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**DEVELOPMENT OF A CRITERIA-BASED EVALUATION SYSTEM BASED
ON THE E.O. OMAROV MATHEMATICAL MODEL FOR THE STUDY
OF THE LAWS OF PHONETICS OF THE KAZAKH LANGUAGE**

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This paper presents, for the first time, a criteria-based assessment system for teaching mathematics in grades 5–6, algebra in grade 7, and geometry in grades 7–11 of secondary school. The proposed system is developed on the basis of the apparatus of formal grammars and a mathematical model in the form of an automaton introduced by E.O. Omarov in 1927. This model, ahead of its time, generalizes principles conceptually close to the Turing machine and was originally designed to study the phonetic laws of the Kazakh language. The E.O. Omarov automaton makes it possible to formalize language as a strictly ordered sequence of chains composed of ordered sets (groups of elements), which forms the basis for constructing the input alphabet of the assessment system. The input alphabet is represented by elements of the updated

mathematics curriculum, including educational programs, subject content, textbooks, and teaching materials developed by the scientific school of A.Ye. Abylkassymova. The automaton model consists of four main components: the input alphabet, the set of states (memory), the output alphabet, and the mapping between them. The combination of the input alphabet and the set of states allows for the formalization of the structure and content of the educational process and its representation as a strictly ordered system of formative and summative assessment procedures (by sections, quarters, and academic year). Assessment results are generated using various methods, the key one being the descriptor-based approach, which ensures that outcomes are represented in the form of the output alphabet. The proposed system is universal in nature and can be adapted to other subjects, such as physics or biology, by modifying the parameters of the input alphabet. Thus, the developed criteria-based assessment system based on the E.O. Omarov automaton represents a theoretically grounded and practically applicable model in the field of pedagogical sciences, with strong potential for further development through the use of modern computer technologies.

Key words: *criteria-based evaluation, automaton, formative and summative assessment, descriptor.*

ҚАЗАҚ ТІЛІНІҢ ФОНЕТИКА ЗАҢДАРЫН ЗЕРТТЕУГЕ АРНАЛҒАН Е.О.ОМАРОВТЫҢ МАТЕМАТИКАЛЫҚ МОДЕЛЬ АРҚЫЛЫ КРИТЕРИАЛДЫҚ БАҒАЛАУ ЖҮЙЕСІН ӨЗІРЛЕУ

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Бұл жұмыста алғаш рет 5–6-сыныптарда математика, 7-сыныпта алгебра және 7–11-сыныптарда геометрия пәндерін оқытуға арналған критериалды бағалау жүйесі ұсынылады. Аталған жүйе 1927 жылы Е.О. Омаров ұсынған формальды грамматикалар аппараты мен автомат түріндегі математикалық модельге негізделген. Бұл модель өз кезеңінен озып, Алан Тьюринге машинасына жақын қағидаларды жалпылайды және бастапқыда қазақ тілінің фонетикалық заңдылықтарын зерттеуге арналған. Е.О. Омаров автоматы тілді реттелген жиындардан (элементтер топтарынан) тұратын қатаң реттелген тізбектер жүйесі ретінде формализациялауға мүмкіндік береді, бұл бағалау жүйесінің кіріс алфавитін құрудың негізі болып табылады. Кіріс алфавиті ретінде математика пәні бойынша жаңартылған білім беру мазмұнының элементтері, оның ішінде оқу бағдарламалары, пән мазмұны, оқулықтар мен оқу-әдістемелік құралдар (А.Е. Әбілқасымова ғылыми мектебі әзірлеген) қарастырылады. Автомат моделі төрт негізгі құрамдас бөліктен тұрады: кіріс алфавиті, күйлер жиынтығы (жад), шығыс алфавиті және олардың арасындағы бейнелеу. Кіріс алфавиті мен күйлер жиынтығының бірлігі оқу үдерісінің құрылымы мен мазмұнын формализациялауға, сондай-ақ оны қалыптастырушы және жиынтық бағалау рәсімдерінің (бөлімдер, тоқсандар және оқу жылы бойынша) қатаң реттелген жүйесі ретінде сипаттауға мүмкіндік береді. Бағалау нәтижелері әртүрлі әдістер негізінде қалыптасады, олардың ішінде негізгісі – дескрипторлық тәсіл, бұл жүйенің шығыс алфавиті түрінде нәтижелер алуға мүмкіндік береді. Ұсынылған жүйе әмбебап сипатқа ие және кіріс параметрлерін өзгерту арқылы физика, биология сияқты басқа пәндерге бейімделе алады. Осылайша, Е.О. Омаров автоматы негізінде әзірленген критериалды бағалау жүйесі педагогикалық ғылымдар саласында теориялық тұрғыдан негізделген және практикалық тұрғыдан қолдануға жарамды модель болып табылады, өрі оны заманауи компьютерлік технологиялар арқылы жетілдіру мүмкіндігі бар.

