

## Evaluation of oral speech of Students with hearing impairments with perspectives of special learning technologies

**Chulembayeva Aigerim** <sup>a\*</sup>, Institute of Pedagogy and Psychology, Department of Special education, KazNPU named after Abai, Dostyk ave., Almaty, Kazakhstan, <https://orcid.org/0000-0002-8576-8515>

**Autayeva Akbota Nursultanovna** <sup>b</sup>, Candidate of psychological sciences, Institute of Pedagogy and Psychology, Department of Special education, KazNPU named after Abai, Dostyk ave., Almaty, Kazakhstan <https://orcid.org/0000-0003-4736-3004>

**Butabayeva Laura Askarovna** <sup>c</sup>, Institute of Pedagogy and Psychology, Department of Special education, KazNPU named after Abai, Dostyk ave., Almaty, Kazakhstan <https://orcid.org/0000-0002-3758-8624>

**Kapalova S.K.** <sup>d</sup>, PhD doctoral student of KazNPU named after Abay, Almaty, Kazakhstan <https://orcid.org/0000-0002-5706-4182>

**Sikinbayev B.B.** <sup>e</sup>, PhD doctoral student of KazNPU named after Abay, Almaty, Kazakhstan <https://orcid.org/0000-0001-5188-705X>

**Zeynep Genc** <sup>f</sup>, Department of Special Education, Faculty of Education, Istanbul Aydin University, Istanbul, Turkey,

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### Abstract

In recent years, much attention has been paid to the problem of language and correct pronunciation in the native language when working with the younger generation, including the formation of oral speech in children with hearing impairments with perspectives of special learning technologies, which formed the basis for our research work. Theoretically, the effective methods in shaping the oral skills of students with hearing impairments imply the provision of opportunities for their further successful socialization, unlimited communication with the outside world, and personality formation. In order to tackle the problem, we have identified the problem of testing methods and determining the level of formation of oral speech of students with hearing impairment, offering special methods, techniques for its improvement. In the course of implementation, diagnostic studies, quantitative and qualitative analysis of indicators, practical implementation of the methodology, and various practical works were carried out.

Keywords: Learning technologies, oral speech, children, hearing impairment, Kazakh language;

\* ADDRESS OF CORRESPONDENCE: Chulembayeva Aigerim, Institute of Pedagogy and Psychology, Department of Special education, KazNPU named after Abai, Dostyk ave., Almaty, Kazakhstan  
Email address: [Gerain-87@mail.ru](mailto:Gerain-87@mail.ru)

## 1. Introduction

Learning is a progressive system. Information should be provided in permanent memory. Bloom has stages. While learning is gradual in normal individuals, these processes are more important in individuals who need special education (Zorluoglu, Kizilaslan, & Donmez Yapucuoglu, 2020; Metin, & Aral, 2020). A language is barely comprised of sounds and letters, but it also embodies ethos and cultural elements. These features of language push us to teach or learn the language in the social milieu. New technological developments make interactive learning possible by creating a virtual environment to only a little extent (Uysal & Yavuz, 2018; Sağıroğlu, & Uzunboylu, 2018; Bagila et al., 2019; Agranovich, et al., 2019). Language provides the communication between beings as a string. (Zhumabayeva et al., 2019; König, 1998: 87).

The first component of the language, which has two main components, is the recipient language (Namaziandost, Hashemifardnia & Hosseini, 2019). When we make the definition of the recipient language, it will be correct to express the stimulus in the mind of the individual as a result of the external reception of the verbal stimuli through the sensory neural network and the passing of these stimuli through auditory perceptual processes. (Karacan, 1998: 7). This includes perception of sounds, comprehension of abstract and concrete words, comprehension of grammatical structure of sentences, making listening and listening critically. (Senay, 2004: 5). The receiving language is acquired before the expressive language. In the light of research, it has been found that receiver language capacity is about two times more than the expressive language capacity, especially in the one-word period (Yüksel, 2003). The second language is the expressive language. The expressive language is a form of sound expressed as a sound image using sensory-nerve and motor-nerve functions (breathing, voice extraction, resonance, articulation mechanisms, etc.) (Karacan, 1998, as cited by Karacan, 2020).

