

Multilingual Training Issues and Development of Teachers' Speaking Skills for the Special Education Purposes: Kazakhstani Case Study

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Abstract: *Objective:* The paper's main purpose is to analyse approaches to the development of multilingual education and the development of speech teaching skills in the special education system.

Background: Improving the special education system is challenging because it takes a long time to change. The learning process must include the possibility of educating all groups of the population.

Method: During the study, the current state of the implementation of multilingual education within the framework of the Kazakhstani educational process was analysed, national and regional features of the process under study were investigated, prospects for its further improvement were considered.

Results: Based on the results of the study, scientific, methodological, and theoretical foundations of the development of multilingual teacher training in a modern educational institution are summarised; educational and methodological aspects of the issue are described.

Conclusion: The results obtained are of theoretical and practical importance for inclusive multilingual training of teaching staff and the improvement of teacher education in general, the implementation of leading ideas for the modernisation of all professional education.

Keywords: Multilingualism, multilingual education, communicative skills, teacher training.

INTRODUCTION

In the context of intensive integration of the Kazakhstani education system into the world educational space, there is a stable tendency of the development of multilingual education. It is predetermined by the peculiarities of the socio-cultural, economic, and political development of modern society, and herewith an important role plays the legacy of the historical past. The great Abai counted the language an important factor in the development of society; in the 25th word of edification, he says: "Having studied the language and culture of other peoples, a person becomes equal among them, does not humiliate with useless requests" [1]. In this situation, the classical model of education is significantly transformed, which, while maintaining its basic foundations, begins to generate and develop new ideas. One of such innovations is manifested in the sustainable implementation of multilingual education. At the same time, this education is an effective mechanism that promotes the development of a democratic type of thinking and behaviour, communicative skills, and tolerance in the interaction of social actors [2].

The main obstacle to educating children with inclusion is the psychological barrier. Society is not used to having children with developmental norms, and children with inclusion learn together. Inclusive education poses a challenge for educators to ensure that the teaching material is delivered to children with special needs. This issue is especially acute for foreign language teachers who teach children with mental retardation since language learning is a complex process in itself. In this regard, the competence-based approach, which involves significant transformations in teaching a subject, becomes increasingly relevant. As a result, there is a need for a professionally competent specialist. The "State Program for the Functioning and Development of Languages for 2011-2020" defines three main objectives of the language policy of the state: 1) the expansion and strengthening of social-communicative functions of the state language; 2) preservation of the general-cultural functions of the Russian language; 3) development of languages of ethnic groups [3; 4]. In these conditions, it is very important to analyse the readiness of schools and universities in Kazakhstan to gradually implement the training in 3 languages [5-7]; especially – the readiness of universities, who are preparing the pedagogical staff for inclusive education, which today is the main direction in the implementation of education for children

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with disabilities. The main idea of such education is to educate children with disabilities in secondary schools and other students.

At this stage, the Republic of Kazakhstan's education seeks to become inclusive [8, 9]. Of course, to solve this difficult task, it will take a lot of time, since not all schools are ready to accept children with disabilities. Several problems impede the implementation of inclusive education in secondary schools. The main problem is the lack of preparedness of teachers for work within the framework of inclusive education. To solve this problem, various advanced training courses are created, masterclasses are held, and teachers work with psychologists, speech therapists, and defectologists [10-13]. The next problem is the lack of special technical means for educating children with disabilities. It is also necessary that the school has special teachers who would be involved in correctional and developmental work with children with disabilities [14].

The study aims to find the best methodology for teaching foreign languages to students with mental retardation and assess their willingness to accept knowledge in a foreign language.

MATERIALS AND METHODS

When conducting the study, the authors used the following methods: theoretical (analysis, synthesis, classification, generalisation, deduction, induction, analogy, and modelling); empirical (observation, examination, questionnaire, and interview); statistical (statistical data analysis, qualitative and quantitative analysis of research results).

