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## Readiness of future chemistry teachers to work with special educational needs children in an inclusive educational environment

**Abstract.** Future chemistry teachers' readiness for inclusive education of children with special educational needs is an integral, personal, and professional characteristic, reflecting the value-semantic orientations, knowledge, and experience that allow to successfully carry out pedagogical activities in an inclusive educational environment. The structure of readiness includes four components: motivational as a set of value orientations, meanings, and motives of professional activity, acceptance of the values of inclusive education; cognitive as a set of theoretical and methodological knowledge in the field of inclusive education; effective as a set of analytical-predictive, project, correctional-pedagogical and communicative skills for the implementation of an inclusive educational process; reflexive as a set of professionally significant qualities of a teacher: empathy, responsibility, reflection. The structural-dynamic model of forming of teachers' readiness for inclusive education of children with special educational needs reflects the essential properties, connections, and relationships of the process under study and includes the following components: target block, procedural-technological block, criteria-evaluation block, performance-correction block.

**Keywords:** professional training, readiness, chemistry teacher, inclusive education, integration, the structure of readiness, components, structural-dynamic model, stages, blocks, methods, techniques, forms, means, indicators and levels of readiness, diagnostic tools.

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### Introduction

One of the current trends in Kazakhstan's educational policy is the implementation of the ideas of inclusive education, which involves teaching children with a variety of special educational needs. At the same time, the most resonant issues are the organization of education of children with health disabilities together with regulatory developing peers. Every year the number of students in these categories increases.

This situation has been made possible by the initiative of parents of children with disabilities, defending their children's rights to quality education and social adaptation on a par with their ordinary peers.

For many years in Kazakhstan, the education of children with disabilities was carried out in special (correctional) schools that have the necessary conditions for teaching and correcting violations in the development of children. Teachers working in such schools had special

(defectological) education. In this situation, teachers of general education organizations did not need to improve their teaching experience to work with this category of students. Currently, the introduction of the professional standard of the teacher (2013) expands the range of requirements for the activities of teachers, including the teaching and upbringing of children with disabilities to know the features of the psychophysical development of children with various types of disabilities, special conditions, and approaches to their teaching, to know how to adapt educational material taking into account the perception of children with disabilities and students with normative development, be able to manage their interaction in the educational process, together with specialists of psychological and pedagogical support, assist a child with special educational needs and his family, etc. The main directions of teacher training for the education of students with disabilities are reflected in the activities of the «Comprehensive program for improving the professional level of teaching staff in general education organizations» (2014). Currently, several Kazakhstani's Universities by the standard of higher professional education have started training teachers and specialists in the field of inclusive education in the direction of «Psychological and Pedagogical education». But the need to include children with disabilities in the educational process along with normatively developing peers must be met today.

The research of Kazakhstani's and foreign psychological-pedagogical literature was conducted, on the one hand, in the direction of studying issues related to modern trends in the development of inclusive education for children, on the other hand - to identify effective models for preparing teachers for inclusive education. Modern philosophical, methodological, and psychological-pedagogical approaches to teaching children with special educational needs in general education organizations differ significantly. Formally, we can distinguish inclusive education as a natural process of development of the special education system and its convergence with general education, which

is reflected in the works of A. A. Dmitriev, D. V. Zaitsev, N. N. Malofeev, N. M. Nazarova, M. I. Nikitina, B. p. Puzanov, N. D. Shmatko, and others. From the point of view of the authors who hold a different opinion, inclusive education is not a new system, but a qualitative and systematic change in the system of General education as a whole (S. V. Alyokhina, E. N. Kutepova, E. G. Samartseva, Yu.V.Shumilovskaya, etc.).

Even though various aspects of the problem of professional training of teachers to implement educational inclusion are in the focus of many authors, it should be noted that research on the formation of readiness of a teacher-chemist to implement inclusive education of children and organizational and pedagogical conditions that affect the effectiveness of this process have not been studied enough.