Түйінді сөздер: *критериалды терезелеу, автоматты формативті және жиынтық бағалау, дескриптор.*

РАЗРАБОТКА СИСТЕМЫ КРИТЕРИАЛЬНОГО ОЦЕНИВАНИЯ НА ОСНОВЕ МАТЕМАТИЧЕСКОЙ МОДЕЛИ Е.О. ОМАРОВА ДЛЯ ИССЛЕДОВАНИЯ ЗАКОНОВ ФОНЕТИКИ КАЗАХСКОГО ЯЗЫКА

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В данной работе впервые представлена система критериального оценивания при обучении математике в 5-6 классах, алгебре в 7 классе и геометрии в 7-11 классах средней школы, разработанная на основе аппарата формальных грамматик и математической модели в виде автомата, предложенного Е.О. Омаровым в 1927 году. Данная модель, опережая своё время, обобщает

принципы, близкие к машине Алана Тьюринга, и первоначально была предназначена для исследования закономерностей фонетики казахского языка. Автомат Е.О. Омарова позволяет формализовать язык как строго упорядоченную последовательность цепочек, состоящих из упорядоченных множеств (групп элементов), что положено в основу построения входного алфавита системы оценивания. В качестве входного алфавита рассматриваются элементы обновлённого содержания образования по математике, включая учебные программы, содержание дисциплины, учебники и учебно-методические материалы, разработанные научной школой А.Е. Абылкасымовой. Модель автомата включает четыре основных компонента: входной алфавит, множество состояний (память), выходной алфавит и отображение между ними. Совокупность входного алфавита и множества состояний позволяет формализовать структуру и содержание учебного процесса, а также представить его в виде строго упорядоченной системы процедур формативного и суммативного оценивания (по разделам, четвертям и учебному году). Результаты оценивания формируются на основе различных методов, ключевым из которых является дескрипторный подход, что обеспечивает получение результатов в виде выходного алфавита системы. Предложенная система обладает универсальностью и может быть адаптирована к другим учебным предметам, таким как физика или биология, посредством изменения параметров входного алфавита. Таким образом, разработанная система критериального оценивания на основе автомата Е.О. Омарова представляет собой теоретически обоснованную и практически применимую модель в области педагогических наук, обладающую потенциалом дальнейшего развития с использованием современных компьютерных технологий.

Ключевые слова: критериальное оценивание, автомат, формативное и суммативное оценивание, дескриптор.

Introduction. The relevance of the topic of developing a system of criterion assessment is that in the OECD materials "Review of national educational policy. Secondary Education in Kazakhstan" (2014) proposed a number of measures aimed at improving the quality, relevance and frequency of assessment in the classroom. In particular, introducing a criteria-based assessment system, defining assessment criteria for high-level thinking skills, training teachers, conducting national standardized testing at the end of each stage of education, creating a system of effective and reliable data collection, etc.

The updated standard implies not only new approaches to the preparation and implementation of subject programs, as well as education and socialization programs, the use of innovative pedagogical technologies in the educational process, but also fundamentally new approaches to assessing the educational results of students. Assessment today should not be a tool for control, but a tool for managing the quality of education. The assessment received by the student should reflect not only subject, but also meta-subject learning results, as well as the formation of personal qualities of the students.

The problem of appraisal activity is one of the most pressing problems both in pedagogical theory and in pedagogical practice. The current assessment system has a number of drawbacks. For example, representing the entire system of criterion assessment in the form of a mathematical model. In this case, one of the problems of evaluating the educational achievements of students can be solved by systematic and visual formation of a criterion assessment of the results of mastering the main educational programs. In addition, in accordance with the requirements of the new education standard for meta-subject results of mastering the main educational program of basic general education, the teacher needs to form students' self-control, self-esteem and decision-making skills, as well as the ability to organize educational cooperation and joint activities with the teacher and peers.

