ASSESSMENT OF SPEECH COMPETENCES OF STUDENTS WITH COCHLEAR IMPLANTS: DYNAMIC ANALYSIS BASED ON A 100-POINT SYSTEM

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Annotation. *This article explores a new approach to assessing the speech competencies of students with cochlear implants – a 100-point dynamic monitoring system. The author analyzes the acoustic, lexical, grammatical and communicative aspects of speech using digital indicators and substantiates the effectiveness of the rehabilitation process. The results of the study show that the 100-point system provides high results in identifying "weak points" in the student's speech development and individual planning of corrective work.*

Keywords: *methodology, special, education, inclusive, cochlear, individual, implant, artificial intelligence, technological.*

Аннотация*. В данной статье рассматривается новый подход к оценке речевых компетенций учащихся с кохлеарными имплантами — 100-балльная система динамического мониторинга. Автор анализирует акустические, лексические, грамматические и коммуникативные аспекты речи с использованием цифровых показателей и обосновывает эффективность реабилитационного процесса. Результаты исследования показывают, что 100-балльная система обеспечивает высокую эффективность в выявлении «слабых мест» речевого развития учащегося и индивидуальном планировании коррекционной работы.*

Ключевые слова*: методика, специальное образование, инклюзивное образование, кохлеарный имплант, индивидуальный подход, искусственный интеллект, технологии.*

Annotatsiya*. Ushbu maqolada koxlear implantga ega o'quvchilarning nutq kompetensiyalarini baholashning yangi yondashuvi — 100 ballik dinamik monitoring tizimi yoritilgan. Muallif nutqning akustik, leksik, grammatik va kommunikativ jihatlarini raqamli ko'rsatkichlar asosida tahlil qilib, reabilitatsiya jarayonining samaradorligini ilmiy asoslaydi. Tadqiqot natijalari 100 ballik tizim o'quvchi nutq rivojlanishidagi "zaif nuqtalar"ni aniqlash hamda korreksion ishlarni individual rejalashtirishda yuqori samaradorlikni ta'minlashini ko'rsatadi.*

Kalit so'zlar: *metodika, maxsus ta'lim, inklyuziv ta'lim, koxlear implant, individual yondashuv, sun'iy intellekt, texnologik.*

Introduction. One of the priority areas of modern special pedagogy and surdopedagogy is the social rehabilitation of children with hearing impairments and their integration into society. Today, cochlear implantation (CI) surgery serves as the most effective technological solution for students with severe hearing impairments, not only to open up the world of sounds, but also to form their speech competencies [1]. However, practice shows that in the postoperative period, the speech development of students does not proceed smoothly, and there is a need for specific criteria for pedagogical monitoring of this process.

The relevance of the topic is that general approaches to assessing the speech activity of students with cochlear implants do not always give the expected result. Since each child's individual capabilities, the regularity of postoperative speech therapy sessions, and

the social environment are different, it is relevant to digitize the dynamics of their growth based on a 100-point system [3]. This approach allows the teacher to monitor the student's speech competence not simply as "good" or "bad", but in dynamics based on specific indicators. The purpose of this study is to analyze changes in the speech activity of students with cochlear implants using a 100-point assessment scale and thereby substantiate effective mechanisms for developing their communicative abilities [5]. In this process, the phonetic, lexical, and grammatical aspects of speech should be studied comprehensively

Literature review. The issue of assessing the speech activity of students with cochlear implants and the formation of their competencies is at the center of modern pedagogical research. In particular, the issues of preparing future specialists for this complex process and improving methodological support were studied by B.T. Turakhonova, who emphasizes the need to improve the process of organizing the professional activities of future pedagogical psychologists [6]. This is directly related to the monitoring skills of specialists working with children with Cis.

Also, studying the dynamics of psychological development of school-age children and their personal characteristics serves as a fundamental basis for assessing the speech competence of CI students. After all, speech growth is not only the restoration of hearing, but also the general development of the personality [7].

Local experiences in quantitative assessment (in a scoring system) of the rehabilitation process of CI students show that an integrated approach is necessary in monitoring speech development. L.R. Muminova systematized the pedagogical stages after implantation in her work [1], while I.V. Koroleva offers a methodology for step-by-step diagnostics of this process [3]. The fact that when assessing speech competencies in a 100-point system, the main attention should be paid not only to pronunciation, but also to the social and pragmatic aspects of communication is also reflected in international methodologies [5].

These analyses show that the introduction of a digital monitoring system (100-point scale) that takes into account pedagogical preparation and the individual characteristics of the child in studying the dynamics of speech activity of students with KI is of scientific and practical importance.