Thus, the trends of the current stage of development of educational inclusion in Kazakhstan and the system of professional development of teachers in the field of inclusive education allowed us to formulate the following contradictions:

- between the objective need of society for a teacher who successfully implements professional activities in the context of inclusive education of children, and the lack of readiness of teachers to effectively implement inclusive practices;
- between the need to form a teacher's readiness for inclusive education of children and the lack of development of methodological approaches and pedagogical technologies for its formation.

The identified contradictions, the insufficient theoretical development of this issue in the psychological and pedagogical literature, and its great practical significance allowed us to formulate the problem of research: «What are the organizational and pedagogical conditions and technologies for forming teachers' readiness for inclusive education of children?». This problem led to the choice of the research topic: "Readiness of future chemistry teachers to work with special educational needs children in an inclusive educational environment".

## Material and methods

The problem of formation of teachers-chemists' readiness for inclusive education of children requires revealing the essence and content of the concepts «inclusion», «inclusive education», as well as the ratio of integrated and inclusive education. Inclusive education, which involves the education of children with disabilities (HIA) together with their developing peers, is based on the adoption by teachers of the principles, approaches, and values of inclusive education, which determine the attitude of society to a «special» child. In the international professional community, the term “inclusive education” was officially enshrined in 1994 by Convention on the Rights of persons with disabilities and the Salamanca Declaration on principles, policies, and practical activities in the field of education of persons with special needs.

Despite the widespread use of the terms «inclusion» and «inclusive education», the question of defining the essence of these concepts is still debatable, which, in our opinion, is due to a variety of methodological approaches of researchers to this phenomenon. The evolution of an inclusive approach to education was based on a change in society's understanding of disability: the medical model that assumed segregation of people with disabilities, which existed until the mid-1960s of the XX century, was replaced by a model of normalization, which lasted until the mid-1980s of the XX century. This model assumed the integration of people with disabilities into society. Currently, there is a tendency to switch to a social model, according to which barriers and problems in teaching a child with disabilities can be created by the imperfection of the public education system and relationships with other people [1]. According to the social model on which inclusive education is based, «the cause of disability is not in the disease itself; the cause of disability is the existing physical («architectural») and organizational («relational») barriers, stereotypes, and prejudices in society» [1, p.13]. According to S. V. Alyokhina (2011), inclusion is «a social concept that assumes an unambiguous understanding of the goal-the humanization

of public relations and the acceptance of the right of persons with disabilities to quality joint education» [2, p. 65]. In its most general form, inclusive education is defined as a new perspective strategic direction of educational policy and practice, which largely affects the foundations of general education [3].

International experience in the development of the system of inclusive education has been implemented since the 1960s to the present day and is characterized by a long-term strategy, consistency, continuity, step-by-step and comprehensive approach to its realization. The analysis of foreign experience in implementing inclusive education shows that its development in different countries went from the formation of a civil position aimed at realizing the right to education of children with disabilities, to the development of normative legal acts and discussion in interested circles of the problem of organization of inclusion. According to N.N. Malofeev (2009), only after these stages does the transition to the practical embodiment of the ideas of inclusive education take place [4]. In the process of introducing inclusive education there are not only difficulties of the organization, the so-called barrier-free environment: the presence of ramps, one-story school design, the conversion of public places, the introduction of specialists-defectologists, but also difficulties of social properties, which consist «in the common stereotypes and prejudices, including the willingness or refusal of teachers, schoolchildren, and their parents to accept integration. In this regard, the practical realization of the ideas of inclusive education, primarily, involves the creation of an inclusive culture of an educational institution that is associated with the adoption of the school community values of inclusion, understanding of the need to support individuality, implementation of development needs of every child regardless of his starting opportunities. An inclusive culture is the basis for ongoing reforms, contributes to the creation of a safe, tolerant community that shares the ideas of cooperation, encourages the development of all its participants, and changes the policy and practice of education and teaching.