At the socio-pedagogical level, the relevance of the research problem is due to the need to improve the system for monitoring the assessment of training results in order to introduce new federal state educational standards of basic general education (GEF LLC) into the educational process, which leads to the need to revise the system for monitoring and evaluating training results. The requirements for planned training results recorded in the GEF become an integral basis for creating new models, technologies for monitoring and evaluating the subject, meta-subject and personal results of mastering the main educational program and competencies of schools.

The analysis revealed the following contradictions between:

and the requirements of the new GEF for the forms of monitoring and assessment of the achievement of the planned results of the development of the main educational program and the existing traditional control system, which lacks accurate objectivity, diagnostics, and effectiveness at the social and pedagogical level;

and the achieved scientific and theoretical level of validity of assessment and insufficiently developed technology of criterion assessment, which contributes to the formation of educational and cognitive competence of students at the scientific and theoretical level; and the established traditional practice of assessing in the middle school and the lack of a scientifically based model of technology for the criterion assessment of students' educational achievements at the scientific and methodological level.

The subject of the study is a criterion assessment of the activities of 8th grade students in computer science lessons.

The hypothesis of the study of the essence of criterion assessment is the mutual inversion transformation of quantitative and qualitative scales, which will allow to more fully reveal the cognitive capabilities of each students.

Literature review. The problem of criteria-based assessment has been widely studied in both domestic and international pedagogical research. Modern studies emphasize the importance of objective, transparent, and student-centered assessment systems. One of the fundamental works in this area is the study by D.D. Danilov, who developed a technology for assessing educational achievements focused on forming students' ability for self-assessment and self-control [1]. The author emphasizes that assessment should not only measure knowledge but also support the development of cognitive and reflective skills.

A significant contribution to the development of criteria-based assessment in Kazakhstan was made by O.I. Mozhaeva, A.S. Shilibekova, and D.B. Ziedenova [2]. Their methodological guide provides a comprehensive framework for organizing formative and summative assessment, including practical tools for teachers and mechanisms for assigning final grades.

Further development of these ideas is presented in the work of A.S. Shilibekova [3], where detailed instructions for implementing criteria-based assessment in primary education are proposed. The study highlights the importance of clearly defined criteria and descriptors for ensuring objectivity in evaluation.

The methodological guide issued by the National Academy of Education named after I. Altynsarin [4] systematizes approaches to assessing students' academic achievements and emphasizes the role of criteria in improving the quality of education.

The issues of modern assessment technologies are also considered by E.V. Sergeeva and M.Yu. Chandra [5], who analyze various tools such as testing, portfolio, rating systems, and case-based assessment. The authors note that combining different assessment methods increases the effectiveness of monitoring students' progress.

Theoretical aspects of pedagogical system modernization are discussed in the works of Zh.A. Karaev and Zh.U. Kobdikova [6], who propose a technological approach to education, including elements of pedagogical measurement and criteria-based evaluation.

In recent international studies, particular attention is paid to the role of feedback and student engagement in assessment. For example, E. Cano García and M. Fernández-Ferrer [7] emphasize that the use of clear assessment criteria significantly improves the quality of peer feedback and student involvement in the learning process.

The effectiveness of rubric-based assessment is demonstrated in the work of M.A. Tashtoush, N. Shirawia and N.M. Rasheed [8], where it is shown that structured scoring systems positively affect students' academic performance in mathematics.

A comprehensive review of rubric use in education is presented by J.H. Ling [9], who identifies both the advantages (transparency, consistency) and challenges (subjectivity, implementation complexity) of criteria-based assessment.

Research by J. Wertheim, L. Stoll, and C. Zozakiewicz [10] introduces innovative approaches to designing rubrics that enhance teaching and learning processes through clearer evaluation frameworks.

The analysis of modern trends in educational assessment is provided by I.B. Shmigirilova et al. [11], who identify key contradictions between traditional assessment systems and contemporary educational requirements, including the need for objectivity and diagnostic validity.

Classical theoretical foundations of criteria-based assessment are presented in the work of D.R. Sadler [12], who argues that effective assessment requires clearly defined criteria and standards understood by both teachers and students.

In addition, D. Starr-Glass [13] explores metaphorical and conceptual approaches to evaluation, emphasizing the importance of understanding assessment as a complex and multidimensional process.

A critical perspective on criteria-based assessment is offered by B. Hassanpour [14], who analyzes its application in architectural education and highlights both its advantages and limitations.