In all children with normal development, language acquisition passes through similar stages and these stages proceed from simple to complex. The first stage of the language acquisition process in all children is expressed as individual voices. After the individual voices, respectively; phonemes, one-word sentences, phenomenal sentences, three and more word sentences, as well as Language acquisition with complex blocks processes can be fully realized (Karasu, Girgin, & Gürgür, 2015; Agha, & ELDaou, 2018).

### 1.1. Hearing Impairment and Language Acquisition

Hearing disability can be defined as the result of a problem that occurs in the hearing system of the individual as a result of a person's perception of acoustic stimuli less than normal, or an inability to perceive them at all. However, if the obstacle has become an obstacle high enough to limit the perception, discernment and understanding of grammatical names, especially in the process until the first two years of age, the child will face a great risk in the process of acquiring the mother tongue. As a result, it was found that the child was more likely to face problems when developing his / her academic skills in later life (Deacu, Kilyeni & Barbulescu, 2018). One of the most important problems encountered in this area is the problems in shaping a communication model that can facilitate the language development of the hearing-impaired child and allow him / her to communicate easily with his / her family or caregiver and ensure that all academic life is maintained in a healthier way (Soleymani, Mahmoodabadi & Nouri, 2016).

## **1.2. Hearing impaired individuals and language development in Kazakhstan**

At present, the number of people, who need special education, is gradually increasing in our country as in other communities. The majority of them are comprised with children with hearing loss. In our country, there are a lot of issues related to the teaching of the Kazakh language to students with hearing impairments. In particular, the issue which is of paramount importance is developing speaking skills of children with hearing impairments in Kazakh language. This is accompanied by the problem of shaping clear spelling of specific sounds and vowels. Official gazette on Special Education Services Regulation dated 31.05.2006 date and numbered 26184 published an article titled 'individuals who need special education, for various reasons, individual features and significant differences indicating individuals from the expected level of their peers in terms of educational qualifications,' (Uzunboylu & Sagirolu, 2018). Education is the most fundamental right of all individuals. No one can be deprived of the right of education due to their inabilities. The rights of education are secured with national and international laws and conventions for all individuals (Dogan & Bengisoy, 2017).

The linguistic literatures present various concepts of oral speech. For example, one of the authors show a close bond between oral speech with reading skills and recitation (Soubhi et al., 2016; Legas & Mengistu, 2018). Other authors explain that the term "oral speech" is the process communication where interlocutors exchange their thoughts. In addition, oral speech is widely shown in contradiction with written speech, and such concepts as reading and reciting a text has nothing to do with oral speech.

From the history we might assume that written communication is second only to oral speech. One of the first Kazakh scientists who expressed their attitude towards oral communication were Baitursynov (1992) and Zhubanov (1999). According to Baitursynov 'Language is a distinctive feature of human race, one of the means of interrelation. If one day all people suddenly became speechless, they would undoubtedly face a number of difficulties. The scientist is convinced that oral communication is a social phenomenon that has its own specific characteristics.

According to Zhubanov (1999), 'The speaker's speech is always directed to the listener or listeners. One speaks to convey own thoughts or attitudes to someone or something. The purpose of the conversation is to express your thoughts to the interlocutor and to reveal one's vision. Akimova notes that written speech plays a minor role, and it is generally under the great influence of oral speech, although fails to cover equally all the types of written speech.

Graber & Murray (2015) considering the differences between oral and written speech, denotes that oral speech is a substance, elastic waves propagating in the air within the sound frequency. It is generated by the work of the lungs and voice apparatus, perceived by the organs of hearing and vision, is deployed in time. Speech as a process is not visually observable. It is momentary and ephemeral, requires from the speaker compared with the writer much less effort, unfolds freely, quickly enough. Speech as a result is fixed only as a mental, verbal and vocal image in memory listeners.

Oral speech is a means of transmitting thoughts and influence on the interlocutor. Speech, in his opinion, can be incoherent for two reasons: either because these connections are not realized and are

not represented in the thought of the speaker, or because, being presented in the thought of the speaker, these connections are not identified properly in his speech. Coherent speech is a speech that can be fully understood on the basis of its own substantive content. In order to understand the speech, there is no need to specifically take into account the social context, everything is clear on the course of socializing: it is a contextual speech. A person speaks for the purpose of influence, i.e., for the purpose of influence on one's consciousness, personal thoughts and feelings rendered indirectly. Language of speech is a social necessity that primarily carries out this activity after it has become a means of communication and a tool of influence. According to Zhinkin (1998), it is a special and complex kind of human activities. The scientist considers speech as a process of socializing, that is, the exchange of ideas. Kazakh scientists Zhienbayeva & Tapalova (2014) are convinced that a dialogic speech is initial form of speech which is widely spread and much common form of communication.