In pedagogy, the idea of inclusive education as a pedagogical system that organically combines special and general education belongs to L.S. Vygotsky, who was one of the first to justify the need for an inclusive approach. He wrote that for all its advantages, a special school, instead of taking a child out of an isolated world, usually develops skills that lead to greater isolation [5]. A similar opinion was expressed by P. V. Romanov: «Special education only seems to be a defender of vulnerable children, providing them with educational and medical services. Special education, by segregating children with disabilities, keeps and rationalizes the further marginalization of those whom it supposedly helps» [6, p. 4]. The humanistic alternative is integrated or inclusive education, which significantly reduces the processes of marginalization of children with disabilities. However, recognizing the negative aspects of special education in teaching children with disabilities, we should follow the opinion of L. S. Vygotsky, who warned that «hasty widespread introduction of integration ideas and even more attempts to replace the system of special education with total integration may lead not to equality of rights, but to the loss of opportunities for children with special educational needs to get an adequate education» [5, p.52]. For example, in the UK, several counties, following the path of total integration, destroyed the infrastructure of special education, which resulted in the loss of opportunities for several categories of children to receive adequate education and caused irreparable damage to their socio-cultural development. The implementation of the ideas of inclusion in the education of children with disabilities does not exclude but changes the role of special education. As A. Dyson points out, within the social model on which the idea of inclusion is based, the role of special education can be seen as a way in which socially successful members of society can support and improve ways to further marginalize those who need help. In contrast, in the «medical» model, special education creates opportunities for a different way of «accommodating» those children whose

needs may be too complex and difficult to meet in general education [7].

To understand the essence of inclusive education of children, it is important to analyze the ratio of inclusive and integrated education in the system of general education of children. So, according to Y. V. Shumilovskaya, the essence of inclusive education as general education is «education for all, in terms of adaptation to the diverse needs of all children that provides access to education for children with disabilities» [8, p. 10]. According to A. John and P. Bayless, «inclusion are more than integration ... suggests recognizing the phenomenon of disability as part of the experience of mankind and treating it as a central issue in planning services that serve a person» [9, p. 17]. Inclusion, unlike integration, involves the decision of problems of education of children with disabilities by adapting the educational space of the school environment to the needs of each child, including reforming the educational process, namely, remodeling classrooms so that they meet the needs of all children, adequate resources according to the type of deviation of a child's development, psychological and methodological readiness of teachers and other. About educational activities, according to N. P. Artyushenko, the difference between inclusion and integration is, «first, in adapting the educational environment to the individual characteristics of the child, and not the child to the educational environment. Secondly, the availability of education for all, while integrated education is effective only for a part of children whose level of psychophysical development corresponds to age or is close to it. Third, the use of the resource is not only for adults and children but also for children's joint activities. Fourth, if during integration the child is simply allowed to be together with healthy children, then in inclusion the teacher builds special actions to organize joint activities of children with disabilities and ordinary children» [10, p. 13]. Several researchers claim that inclusive education is currently an alternative to traditional differentiated teaching and various forms of integrated teaching. At the same time, integrated



teaching is intermediate between differentiated and inclusive teaching.

Researchers describe the essence of inclusive education and reflect its various components. Foreign researchers have identified several organizational and pedagogical conditions for including children with disabilities in the social and educational environment of healthy peers, which, in their opinion, ensures the success of inclusive educational activities of the teacher. For example, "accept students with developmental problems" as any other children in the class"; include students with normal and impaired development in joint activities, but at the same time set and solve different pedagogical tasks; involve all students without exception in cooperative forms of teaching and group problem-solving; widely use various strategies of collective interaction of students in the inclusive educational process: games, joint projects, laboratory research, etc." [11, p.101].

The American scientist D. L. Ryndak identified the following terms «inclusive education», which the first three are dominant: children with disabilities are in the natural conditions of a comprehensive secondary school; children with disabilities and healthy children study together in a single educational program; the necessary assistance and support are provided to children with HIA directly in general education classes; all children of the class are unique and accepted by each other; the team of teachers plans and implements educational strategies aimed at the successful inclusion of children with disabilities in the educational process [12, p. 101-116].