Finally, the mathematical foundations relevant to this study are rooted in the works of E.O. Omarov [15], who developed a formal model for studying the phonetics of the Kazakh language. This model, further elaborated by M.K. Shuakayev and A.K. Shayakhmet [16], provides the theoretical basis for applying automata theory to educational assessment systems.

Thus, the analysis of the literature shows that, despite the significant number of studies devoted to criteria-based assessment, the issue of its formalization using mathematical models and automata theory remains insufficiently developed, which determines the relevance of the present research.

The purpose of this study is to develop a mathematical model of a criteria-based assessment system using the apparatus of formal grammars and a mathematical model in the form of an automaton. This model is based on the work of E.O. Omarov (1927), originally designed for studying the phonetic laws of the Kazakh language.

The objectives of the study are as follows:

- to analyze the problem of developing and implementing a criteria-based assessment system for students' learning activities in mathematics lessons;
- to describe the language of mathematics using the apparatus of formal grammars;

- to develop a mathematical model of the criteria-based assessment system.

Material and methods.

To achieve the stated goal and objectives, the following research methods were employed:

- *the theory of formal grammars* – used to construct the input alphabet of the criteria-based assessment system in the form of an updated educational standard, including its content and curriculum;
- *the mathematical model of the E.O. Omarov automaton* – applied to describe the structure and key components of the criteria-based assessment system, including input and output alphabets, states, and mapping functions;
- *criteria-based assessment methodology* – used to compare students' educational achievements with predefined, jointly developed criteria aligned with the goals and content of instruction, facilitating the development of universal learning skills;
- *feedback mechanisms* – enabling all participants in the educational process (teachers, students, and parents) to assess the level of learning outcomes and serving as a basis for adjusting the content, methods, and forms of instruction;
- *control methods* – used by teachers to evaluate students' mastery of the studied material and their ability to apply it in practice;
- *comparative analysis* – employed to identify differences between control and experimental groups within the framework of pedagogical research.

Results and Discussion. As it is well known that [15-16], the general mathematical model of E.O. Omarov is given for the study of the laws of phonetics of the Kazakh language, which is presented as follows.

$$O = \{A, V, Q, F\} \tag{1}$$

where A – input alphabet

$$A = \{A_1, A_2, \dots, A_p, \dots, A_n\} \tag{2}$$

$$V = \{V_1, V_2, \dots, V_p, \dots, V_n\} \text{ – output alphabet} \tag{3}$$

Q – set of states

$$Q = \{q_1, \dots, q_n\} \tag{4}$$

F-set of Maps between A – input alphabet
and V – output alphabet

$$F : A_i \rightarrow V_i \ (i = 1, 2, \dots, n) \tag{5}$$

As is well known [15-16], an automaton (computer) has the following main properties: it is imperative to have input and output alphabets, memory and mapping between input and output.

In [17-21], the mathematical model of the automaton E.O. Omarov was applied, or speaking with a computer term, for the process of Latinization and the law of syngarmonism of the Kazakh language representing the models of translators; From the mathematical model of E.O. Omarov for the study of the phonetics of the Kazakh language follows a model for describing the law of syngarmonism.

The left part or the input alphabet $A = \{A_1, A_2, A_3, A_4, A_5\}$ consists of the following sets: course program, A_1 – course content, diagnostics, A_2 - a set of control tasks, A_4 – methodological provision with literature, A_7 – tasks on SOC and A_7 - tasks on SOQ. And the output alphabet $V = \{V_1, V_2, V_3\}$ consists of the following sets: V_1 - the results of formative assessment (control works), V_2 - the results of SOC and V_3 - the results of SOQ. summative assessment.

Denote by

A_{ijk}^{11} – multiple tasks for formative evaluation,

A_{ijk}^{12} – multiple tasks for summative evaluation,

V_{ijk}^{11} – set of formative evaluation results.

V_{ijk}^{12} – a plurality of results of the summative evaluation.