Vlasova and Pevzner (1973) in the description of children with hearing difficulties and speech disorders consider them as the vital mental functions of speech. It has an impact on the children's formation of mental processes and their overall development. Scientists believe all children go through the same stages as their speech and language develops and their thinking depends greatly on their speech. The basis of literacy and other disciplines is speech (Celik & Yavuz, 2018). The development of speech activity is a complex process.

Having investigated children's speech, Gvozdev (1948) purported that children's speech go through a continuous change and growth." "The General course of assimilation of sound speech is determined by the joint action of the auditory and motor spheres. The auditory field is leading in the respect that is due to the early development of hearing baby for the first time to the ear learns to distinguish a variety of phonemic elements; their accurate acoustical representation and become a regulator for the elaboration of them in his own pronunciation. But for their appearance in the speech of the child, in addition to auditory representations, articulation skills are also needed. When planning oral speech, there are a number of psychological components: the planning of speech supplies, the transition from a focused plan to grammatical structures.

Vlasova & Pevzner (1973) argue that it is one of the most important mental functions. It has a huge impact on the formation of mental processes of the child and its overall development. The development of thinking largely depends on the development of speech. Scientists say that a child's mental abilities depend on his or her oral speech. The basis of General literacy and the assimilation of other disciplines is oral speech. The development of oral speech is a complex and long process.

The main aspect of social adaptation of people with hearing impairment is the presence of interpersonal relationships that can be used to exchange skills and communicate with those who hear. According to Malofeev (2001), social adaptation is the ultimate goal of special education aimed at the integration of the individual into social life. In this regard, the most important tool of communication in the field of speech therapy is the training of people with hearing impairments in the oral language. Given the importance of oral language for interaction with a normal environment, it is important to consider the importance of oral language for people with hearing impairments.

A noted Russian scholar Gvozdev (1948) once has written on the peculiarities of children's oral communication that the whole process of speech assimilation is determined by the combined effect of auditory and motor functions. The auditory field is leading one in the respect due to the early development of hearing skills. Children firstly distinguish a variety of phonemic element and their

accurate acoustical representation by hearing and learns to become a regulator for the elaboration of them in their speech. But for their appearance in the speech of the child, in addition to auditory representations, articulation skills are also needed... These skills are developed later, and with their development sound elements come into the child's own speech. The main aspect of social adaptation of persons with hearing impairment is the ability to apply communication skills, to have interpersonal relationships that provide for proper communication with rumors.

A theoretical overview of the concepts of oral speech can be done as follows: oral speech is a complex multifaceted phenomenon. When planning to deliver an oral presentation, there are a number of psychological components: planning the content, being prepared to use language correctly.

According to Malofeyev (2001), social adaptation is the ultimate goal of special education aimed at the inclusion of the individual in social life. In this regard, a special place in surdopedagogics is the training of oral speech of hearing-impaired children as a vital means of communication. Distinguishing importance of oral speech for daily communication, the importance of speaking skills in tailoring students with special needs.

Another distinguishing Kazakh scientist Myrzabekov (1993), in studying phonetics of the Kazakh language in his work wrote 'oral and written types of communication are defined. It is crucial to upgrade speaking skills to sophisticated level of the literary language. Orthoepy is the study of pronunciation of a particular language, within a specific oral tradition. It is a branch of language science, which studies the system of norms of the literary pronunciation. Practical meaning of orthoepy is extremely important, since compliance with orthoepic norms, as well as other literary norms, improving language as a means of communication, facilitates exchange of views. Standardized pronunciation is one of the signs of speech culture.