It is important to solve the problem of methodological support for inclusive education of children. Foreign researchers point to the need to observe the differentiation of teaching methods for students with normal and impaired development (A. Broderick, H. MehtaParekh, and D. KimReid). Other researchers have noted the need for the implementation of individual educational plans (J. Kurth, A. M. Mastergeorge, etc.).

One of the priorities in the foreign practice of inclusive education is the idea of using various methods of pedagogical support and

accompaniment for children with disabilities. From these positions, the American researchers V. Volonino, N. Zigmond offer several options for co-education in the conditions of inclusion:

- providing students with disabilities with a specially trained teacher and, if necessary, an assistant accompanying these children;
- a «separate teaching space» in which students with disabilities can move from one teacher to another to master different educational areas;
- «parallel teaching», which requires teachers to jointly draw up a plan of educational activities. However, teachers determine their strategy for working with each group of students, depending on the presence or absence of developmental disorders;
- «alternative teaching», which involves the possibility of intensive training of children with disabilities in the conditions of fewer students per teacher, while another teacher works with a large group;
- «team teaching», in which teachers conducting individual classes alternate [13].

The current stage of development of inclusive education in practice is defined as a model of predominantly «absorption» of correctional educational institutions by general education institutions. In satisfying the special educational needs of children with disabilities, it is more likely to enrich the system, rather than absorb some forms by others, as well as the variability and choice of integration forms from several options that allow to take into account the features and satisfy the needs of a particular child with disabilities. According to researchers, without the support of correctional teachers, inclusion in general education will never become a high-quality and sustainable process of changing educational conditions for children with developmental disabilities.

The scientific literature review on the problem of research allowed us to determine the author's position on inclusive education of children at the present stage of development of inclusive practice.

**Inclusive education** is understood by us as a focused process of teaching, education, and

*development of children with disabilities in conjunction with normatively developing children; as a specially organized interaction of teachers with ordinary children and children with disabilities in the space of a general educational institution based on an adaptive educational environment, which is based on psychological, medical and pedagogical support, the object of which is not only a child with disabilities but any other child, in need of support.*

The introduction of inclusive educational practices is associated with solving the problem of professional readiness of teachers to teach children with disabilities with normally developing peers.

In Kazakhstan's education, professional requirements for a teacher in the context of inclusion are normatively fixed in the new professional standards of a teacher, according to which the professional activity of a teacher is filled with new competencies related to working in the implementation of inclusive education. New professional competencies of a teacher are associated with their readiness to accept different children, regardless of their real educational opportunities and features of mental and physical health; with a willingness to interact with other specialists within the framework of a psychological, medical, and pedagogical consultation; with the ability to make together with other specialists programs of individual development of the child, with the possession of special techniques that allow conducting correctional and developmental work, etc. Thus, the teacher of inclusive practice should have pedagogical skills to organize joint teaching and interaction of ordinary children and children with disabilities as well as the ability to work in a team of specialists who provide psychological, medical, and pedagogical support for the educational process of children with various educational needs.

From the point of view of the functional approach, readiness for activity is studied as a special mental state that ensures the success of professional tasks. From the point of view of the personal-activity approach, readiness is considered as a professionally important quality of personality, as a «dynamic structural-level

education of the individual, which is a unity of professional self-consciousness, motivational-value and content-procedural components» [14, p. 26]. Both functional and personal approaches define readiness, on the one hand, as a quality of personality that determines attitudes to the professional situation and tasks, on the other - as an active state of the individual that causes activity. Understanding the professional readiness of teachers for inclusive education in modern conditions is carried out in line with the competence approach, which integrates the personal-activity approach. From the point of view of the competence approach, inclusive readiness is defined as «a complex integral subjective quality of the individual, based on a set of competencies and determining the possibility of effective professional and pedagogical activity in current conditions» [15]. V. V. Khitryuk in the content of inclusive teacher readiness includes a system of academic, professional and socio-personal competencies that determine the ability and readiness to successfully implement the functions of professional-pedagogical activity and achieve educational results, taking into account the needs of all subjects of inclusive educational space [15]. He pays special attention to the teacher's inclusive readiness of personal competence, which is understood as «the ability to take responsibility for one's personality and others, as well as the ability and desire to comprehend one's actions and act from an ethical point of view». The competencies related to the correctional-pedagogical, and diagnostic-advisory activities of a teacher about children with disabilities are important.