To understand the specifics of working with children with inclusion, theoretical and practical studies on inclusive education were investigated. The stages of the development of the introduction of inclusion into the educational process were studied. The current state of the implementation of the inclusive process in the educational system is analysed. Further, the features of multilingual education within the framework of the Kazakhstani educational process were examined, the national and regional features of the studied process were studied. The international experience of introducing inclusion in the educational process and the features of studying foreign languages in this context were also considered. Through analysis, problems of the educational process that need to be addressed were identified.

By observing and interviewing teachers and students who participate in the inclusive educational process, the features and difficulties that arise during the study of foreign languages were identified. The competencies necessary for the teacher, optimal conditions for effective language learning by children with mental retardation, and/or other inclusion was determined. The questionnaire method was also used to study the attitude of children with mental retardation to the discipline "Foreign Language". 30 students with mental retardation of the correctional class of a comprehensive school were interviewed. Based on the analysis of the results obtained, data were displayed reflecting the need to adjust some inclusive educational process components.

For this study, it was important to analyse the conformity of needs that arise in children with inclusion in learning a foreign language, and the teaching methods currently implemented in the Republic of Kazakhstan. The prospects of further improving the educational process for children with inclusion were considered. Recommendations for teachers that educate children with the inclusion of foreign languages were developed.

RESULTS

An important condition for achieving professionalism is the formation of competence that allows the teacher to effectively perform his professional activities in the conditions of multilingual education. In connection with this, the higher school of education, Nazarbayev University in 2014 was published a diagnostic report "Development of strategic directions for reforming the education of the Republic of Kazakhstan for 2015 – 2020". The implementation of trilingual education in itself is a complex task, especially if we talk about a similar initiative in the field of inclusive education. In many educational institutions, students with disabilities receive knowledge on an equal footing with everyone [15-17]. In this regard, the competency-based approach, which involves significant transformations in teaching a subject, is becoming increasingly relevant. As a result, there is a need for a professionally competent specialist. Professional competence is defined as a system of knowledge, skills that determine the effectiveness of professional work [18-20].

Inclusive competence is one of the elements of the professional competence of a future teacher. There are general, professional, special, and private, professional competencies of a specialist. The inclusive

competence of a teacher refers to special professional competencies since the goal of inclusive education is to educate children with disabilities in a comprehensive school. Inclusive competence is an integrative personal education that determines the ability to perform professional functions within the framework of inclusive education, taking into account the different educational needs of students and ensuring the inclusion of a child with disabilities in the environment of a general educational institution and creating conditions for its development [21, 22]. The structure of the inclusive competence of the future teacher of a foreign language consists of the following components: motivational, reflective, and cognitive-informational. The motivational component is directly related to the motivational competence of the teacher. Motivational competence is interpreted as the ability to motivate oneself to perform certain professional actions and tasks. Accordingly, this competency's main goal is the teacher's willingness to carry out professional teaching activities in the framework of inclusive education [23].

Reflexive competence is a basic component of a teacher's professional activity and a personality's quality, which allows for effective reflection, making it possible to develop and self-develop. Reflexive competence also allows the teacher to be creative in their professional activities. Moreover, a reflectively competent specialist is capable of analysing personal activities, identifying own strengths and weaknesses, and assessing personal abilities. The cognitive-informational component consists of two elements – cognitive and informational competencies. Cognitive competence is the ability of a teacher to think and act based on the knowledge system necessary to work with children as part of inclusive learning. This includes the ability to make the right decisions in fulfilling the theoretical and practical tasks of inclusive learning. Cognitive competence is manifested in the desire and willingness of a person to realize his potential in the process of professional activity [24, 25].

According to some researchers, information competence can be considered a teacher's modern literacy, which implies the ability to work with information effectively. The teacher's informational competence also includes the solution of various pedagogical problems using technical means, which ultimately is the result of mastering this competency. Information technology did not pass through the process of training in secondary schools. At the disposal of modern students, there are various digital technologies. Reliance on them is an absolute fact that

recognizes the need to use advanced technology. Preparing future teachers to work with inclusion is a complicated and time-consuming process that requires special attention since the practice of inclusive education in our country is not widespread. Many researchers recognize that the primary and most important stage in the formation of inclusive competence among future educators is psychological and value changes.