In the domestic surdopedagogics for the first time it has been considered the formation and development of oral speech of hearing impaired children and their full adaptation to the environment. Akhtayeva (2010) assumes that the accurate pronunciation of sounds and phonemes is the main phonetic element of the language that determines the clarity and clarity of speech. Children with hearing impairments rely on kinesthetic impulses (Coskun & Mitrani, 2020). Technical devices can be widely used to make a classroom more effective. Despite the fact that in the field of special domestic education there are works on the formation of oral speaking skills of hearing-impaired children, well organized classes in shaping oral skills and the developing auditory perception, thus the analysis showed the lack of information specific characteristics of the Kazakh language. In the result they cannot fully communicate with the external environment.

According to Yesnazar et al., (2021) a spoken language for effective communication between children with good hearing skills and with hearing impaired children can cause some difficulties for social adaptation. Today the issue of oral Kazakh language speech formation in children with hearing impairment has not been thoroughly investigated in theory and practice. Therefore, we set the goal to conduct experimental testing, theoretical justification of the effectiveness and development of technologies for the formation of oral speech of children with hearing impairments, taking into account the linguistic norms of the Kazakh language.

### **1.3. The aim of the study**

The object of the study is the process of shaping skills of oral speech of hearing-impaired children (special correctional) boarding school for children with hearing impairment, Almaty city.

## **2. Method**

In this regard, diagnostic materials, aimed at identifying speaking skills of deaf students. Having based on the methodological studies of such scholars as Rauzet al., (1965) and with the reference to specific features of orthoepic and orthographic regularities of the Kazakh language. In this research, the mixed method in which descriptive and experimental methods were handled together was used. The mixed approach allows the researcher to use statistical methods to find relationships between facts and to express the results numerically, as well as to make a judgment about the event by making an in-depth examination of an event. This approach allows the researcher to choose whichever qualitative or quantitative research techniques are more appropriate depending on the purpose and course of the research (Hammersley, 1992; Jahangard, Rahimi & Norouzizadeh, 2020).

### **2.1. Research and Application stages**

The diagnostic complex of the study is aimed at identifying the features of the functioning and developing orthoepy of the Kazakh language in oral speech, speech rhythm and melody, sound production, voice volume, speech of students with hearing impairments. The tasks given to children were covered by the most popular materials that meet the age level of primary school students. In the course of studying the quality of the accurate pronunciation of the components of oral speech, we have provided for the presentation of tasks through various speaking tasks, therefore in the form of cards and oral presentations, in the form of drawings in order to determine the accuracy of speech pronunciation when reading the text.

We conducted a research of sound quality. The main purpose of this process is to determine the accurate pronunciation of speech sounds by deaf students in accordance vocal harmony. We examined each student's recording materials separately. During the study, the features of violations of sound absorption have been tracked down. All instructions for the tasks were given by auditory and visual-auditory aids. To determine the level of habituation of sounds, students were asked to read texts consisting of four or five sentences or to make sentences for describing given pictures.

In the process of achieving the goal, the following methods were used: analysis of pedagogical, psychological, pedagogical and special methodical literatures. Within the framework of the study, the analysis of students' personal documents, control, questioning, comparative analysis, experimental studies, experimental works and their evaluation, generalization, as well as quantitative and qualitative analysis of the results.

In the curriculum for primary school, the use of language materials was selected in accordance with linguistic features of the Kazakh language and Rau & Leonhard (1965) were taken under a careful examination. Given the main evaluation criteria affecting the formation of oral speech, that is four below. The study was conducted in several stages, i.e., in speech of students with hearing impairment: stage of examining speech breathing, stage of examining of voice volume, the stage of examining



pronunciation of sounds, words, phrases, the stage of studying compliance with the laws of orthoepy of the Kazakh language in the language.

### **3. Results and Discussion**

#### *3.1. The study of breathing peculiarities when talking:*

Students were asked to repeat a sequence of syllables in one grasp, repeat the question and give an extended answer to it, read sentences accurately. The teacher analyzed the results.

Evaluation criteria: capacity to produce a sequence of sentences, words and sentences in one breath with a long-term efficiency; making errors in speech breathing; difficulties in speech breathing

#### *3.2. The study of voice volumes:*

The students' voices were examined based on level differentiated materials, words and phrases. Students were asked to read the language material using the proposed voice power. The teacher determines the qualification of the student on the regulation of voice power.