*The diagnostic component* includes identifying the causes of difficulties in educational activities, communication, and interaction in a group of children for consideration in the development of individual educational programs. *The constructive-design component* is aimed at selecting and adapting educational material, methods, conditions, and means of teaching. The function of *the organizational component* is to include students in various types of joint activities and communication, the development of the parental initiative. *The communicative component*

**Table 1.** Structural-dynamic model of forming the readiness of future chemistry teachers for inclusive education of children with the special educational needs

|                                                                                                                                                               |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Taking into account the social order of parents and general education institutions to organize inclusive education and train teachers for its implementation. |                                                                                                                                       | Requirements of normative documents to the conditions of personnel provision of inclusive education, to the content and results of professional training of teachers-chemists for inclusive education. |                                                                                                 |
| Target block                                                                                                                                                  |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| Goal: formation of teachers-chemists’ readiness for inclusive education of children                                                                           |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| Approaches: systematic, personality-oriented, activity-based, axiological, competence-based                                                                   |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| Procedural-technological block                                                                                                                                |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| Stages of forming of future teachers-chemists’ readiness for inclusive education of children with the special educational needs                               |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| - Motivational-diagnostic;                                                                                                                                    |                                                                                                                                       | Analytical-design;                                                                                                                                                                                     |                                                                                                 |
| - Differentiation-activity;                                                                                                                                   |                                                                                                                                       | Individual and group reflection;                                                                                                                                                                       |                                                                                                 |
| - Integrative-activity.                                                                                                                                       |                                                                                                                                       | Corrective-advisory.                                                                                                                                                                                   |                                                                                                 |
|                                                                                                                                                               |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| Methods of teaching                                                                                                                                           | Forms of teaching                                                                                                                     |                                                                                                                                                                                                        | Means of teaching                                                                               |
|                                                                                                                                                               | Group                                                                                                                                 | Individual                                                                                                                                                                                             |                                                                                                 |
| organization and self-organization of educational activities, stimulation, motivation, control, and self-control of teaching effectiveness.                   | lecture, seminar, conference, discussion, debate, master class, pedagogical workshop, training, situation modeling, round table, etc. | self-diagnosis, self-analysis, self-assessment, dissemination of experience, supervision, training, expertise, self-education, etc.                                                                    | textbooks, films, video materials of lessons, books, computers, multimedia sites, portals, etc. |
| Criteria and evaluation block                                                                                                                                 |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| Criteria for teachers-chemists’ readiness for inclusive education of children with the special educational needs                                              |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| motivational readiness                                                                                                                                        | theoretical and methodological readiness                                                                                              | practical readiness                                                                                                                                                                                    | personal readiness                                                                              |
| The levels of readiness of teachers-chemists for inclusive education of children with the special educational needs                                           |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| low                                                                                                                                                           | medium                                                                                                                                |                                                                                                                                                                                                        | high                                                                                            |
| Performance-correction block                                                                                                                                  |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |
| Formed readiness of teachers-chemists for inclusive education of children                                                                                     |                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                 |

contributes to the establishment of pedagogically appropriate relations between the teacher and the participants of the inclusive educational space and social partners. *The reflexive component* allows analyzing the effectiveness of teaching activities. The functions of *the predictive component* include

designing differentiated educational outcomes and predicting the development prospects of children considering individual capabilities and special educational needs [15].

Thus, the theoretical analysis of existing research has allowed us to determine the

understanding of the essence of **the teacher's readiness for inclusive education** of children as an integral, personal, and professional characteristic that reflects the value and semantic orientations, knowledge, and experience that allow us to successfully carry out pedagogical activities in interaction with ordinary developing children and children with disabilities in the space of an educational organization.