Among all subjects of the curriculum of a comprehensive school, a foreign language acts as the most fully providing favourable opportunities for organizing working conditions with children with disabilities. The urgency of the problem of teaching a foreign language to children with special needs in a secondary school has led to the attention of practitioners of domestic school education, who are experimentally or innovatively developing organizational, pedagogical and methodological approaches to solving it, generalizing and presenting their experience. Such developments were carried out in relation to inclusive and integrated teaching of mathematics and the Russian language to children with pathologies in elementary school. However, in the experience of educators-practitioners, such developments are not fully represented in relation to the teaching of a foreign language of "special" children [26].

Particular attention should be paid to the educational program for children with mental retardation. The need to learn a foreign language by children with mental retardation is conditioned by the fact that this type of activity is the best way to develop memory, speech, horizons, perception, and thinking. In this case, the priority area of study will be no knowledge but personal development. With that, the importance of taking into consideration the age-individual features of students is clearly increasing. Mastering a foreign language does not turn into a goal, but into a means of achieving a better overall development. Children with mental retardation have problems with voluntary attention and attention span. The memory of children with mental retardation is selective, which in turn is associated with impaired attention and perception. Mental activity is also underdeveloped. Speech defects that appear due to poorly formed cognitive activity are possible.

The cognitive activity of school-age children with mental retardation is described by reduced cognitive activity, specificity, a tendency to stereotypical

decisions, and inconsistency. Children themselves experience considerable difficulties in learning a foreign language: slow learning of lexical material and its active use in oral speech; poor assimilation of syntactic structures; difficulty in perceiving grammatical phenomena and their application in practice; the occurrence of problems in listening to oral speech and especially related texts; difficult assimilation of forms of dialogical speech, and the construction of monological speech is possible only if there are visual supports and within the framework of a well-developed situation. But no matter what questions and difficulties arise, it should be expressly borne in mind: children with mental retardation are intellectually safe, which means they are capable of learning such a subject as a foreign language. The specifics of teaching a foreign language to children with mental retardation involves the use of a large number of illustrative, playful, entertaining material for the assimilation of lexical, grammatical, and syntactic norms. Educational material should be given in small portions while combining games and educational activities since the psychological features of children with mental retardation are such that even in adolescence, game activity occupies a significant place.

When implementing inclusive education in a foreign language lesson, it is recommended:

- to form lexical skills in the course of performing exercises that ensure the memorization of new words and expressions and their use in speech;
- use information and communication technologies, which allows a “special” child to enjoy learning a foreign language with pleasure;
- create a favourable psychological climate;
- use health-saving technologies, an adapted program taking into account the peculiarities of psychophysical development and the capabilities of such children, illustrative and audio material, interactive elementary tasks on CD;
- create success situations in each lesson so that a child with disabilities feels the joy of a small but well-completed assignment.

Effective methods of teaching a foreign language include the use of phonetic charging, training in the game. The presence of special computer equipment, modern educational software designed for people with disabilities, a distance learning system allows for the free exchange of information between all participants in the educational process and effective access to educational resources, regardless of nosologies and the severity of physical disorders.

All this forms the basis of the inclusive education system, which allows students with disabilities with various types of disorders and varying degrees of severity to study together on a par with the rest. It is worth noting that the attitude of the participants in the educational process themselves towards the level of teaching and knowledge of a foreign language also constitutes an indicator of the development of the inclusive education system. A survey among high school students shows that certain changes must be introduced in teaching a foreign language. The survey results among students in the correctional class of a comprehensive school gave the following information. To the question "How do you assess your level of

