His pedagogical diagnostic consciousness is underdeveloped and incomplete.

Pedagogical activity is carried out without paying attention to the goals and objectives as the main guidelines and criteria of this activity. In this case, goals and objectives are set without diagnostics. There is no system of diagnostic knowledge and skills. The pedagogical memory in the scope of the conducted diagnostic experiment was not developed due to the lack of this experience. The student does not understand the expediency of organizing professional pedagogical activity on the basis of diagnostics. There is no pedagogical motivation for diagnostic activities and as a result there is no specially organized activity for the formation and solution of pedagogical diagnostic problems. In

carrying out professional activities, the student refers only to certain elements of the procedures that are part of the diagnosis.

Reproductive degree

The reproductive level of the diagnostic culture is characterized by high rates in all components. Diagnostic thinking has a level of reproductive development, the transition from the reproductive method of thinking to search forms is shown. Visually effective visual-figurative and even more verbal-logical forms of diagnostic thinking have not yet been fully developed. Diagnostic thinking often remains superficially unstable. This level of pedagogical diagnostic consciousness of the student reflects the insufficient level of motivation for diagnostic activities; a small diagnostic experience demonstrates the student's ability to plan diagnostic activities, anticipate his or her results, and evaluate the results.

Insufficient theoretical knowledge in the field of pedagogical diagnostics hinders the development of theoretical and practical diagnostic thinking. The unstable presentation of the algorithm for the implementation of diagnostic measures limits the opportunities for the future teacher to carry out professional activities on the basis of diagnostics. However, a sufficiently high assessment of diagnostic knowledge and skills as a means of optimizing the pedagogical process and a necessary condition for increasing the effectiveness of their professional activities serves as a basis for improving the theoretical and practical preparation of students for diagnostics. activity.

Defining the purpose of pedagogical activity is often of a diagnostic nature. A student of this level does not always strive to carry out professional and pedagogical activities on the basis of diagnostics, enjoys the satisfaction of diagnostic activities, builds it on the basis of previously established demonstrations of forms and algorithms using previously mastered diagnostic tools. things that are already known and previously diagnosed. The student's access to new pedagogical diagnostic facilities that have emerged in new contexts is often done not on his or her own initiative, but on the recommendation of school teachers and university methodologists.

Heuristic degree

The heuristic level of manifestation of the diagnostic culture has higher characteristics of the diagnostic thinking of the mind and activity compared to the previous levels. Diagnostic thinking is effective in nature, with search forms of thinking predominating. An important role in the structure of diagnostic thinking is played by pedagogical reflection, which provides a deep understanding of their own personality and the behavior and actions of students. Due to the high level of development of independent thinking, the student sees the solution of diagnostic problems and strives to find the most perfect ways to solve them. The diagnostic thinking of a prospective teacher at this level is also characterized by sufficient depth, breadth, flexibility, and stability.

The student is well versed in the theory of pedagogical diagnostics, clearly presents the algorithm of diagnostic activity and is ready to diagnose any objects

and subjects of the pedagogical process. Targeted plans and implements diagnostic measures, evaluates the results obtained and uses them for prognostic purposes. Shows a desire to diagnose their personality and professional activities. The student's diagnostic experience at this level is the result of the independent assimilation of previously allowed information.

Conditions and tasks of pedagogical diagnostics. However, the student is not prone to stereotypical solutions to emerging problems. It is highly motivated, which allows us to constantly search for new diagnostic methods and techniques to change the pedagogical reality on the basis of new data obtained. At the same time, it understands the enormous responsibility to study the diagnostic object, analyze the results, and use them. In addition, such a student is willing to share his experience in the field of pedagogical diagnostics with other students.

The high level of value-motivational preparation for diagnostic activities reflects the student's demand for multifaceted knowledge about the subjects and subjects of the pedagogical process and interest in pedagogical diagnostics. A student of this level is characterized by a constant desire to achieve high results in diagnostic activities, to improve their pedagogical activity on the basis of pedagogical diagnostic data. The developed emotional and volitional readiness of the student for diagnostic activities is based on his interest in various methods of improving pedagogical skills and diagnostic culture as one of the types of professional pedagogical culture.

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