K_{ijk}^{11} – a plurality of feedback corrections for formative evaluation,

K_{ijk}^{12} – a plurality of feedback corrections for the summative estimation,

A_{ijk}^3 – multiple tasks for quarter assessment,

- V_{ijk}^{l2} – multiple quarter results,
- K_{ijk}^3 – multiple feedback corrections for the quarter mark,
- M_{ij1}^3 – set of moderations after the first quarter,
- M_{ij2}^3 – set of moderations after the second quarter,
- M_{ij3}^3 – set of moderations after the third quarter,
- M_{ij4}^3 – set of moderations after the fourth quarter,

where the i index i denotes the class number, j is the subject number, if $j = 1$, then this is mathematics, $j = 2$ is algebra, $j = 3$ is geometry, k are the numbers of quarters in the educational process, $k = 1, 2, 3, 4$, l are the numbers of sections, with $m = 1$ this is formative assessment, $m = 2$ is summative assessment per section, $m = 3$ is summative assessment per quarter.

Remark. Communication between input and output alphabets is carried out according to automatic display (5).

We got a lot of inputs and outputs for the E.O. Omarov model. Now we have to make a representation of the set of states, which is called the automaton memory.

Due to the fact that the educational process in secondary school consists of four quarters, then for formative assessment there is a presentation

$$A_{ijk}^{l1} UV_{ijk}^{l1} = A_{ij1}^{l1} UV_{ijk1}^{l1} \cup A_{ij2}^{l1} UV_{ijk2}^{l1} \cup A_{ij3}^{l1} UV_{ijk3}^{l1} \cup A_{ij4}^{l1} UV_{ijk4}^{l1} \tag{6}$$

Similarly, for summative evaluation by sections, there is a representation

$$A_{ijk}^{l2} UV_{ijk}^{l2} = A_{ij1}^{l2} UV_{ij1}^{l2} \cup A_{ij2}^{l2} UV_{ij2}^{l2} \cup A_{ij3}^{l2} UV_{ij3}^{l2} \cup A_{ij4}^{l2} UV_{ij4}^{l2} \tag{7}$$

Now, for formative evaluation, we form a set of states $Q = \{q_0, q_1, q_2, q_3, \dots, q_l\}$ that has no

Now, for formative and summative evaluations, we form a set of states $Q = \{q_0, q_1, q_2, q_3, \dots, q_l\}$ that has not yet been defined.

Based on the criteria-based assessment framework, formative assessment is systematically followed by summative assessment. Accordingly, the sets of states and the corresponding mappings can be defined as follows.

- When the parameter is changed, where n is the number of partitions in the first quarter,
- p – number of sections in the second quarter,
- r – number of sections in the third quarter,
- s – number of sections in the fourth quarter,
- $L = n + p + r + s$ for input and output sets.

Let q_0 – initial state of the machine,

We formulate the following theorem for criterion evaluation

Theorem E.O. Omarov. In the general case, the mathematical model of criterion evaluation is presented in the following form $\{A_{ijk}^{lm}, Q, V_{ijk}^{lm}, F_m\}$ (8), where A_{ijk}^{lm} is the input alphabet V_{ijk}^{lm} - output alphabet $Q = \{Q_f \cup Q_s \cup Q_q\}$, where $Q_f = \{q_0, q_{11}, q_{12}, \dots, q_{1l+1}\}$ states of formative evaluation $Q_s = \{q_{21}, q_{22}, \dots, q_{2l}\}$ states of summative estimation (10) $Q_q = \{q_1, q_2, q_3, q_4, q_5\}$ where q_1, q_2, q_3, q_4 estimation states by quarters, and q_5 –za year.

Mappg F_m ($m = 1, 2, \dots, 2l + 5$), between the inputs and outputs the system will compose a number equal to $2l+5$.

Proof: As it was previously noted that the criterion assessment consists of formative and summative assessments, an algorithm for constructing the input and output parameters of the system (1) was presented. (5), to prove this theorem, it is necessary to describe the sets of states for formative and summative estimates and corresponding mappings/ Based on criterion evaluation technology, based on criterion evaluation technology, formative evaluation follows strictly summative evaluation. We can define sets of states and mappings represented by formative evaluation follows strictly summative evaluation. We can define sets of states and maps.

Our task is to accurately determine their number. Therefore, we will consider the following parameter.

- When the parameter is changed, where n is the number of partitions in the first quarter,
- p – number of sections in the second quarter,
- r – number of sections in the third quarter,
- s – number of sections in the fourth quarter,
- $L = n + p + r + s$ for input and output sets.

Thus, according to the criterion assessment for the academic year for any subject and class, the number of states is presented as follows.

Example 1. How many states can be obtained in the subject of mathematics of grade 5. Since in this class the submitted subject is $l = 10$ and is divided into quarters in the following sequence (3,1,3,3).