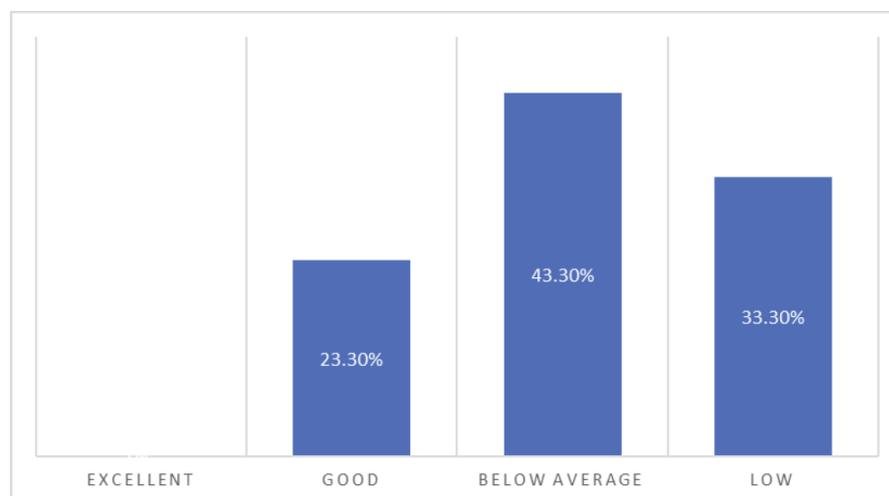


Figure 1: How do Students with Mental Retardation Evaluate their Level of Knowledge of a Foreign Language under Study?

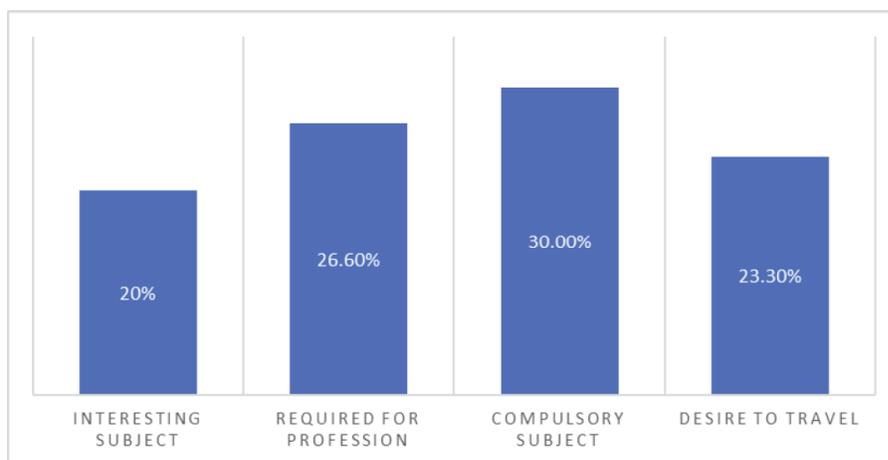


Figure 2: The Reason for Studying a Foreign Language by Students in the Correctional Class of a Comprehensive School.

knowledge of the studied foreign language?" the answers were distributed in such a way that none of the respondents chose the option "excellent" (Figure 1). Among the main reasons for learning a foreign language, most children with mental retardation named the requirement of their curriculum (Figure 2). To the question "Do you like to attend classes in a foreign language?" 43.3% answered "yes", 13.3% answered "no", 43.3% found it difficult to answer.

To the question "In your opinion, in what place is a foreign language, as a subject, among other disciplines?" half of the respondents answered that a foreign language is the main discipline (Figure 3). At the same time, 60% of respondents indicated the need to increase the number of academic hours for learning a foreign language.

To the question "What is missing in the foreign language classes?" various options were provided with an almost equal number of responses (Figure 4). Apart

from choosing methods to improve language learning, students with mental retardation have chosen a more convenient form for them. The majority – 63.3%, preferred the particular kind of training, 36.6% – the group form. These data suggest that students in correctional classes still need additional individual assistance in learning a foreign language.

When asked about what students with mental retardation would change in the teaching methodology, 26.6% of respondents said they would introduce a game form of teaching, 36.6% would add more cultural trips, and 13.3% more group assignments. With that, the form of teaching satisfies 23.3% of the students surveyed (Figure 5).