Voice characteristics; Normal; Deviation from normal state (with falsetto, nasal speech, low toned speech, neat speech, screaming speech); The strength and frequency of the voices: capable to produce language material with normal/medium/high voice, by whispering, change voice volume depending on the social context. Capable to produce language material with high and low voice and vary from higher to lower pitches and tones when speaking. Lack of vocalic modes in reference to volume and frequency. Evaluation criteria: normal; low; high; speak through the nose, whispering.

#### *3.3. Accuracy in sound production in words and sentences.*

The study of sound recording is based on words, syllables, individual sounds production. When studying the pronunciation of sounds in words, pronunciation is provided in different positions; at the beginning of a syllable, at the end and in the middle (types of syllables: open, closed and vowel-consonant). To study accurate pronunciation of a word, a list of common words was obtained. Students were asked to read the language material or look at the picture, the teacher recorded the results.

Evaluation criteria: a clear pronunciation of sounds (in syllable, word, sentence, a violation in sound production, but does not affect the clarity of speech, serious disorders in the sound production.

These findings showed similar characteristics. The groups showed similar language profiles, with a better understanding of words, followed by sentences, with the poorest comprehension for stories. Nouns were comprehended better than verbs; sentence constructions also showed a qualitatively similar picture, although some dissimilarities emerged. Verb comprehension was strongly related to sentence comprehension in both groups and related to story comprehension in the TD group only (Polišenská, Kapalková, & Novotková, 2018).

### **3.4. Study of compliance with orthoepic norms in the Kazakh language.**

Study of skills of compliance with the laws of orthoepy of the Kazakh language. The aim is to study the level of acquisition of the norms of oral Kazakh speech by hearing impaired students. Orthoepically standard pronunciation in spoken language is close to the deaf speech, it is facilitated by talking and reading lips and orthoepically correct speech becomes brief. That is considered; capacity to keep with vowel harmony (a type of long-distance assimilatory phonological process involving vowels), either progressive or regressive, capacity to convert written form into oral; capacity to use in oral speech; capacity to stress words, distinguish and use statements, negative and questions on daily basis.

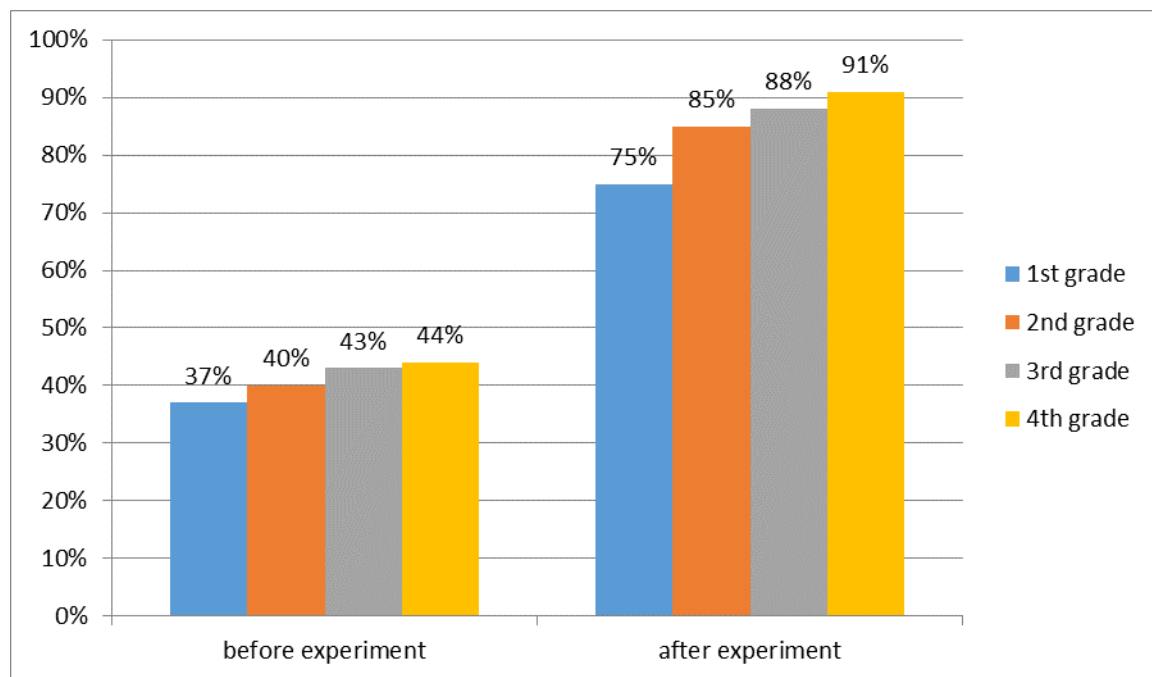
Evaluation criteria: aware of orthoepic rules and comply with them; demonstrate imitation through constant repetition; fails to know orthoepic norms.