In the structure of the teacher's readiness for inclusive education of children, we have identified *motivational, cognitive, affective, and reflexive components*.

**Findings and discussion.** The purpose of this article is to theoretically justify the methodological development of the process of forming the readiness of future chemistry teachers to work in conditions of inclusive education.

Created pedagogical model is an integrated system based on the methodology of systematic, personality-oriented, activity-based, axiological, and competence-based approaches that determine the relationship between all components of the process under study: target, content, process-technological, criteria-evaluation, and performance-correction blocks (Table 1).

**The target block** of the model includes a goal, which is the formation of teachers-chemists' readiness for inclusive education of children. The content block is determined by the social order of parents for the organization of inclusive education of children and to request General education institutions for training teachers for its implementation considering modern requirements to the conditions of the staffing of inclusive education, the content, and results of teachers' training.

**Procedural-technological block** of the structural-dynamic model of the process of forming teachers-chemists' readiness for inclusive education of children is aimed at solving the following tasks:

- expanding teachers' knowledge about the theory and methodology of inclusive education;
- familiarizing with the legal framework of inclusive education;
- forming of practical skills to create special conditions for training, education, and

development of children with disabilities in educational organizations, taking into account the peculiarities of their psychophysical development;

- training of the techniques for designing adapted basic educational programs based on the principles of implementing personality-oriented and differentiated approaches;

- forming of practical skills to apply special pedagogical approaches, tools, forms, and methods of working with children with disabilities in inclusive education;

- expanding teachers' understanding of techniques for psychological-pedagogical support of children with disabilities (hearing, vision, intelligence, musculoskeletal system, speech, autism spectrum disorders) in inclusive education;

- training in interaction in a team of teachers and social partners to coordinate the activities of subjects of educational relations to create psychological and pedagogical conditions that ensure the functioning of the educational organization in a mode of tolerance for children with disabilities;

- forming of the ability to reflect on professional activities and design an individual trajectory of personal. **The criteria and evaluation block** of the model includes criteria, indicators, and levels of formation of teachers-chemists' readiness for inclusive education of children.

By the concepts of the essence and components of teachers' readiness for inclusive education of children, the following levels are identified:

1. Low level of professional readiness of teachers
2. Average level of professional readiness of teachers
3. High level of professional readiness of teachers

Testing of the model was preceded by an ascertaining experiment, during which the initial state of formation of readiness of teachers for inclusive education of children was studied. To study the level of readiness of future teachers-chemists for inclusive education of children, an assessment and criteria-based diagnostic tool was developed.



## Conclusion

The main purpose of this study was to provide theoretical justification and experimental testing of the effectiveness of the model of forming the readiness of future chemistry teachers for inclusive education of children.

The analysis of scientific and practical works on the problem of professional training of teachers for inclusive education of children allowed us to determine the author's position on the essence, structure, and content of teachers' readiness for inclusive education of children.

The idea of teachers' readiness for inclusive education of children is based on the theoretical views of the system, personality-oriented, activity-based, axiological, and competence-based approaches.

*The readiness of teachers for inclusive education of children* is defined as an integral, personal, and professional characteristic that reflects value and semantic orientations, knowledge, and experience that allow them to successfully carry out pedagogical activities in an inclusive education environment.

The structure of readiness includes four components: *motivational* as a set of value orientations, meanings, and motives of

professional activity, acceptance of the values of inclusive education; *cognitive* as a set of theoretical and methodological knowledge in the field of inclusive education; *effective* as a set of analytical-predictive, project, correctional-pedagogical and communicative skills for the implementation of an inclusive educational process; *reflexive* as a set of professionally significant qualities of a teacher: empathy, responsibility, reflection.

A structural-dynamic model of forming the readiness of future chemistry teachers for inclusive education of children has been developed.