Thus, it was concluded that for students with inclusion in the study of foreign languages, a variety of forms of presentation of materials is important and, if necessary, individualisation of instruction.

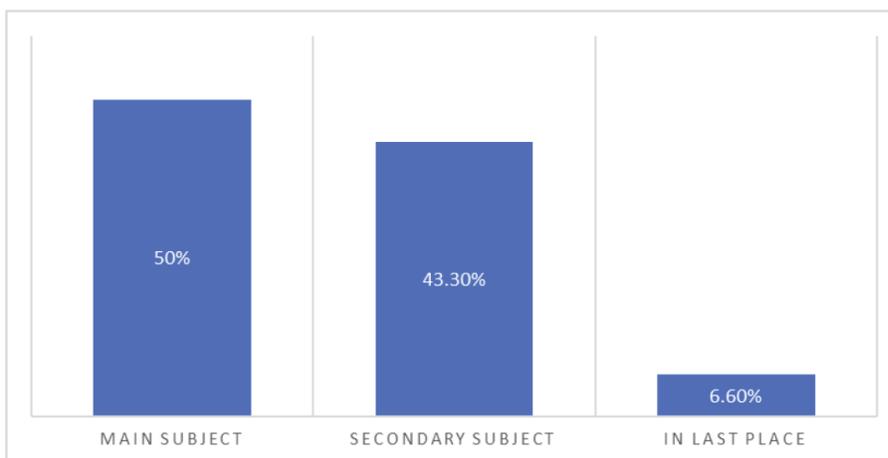


Figure 3: What is the Place of a Foreign Language, as a Subject, among Other Disciplines?

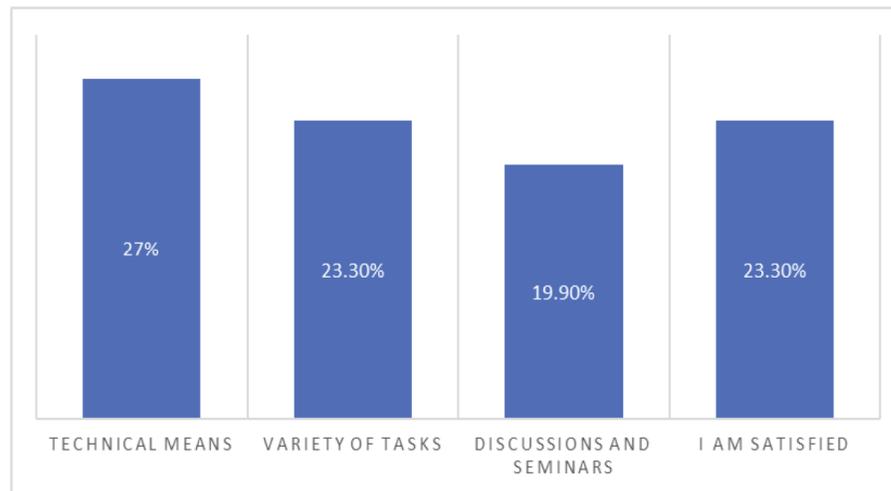


Figure 4: What is Missing in Foreign Language Classes in the Correctional Class?