The data obtained in the course of the study because of determining sounds production by deaf speakers, allowed quantified and qualitative evaluation, taking into account the evaluation criteria. We have analyzed the overall performance or the results of primary schoolchildren (1st, 2nd, 3rd, 4th grades) who participated in the study Quantitatively and qualitatively. In terms of breathing when talking, the 1st grade students gave 46% in average, the 2nd grade - 30%, the 3rd grade - 39%, the 4th grade - 33%. The overall average rate in terms of breathing frequency was 37%. The study of oral speech formation showed the following results: 1st, 3rd and 4th grade schoolchildren on average rated 24%, while 2nd grade students comprised 22%, With regard to the correct spelling of sounds, the 1st grade level reached 35%, 2nd grade - 51%, 3rd grade - 65%, 4th grade increased to 66%. Students' compliance with orthoepic norms gave the following data: 43% for 1st grade students, 50% for 2nd and 3rd students and 55% for 4th grade students. The given results demonstrate that the average rate of oral speech formation of primary school students with hearing impairment was only 40%. To level up the rates we have proposed a well-designed technology in shaping speaking skills of hearing-impaired children at primary school (Theodorou & Meliones, 2019; Kuku & Adeniyi, 2020).

The technique is characterized by four mentioned above criteria and insurance the corresponding set of didactic materials. Such as a set of didactic games, training exercises, visual aids for improving deaf speech; regular training exercises such finding syllables in sounds and etc; finding sin a sentence, showed the sequence and ways of instilling them. Considering the orthoepic laws (vocalic harmony) that allow to speak correctly in the Kazakh language, we have proposed ways of tracking in written, progressive and cross-speech, integrating orthoepic features that have not been used before in the education process of deaf children in Kazakh classroom. The manual includes additional didactic materials, vocabulary, and a set of texts. Integrated lesson plans, adapted for 10-15 minutes, allocated for the shaping speaking skills. In order to determine the effectiveness of the technique, each student takes three individual lessons per week. General laws have been distinguished and were handed to teachers and tutors (Onder & Karatas, 2016).

To summarize the results of experimental studies, we have gained the following results:





#### 4.CONCLUSION

In conclusion, having analyzed the components of oral speech the process of shaping speaking skills of hearing-impaired children undergoes the following stages with distinguishing features given below:

- difficulties in speech breathing and distorting sounds when talking that effect on proper formation of speaking skills and understanding of the world. One must examine carefully physiological measures such as frequency of occurrence of negative intraoral air pressure, phonatory airflow, nasal airflow, voice onset time, and fundamental frequency. We have noticed that students may sound “mushy”, noticeable vocal disorders accompanied by abnormalities in the quality, pitch, and volume of the voice, for example, hoarseness, or speaking with a raspy or gravelly sounding voice. Students with deafness or hard-of-hearing disabilities have deficits in language and speech development due to a diminished or lack of auditory response to sound. They often exhibit some form of articulation difficulty such as lisping and stuttering, visible frustration when trying to communicate, take frequent pauses when talking. In the course of experimental work, it has been proven that hearing impaired students practically do not observe orthoepic rules.

In order to improve deaf speech communication, the following measures have been adopted: issued with special guidelines a set of diagnostic materials for the study of oral speech have been created; a special technique, which includes games, training exercises, didactic visual materials, vocabulary in accordance with the age level and the program have been offered. Special punctuation signs that allow to comply with orthoepic norms have been introduced in the process of teaching hearing-impaired children. Guidelines for teachers and tutors of special have been developed.

We have achieved positive results, namely a compiled and systematic reference map including the features of forming speaking skills in Kazakh language for children with hearing impairments.

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