Solution. According to the condition of the problem, the formative assessment in the first quarter contains 3 sections. In the second – 1. In the third -3 and in the fourth – 3 sections. Then, based on the previously presented material, we can state that 11 states can be formed by formative evaluation, including the initial state in the following form.

$$Q_F = \{q_{01}, q_{11}, q_{12}, \dots, q_{111}\} \quad (11)$$

For summative estimation, the procedure for finding states is completely similar to formative estimation, as a result of which we will get 10 states.

$$Q_S = \{q_{21}, q_{22}, \dots, q_{210}\} \quad (12)$$

Assessment for quarters in the school year will be only 4 states.

$$Q_q = \{q_1, q_2, q_3, q_4, q_5\} \quad (13)$$

In total, it turns out that 25 states can be obtained in the subject of mathematics in grade 5.

Thus, we proved that E.O. Omarov's mathematical model with input and output alphabets in the form of sets, with automatic mapping between input and output and many states (memory) is an automaton for criterion evaluation. Thus, E.O. Omarov's automaton is a rather complex system.

Conclusions. The scientific novelty of the study is determined by the obtained theoretical and applied results aimed at the formalization of a criteria-based assessment system using a mathematical framework. For the first time, a mathematical model of a criteria-based assessment system based on the E.O. Omarov automaton is proposed. The model includes a formalized representation of the input and output alphabets, a set of states, and mappings between them. This approach makes it possible to describe formative and summative assessment processes within a unified and structured system.

The methodological foundations for the technologization of the educational process are substantiated from the standpoint of formal grammar theory and automata theory. This ensures increased objectivity, transparency, and reproducibility of assessment procedures. The developed model incorporates an algorithmic framework that enables the formalization of the construction of criteria-based assessment systems and their adaptation to various subjects and levels of education. It has been established that the application of the proposed model ensures the consistency and logical completeness of assessment procedures and contributes to the development of students' universal learning skills through the integration of feedback mechanisms and a descriptor-based approach.

The practical significance of the study lies in the possibility of applying the developed model in both secondary and higher education. The model has been tested in the implementation of bachelor's, master's, and doctoral programs across a range of disciplines related to modeling, automation, and assessment of educational outcomes, which confirms its universality and applied potential. Thus, the proposed mathematical model of criteria-based assessment based on the E.O. Omarov automaton represents a theoretically grounded and practically applicable tool aimed at improving the system for assessing students' educational achievements in the context of educational modernization.

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SOCIAL AND PEDAGOGICAL COMPETENCE OF SPECIAL EDUCATION TEACHERS: VIEWS OF EMPLOYERS

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Currently, the education system is expected to meet the diverse needs of all learners and ensure equal opportunities. The effective implementation of special and inclusive education largely depends on the socio-pedagogical competence of special education teachers. Employers' expectations are becoming increasingly complex, requiring future specialists not only to possess academic knowledge and methodological proficiency but also to demonstrate digital competencies, adaptability, and innovative approaches. Therefore, assessing the professional preparation and social-pedagogical competence of special education teachers is a pressing issue in training specialists who meet the demands of the labor market. This study aims to analyze the social and pedagogical competencies of special education teachers from the perspective of employers and to determine their level of satisfaction with the quality of graduates' professional preparation. The research is based on survey data collected from employers, a review of the literature, and comparative analysis. To evaluate the professional readiness of future special education teachers, the research examined the levels of practical and theoretical training, personal qualities, and the development of social-pedagogical skills. The findings reveal insufficient practical training within the system of preparing special education teachers, a shortage of learning materials in the Kazakh language, and challenges in mastering contemporary methods. Furthermore, the study highlights the importance of communication, psychological support, legal and regulatory knowledge, and the application of innovative methods in graduates' professional competencies. Based on the obtained data, recommendations were made to increase the proportion of practical training sessions, implement dual education systems, introduce new technologies, and enhance the development of social-pedagogical competencies in training future special education teachers.

Key words: special education, special education teacher, competence, social-pedagogical competence, practical readiness.

АРНАЙЫ ПЕДАГОГТАРДЫҢ ӘЛЕУМЕТТІК-ПЕДАГОГИКАЛЫҚ ҚҰЗІРЕТТІЛІГІ: ЖҰМЫС БЕРУШІЛЕРДІҢ КӨЗҚАРАСТАРЫ

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