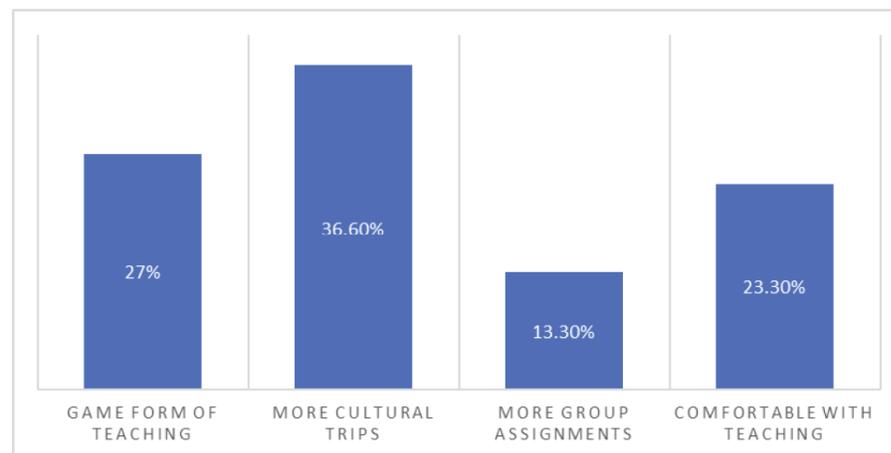


Figure 5: What Should be Changed in the Teaching Methodology in the Correctional Class?

DISCUSSION

B.A. Zhetpisbaeva notes that the higher is the interest in society in a new professional, personal, cultural, scientific contact skills with native speakers, with the achievements of science, technology, the culture of different countries, the higher is the status of multilingualism as a tool for establishing professional communication for effective exchange experience and, as a result, personal, professional development of a specialist [27]. In a joint study with G.N. Akbaeva, the scientist calls the principle of "double-entry of knowledge" the main mechanism for the practical implementation of multilingual education: linguistic education through the study of linguistic disciplines and the teaching of individual, for example, mathematical and natural science disciplines in a foreign language, socio-humanitarian disciplines in Kazakhstani or Russian languages [28]. With that, researchers have not studied a similar approach to teaching children with

inclusion. Children with mental retardation and/or other inclusion need to develop an effective methodology for studying subjects in a foreign language, since teaching a foreign language is already a difficult task for them. Mastering knowledge in other subjects in the language that is not native may fail if the correct curricula are not prepared accordingly. The hard work of specialists is required to create such a program. It is equally important to continually receive feedback from students with inclusion to adjust teaching methods according to their needs.

Even though inclusive education in Kazakhstan has been developing since 2000, over 70% of teachers surveyed note the lack of necessary training for children with inclusion, which indicates a slow development of inclusive education in the country. Studies in inclusive education by Robert Taylor also note that teacher education changes are rather slow, and teachers often do not feel ready to teach children

with inclusion [29]. The study by T. Salovita notes that teachers of the subject pay more attention to the subject and are responsible for the learning outcomes, therefore, they are less interested in inclusion [30]. However, this position is hypothetical, and more research is needed to substantiate this conclusion. At the moment, our study shows a lack of qualification training for teachers of a foreign language who have to work with children with mental retardation and/or other inclusion. Studies show that to effectively educate children with mental retardation, it is important to use different teaching methods and focus on students' individual needs.

The study of the influence of inclusion on the assimilation of material in disciplines related to foreign languages is not deep enough. Researchers on this issue agree only on the opinion that the level of development of inclusive education in the country is not high enough. There are no specific methods developed to improve the level of teaching foreign languages to students with inclusion. This study proves that it is necessary to constantly develop an inclusive direction, and specifically in terms of teaching foreign languages to children with inclusion, as this process requires even more immersion of the student and teacher in the process. Currently, inclusive multilingual education in Kazakhstan is searching for the most effective models, testing pilot projects of multilingual education in secondary, specialised secondary, and higher education systems.

Educational material for students with disabilities should be presented with significant redundancy, allowing them to choose the type and nature of tasks and presenting new material (using written text or a multimedia presentation with animation or video elements). Of great importance for the formation of activity of a student with a disability is additional material in which he can find additional informational reference materials, videos of class fragments, etc. The preparation of such additional material is fraught with significant methodological and material difficulties. Finished materials intended for working with gifted people or abnormal children are very few, and their creation is very time-consuming and time-consuming. It should be borne in mind that these materials must be consistent with specially designed training programs. Furthermore, the teacher should pay attention to the fact that, he should use the methods that he uses in the classroom; he should exert a mental and moral influence on students to interest them not only in obtaining the necessary knowledge in the program but

also in obtaining the necessary knowledge in the program in their comprehensive improvement.