The model includes the following components: *target block*, which is aimed at forming the readiness of future chemistry teachers for inclusive education of children; *procedural-technological block* includes the content of teachers' training, stages, methods, forms, means of teaching; *criteria and evaluation block* and *performance-correction block* reflecting the formation of teachers' readiness for inclusive education of children and the prospects for further professional development and self-education.

The experimental results of the study confirmed the effectiveness of a created model of readiness of future chemistry teachers for inclusive education.

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### **Болашақ химия пәнінің мұғалімдерін инклюзивті білім беру жағдайында ерекше білім алуды қажет ететін балаларды оқытуға дайындау**

**Аңдатпа.** Болашақ химия пәні мұғалімінің ерекше білім беру қажеттіліктері бар балаларды инклюзивті оқытуға дайындығы – бұл инклюзивті білім беру жағдайында педагогикалық іс-әрекеттерді ойдағыдай жүзеге асыруға мүмкіндік беретін құндылық-семантикалық бағыттарды, білім мен тәжірибені көрсететін ажырамас, жеке және кәсіби сипаттама. Бұл сипаттама төрт компонентті қамтиды: кәсіптік қызметтің құндылық бағдары, мағыналары мен мотивтерінің жиынтығы ретінде мотивациялық, инклюзивті білім беру құндылықтарын қабылдау; инклюзивті білім беру саласындағы теориялық және әдістемелік білім жиынтығы ретінде когнитивті; аналитикалық жиынтық ретінде тиімді инклюзивті білім беру үдерісін жүзеге асырудың болжамдық, жобалық, коррекциялық-педагогикалық және коммуникативті дағдылары; мұғалімнің кәсіби маңызды сапаларының жиынтығы ретінде рефлексивті: эмпатия, жауапкершілік, рефлексия. Мұғалімдердің инклюзивті болуға дайындығын қалыптастырудың құрылымдық-динамикалық моделі ерекше білім берудің қажеттіліктері зерттелетін процестің маңызды қасиеттерін, байланыстарын көрсетеді және келесі компоненттерді қамтиды: мақсатты блок, процедура-лық-технологиялық блок, критерийлерді бағалау блогы, тиімділікті түзету блогы.

**Түйін сөздер:** кәсіби дайындық, дайындық, химия мұғалімі, инклюзивті білім беру, интеграция, дайындық құрылымы, компоненттер, құрылымдық-динамикалық модель, кезеңдер, блоктар, әдістер, тәсілдер, формалар, құралдар, дайындық деңгейлері, диагностикалық құралдар.

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### **Готовность будущих учителей химии к работе с детьми с особыми образовательными потребностями в инклюзивной образовательной среде**

**Аннотация.** Готовность будущего учителя химии к инклюзивному обучению детей с особыми образовательными потребностями является интегральной личностно-профессиональной характеристикой, отражающей ценностно-смысловые ориентации, знания и опыт, позволяющие успешно осуществлять педагогическую деятельность в инклюзивной образовательной среде. Она включает четыре компонента: мотивационные как совокупность ценностных ориентаций, смыслов и мотивов профессиональной деятельности, принятие ценностей инклюзивного образования; когнитивные как совокупность теоретико-методологических знаний в сфере инклюзивного образования; эффективные как совокупность аналитических - прогнозные, проектные, коррекционно-педагогические и коммуникативные навыки для реализации инклюзивного образовательного процесса; рефлексивность как совокупность профессионально значимых качеств педагога: эмпатия, ответственность, рефлексия. Структурно-динамическая модель формирования готовности учителя к инклюзивному образованию детей со специализированными образовательными потребностями отражают сущностные свойства, связи и взаимосвязи изучаемого

процесса и включают в себя следующие компоненты: целевой блок, процедурно-технологический блок, блок критериально-оценочной деятельности, блок коррекции результативности.

**Ключевые слова:** профессиональная подготовка, готовность, учитель химии, инклюзивное образование, интеграция, структура готовности, компоненты, структурно-динамическая модель, этапы, блоки, методы, приемы, формы, средства, показатели и уровни готовности, средства диагностики.

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