CONCLUSIONS

One of the main tasks today is to determine the goals, opportunities, and content of multilingual education and select the most optimal models for its successful implementation in Kazakhstan. The methodological basis for multilingual education is modern achievements in the field of pedagogy, psychology, sociolinguistics, communicative linguistics, and linguodidactics. Thus, the multilingual orientation of the education system reflects the needs of modern Kazakhstani society. The program of multilingual education provides a new model of education that fosters the formation of a competitive generation in the globalization context and who knows the language culture.

Teachers of foreign languages should know that children with mental retardation or other inclusion have difficulties learning a foreign language for quite objective reasons. The immaturity of higher mental functions, impaired attention, memory, lack of auditory and visual perception, speech underdevelopment, impaired sound pronunciation, reduced working capacity, and unstable emotional state are what inhibit the accumulation of various information and knowledge about the world. Furthermore, a significant portion of these children has organic brain damage (in these cases, this refers to a decrease in intelligence). But students with a diagnosis of mental retardation have potentially intact intellectual development opportunities. Main (basic) education is compulsory for them and gives the right to continue their education at any educational institution. For a child with mental retardation to meet the requirements of the time, it is necessary to help it overcome the shortcomings of mental development as soon as possible. All this can be achieved only with a personality-oriented approach in the education and upbringing of children when the needs, opportunities, and inclinations of a student with mental retardation are taken into consideration, and the student acts as an active subject of the educational process.

Teaching a foreign language to children with health problems is especially relevant today. Today, it is important not only to give the child as much knowledge as possible but to ensure his general cultural, personal and cognitive development to equip him with such an important skill as the ability to learn. The correctional

work of a foreign language teacher should be carried out as part of a holistic approach to the upbringing and development of children with disabilities. In this regard, the work should be focused on general development, not on training individual mental processes or abilities of students. It is planned not so much to achieve a separate result (for example: learn words on a topic) but to create conditions for the development of the child. Studying the individual characteristics of students allows you to plan goals, objectives, terms and main directions of language learning that meet the task of maximizing the students' independent activity, as well as developing their interest in a foreign language, the culture of other countries, and stimulating communication and speech activity.

ACKNOWLEDGEMENT

None.

REFERENCES

- [1] Abay. Words of edification. 25 word. Available at: http://pushkinlibrary.kz/exhibitions/Abai_Pushkin/slova_21-25.html.
- [2] Absatmarov RB, Sadykov TS. Education of the culture of interethnic communication between students. Almaty: Nauka 1999.
- [3] State program of functioning and development of languages for 2011-2020 years of the Republic of Kazakhstan. Available at: <https://primeminister.kz/ru/gosprogrammy/gosudarst-vennaya-programma-razvitiya-i-funkcionirovaniya-yazykov-v-respublike-kazahstan>.
- [4] Ordinance of the President of the Republic of Kazakhstan No. 3186 "On the Concept of Language Policy of the Republic of Kazakhstan", 1996. Available at: https://tengrinews.kz/zakon/prezident_respubliki_kazahstan/hozyayst-vennaya_deyatelnost/id-N960003186/.
- [5] Dlimbetova GK, Moldabekova SK. On the issue of multilingual education in Kazakhstan. In: Proceedings of the International Scientific-Practical Conference "Valikhanov Readings – 22". Kokshetau, Republic of Kazakhstan; 2018: p. 71-5.
- [6] Materials of the International Scientific and Practical Conference "Trilingual Education: National and International Experience"; 2016. Available at: <http://iac.kz/ru/events/materialy-mezhdunarodnoy-nauchno-prakticheskoy-konferencii-trehyazychnoe-obrazovanie>.
- [7] Ministry of Education and Science Republic of Kazakhstan. Available at: <http://www.orelu-edu.kz/>.
- [8] Kunanbaeva SS. Modern theory and practice of foreign language education. Almaty: Nauka 2010
<https://doi.org/10.17513/np.107>
- [9] Kunanbaeva SS. The concept of language education of the Republic of Kazakhstan. Almaty: Kazakh University of International Relations and World Languages named after Abylai Khan 2010.
- [10] Kunanbaeva SS. Competent modeling of professional foreign language education. Almaty: Nauka 2011.
- [11] Kubeev EK, Shkutina LA, Zhetpisbaeva BA, Syrymbetova LS, Zhankina BZh. The concept of development of a multilingual education. Karaganda: Publishing house of the Karaganda State University 2008.
- [12] Kubeev EK, Ed. Regulations on the organization of multilingual education in higher education. Karaganda: Publishing house of the University of Karaganda 2014.
- [13] Sarsembayeva A.A. Independent work of students of a technical university in a foreign language on the basis of a personal-oriented approach: theory and practice of organization. Ust-Kamenogorsk: EKSTU 2010.
- [14] Sarsembayeva AA. Professional-oriented teaching of foreign languages: theoretical analysis of domestic and foreign experience. Vestnik KASU 2012; 2: 78-83
- [15] Zhumagulova V, Zadaeva A. The content of philological education in the conditions of formation of a multicultural personality: methodology, theory, practice. Almaty: Polygraphia servis i K. 2014.
- [16] Nurseitova AK. Theoretical bases of bilingualism in Kazakhstan. Humanities: the collective. Moscow: Internauka 2016.
- [17] How to develop and implement a sustainable multilingual education program: A guide for developers and managers of multilingual education programs. Available at: http://www.donors.kg/images/FINAL_NL_9_RUSS_20160517.pdf.
- [18] Fazylzhanova AM. On the Problems of Modernization of the Modern Kazakh Language: External Impact and Language Opportunities. Science and Life of Kazakhstan. International Popular Science Magazine 2017; 4(48): 285-8.
- [19] Bulatbaeva KN, Askarova LB, Smagulova BK, Aytkazina A. Kazakh-Russian-English thematic dictionary. Astana: NAO named after Altynsarın 2013.
- [20] Erdniev PM. Integration of didactic units as a learning technology. Moscow: Nauka 1992.
- [21] Orekhova NV. Competence approach: some aspects of methodological analysis. Siberian Pedagogical Journal 2008; 7: 38-52.
- [22] Sadykov TS, Abylkasymova AE. Methodology of 12-year education. Almaty: SRC "Kylym" 2003.
- [23] Zolotova GA, Onipenko NK, Sidorova MYu. Communicative grammar of the Russian language. Moscow: Nauka 2004.
- [24] Bulatbaeva KN. Functional-communicative technology of teaching Russian in the Kazakh school. Pavlodar: PSU 2005.
- [25] Passov EI. Communicative method of teaching foreign-speaking speaking: a manual for teachers of foreign languages. Moscow: Prosveshchenie 1991.
- [26] Stukalenko NM, Murzina SA, Naviy L, Zhussupbekova GG. Study of peculiarities of communicative type of teaching. Man in India 2017; 97(23): 409-20.
- [27] Zhetpisbaeva BA. Theoretic-methodological bases of the multilingual education. Karaganda: University of Karaganda 2009.
- [28] Zhetpisbaeva BA, Akbaeva GN, Shaykhizada ZhG, Ashimov EM. Regulations on the organization of polygamous education in school. Karaganda: Publishing house of the University of Karaganda 2014.
- [29] Taylor RW, Ringlaben RP. Impacting Pre-Service Teachers' Attitudes toward Inclusion. Higher Education Studies 2012; 2(3): 16-23.
<https://doi.org/10.5539/hes.v2n3p16>
- [30] Saloviita T. Attitudes of Teachers towards Inclusive Education in Finland. Scandinavian Journal of Educational Research 2020; 64(2): 270-82.
<https://doi.org/10.1080/00313831.2018.1541819>

Received on 25-07-2020

Accepted on 18-08-2020

Published on 14-09-2020

DOI: <https://doi.org/10.6000/2292-2598.2020.08.03.22>

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