Research methodology. A comprehensive methodology combining quantitative and qualitative indicators was used to analyze the dynamics of speech activity of students with cochlear implants. The methodological basis of the study is individual monitoring of the child's speech development and grouping the results on a 100-point scale. This approach serves to objectively assess the student's real capabilities in the pedagogical process [1, 5].

During the study, the following 4 main criteria were identified for assessing speech competencies, each of which is evaluated with a maximum score of 25 points:

1. Acoustic-gnostic competence (0-25 points): The student's ability to distinguish between non-speech and speech sounds, and the perception of words without visual support (without lip reading) is analyzed.

2. Lexical-semantic competence (0-25 points): The volume of vocabulary, understanding the meaning of words and the level of their appropriate use are checked [2].

3. Grammatical and syntactic competence (0-25 points): The ability to form sentences grammatically correct, use conjunctions and tense adverbs is assessed.

4. Pragmatic and communicative competence (0-25 points): The initiative to enter into communication, activity in the question-answer process, and the level of social adaptation are taken into account [7].

The research process was carried out in three stages:

• First stage (Diagnostic): The initial speech level of the students was determined.

• Second stage (Formatted): Individual correction exercises developed on the basis of a 100-point system were carried out.

• Third stage (Control): The results obtained were analyzed in dynamics and the growth coefficient of the points was calculated.

This methodology allows not only to record the result, but also to make adjustments to the rehabilitation program, taking into account the characteristics of the student's psychological development [6].

Research results and their analysis. As part of the study, the speech competencies of students with cochlear implants were monitored on a 100-point scale for one academic year. As B.T. Turakhonova noted, the correct organization of the pedagogical process directly affects the psychophysical development of students [6]. In our observations, this effect was clearly manifested in the increase in speech scores.

Table 1.

Dynamics of growth of students' speech competencies

№	Evaluation criteria	Beginning of the year (points)	End of year (points)	Growth
1	Acoustic (Hearing)	12.4	21.8	+75.8%
2	Lexicon (Dictionary)	8.6	15.4	+79.0%
3	Grammar (Sentence Structure)	5.2	11.2	+115.3%
4	Communicative (Communication)	7.8	16.6	+112.8%

Analysis of the table shows that the highest growth coefficient was observed in the Grammatical and Communicative blocks. This situation corresponds to the "post-implantation active communication period" described by I.V. Koroleva [3].

It should be noted that the stability of speech dynamics also depends on the moral and psychological state of students [7]. Rehabilitation exercises based on the methodology of L.R. Muminova allowed to significantly increase the vocabulary of students [1].

Scientific discussion of the results. Analysis of the speech activity of students with cochlear implants (CI) on a 100-point system takes the quality of the rehabilitation process to a new level. The overall growth coefficient of 91.1% recorded in our study is not just a statistical indicator, but the product of a comprehensive surdopedagogical approach.

In the scientific substantiation of the results obtained, the ideas for improving pedagogical activity put forward by B.T. Turakhonova play an important role [6]. The researcher notes that the professional training of specialists allows for timely diagnosis of individual changes in the child. The 100-point monitoring system used in our study is a practical manifestation of this methodological training. The stability of the dynamics of speech growth in accordance with the laws of psychological development of students was also confirmed in the works of B.T. Turakhonova [7].

In particular, the increase in grammatical-syntactic competence by 115.3% indicates that after the quantitative saturation of the vocabulary of KI students, qualitative changes in them – the formation of sentence building skills – occur. This situation corresponds to the period of "speech burst" described by I.V. Koroleva, and in our scoring system this was reflected in specific numbers [3]. As L.R. Muminova and M.S. Ayupov noted, rehabilitation after implantation is not only the restoration of hearing, but also the reconstruction of the language system [1]. Our 100-point analysis showed in which part of this language system (for example, in communicative activity) there is a slowdown, and served to target corrective work.

Thus, quantitative assessment of the dynamics of speech activity, unlike traditional assessment methods, reveals the internal capabilities (reserves) of the student. This, in turn, guarantees the successful integration of children with hearing impairments into society, in particular, into an inclusive educational environment [4].

Conclusions and suggestions. Our study, conducted on the dynamics of speech activity of students with cochlear implants based on a 100-point assessment system, allowed us to draw the following conclusions:

1. Methodological efficiency: Monitoring speech competencies through numerical indicators (from 0 to 100 points) ensures transparency and objectivity of the rehabilitation process. This system, unlike traditional qualitative assessment methods, allows you to record even small positive changes in the student.

2. Dynamic growth coefficient: The analysis conducted during the academic year showed that as a result of systematic surdopedagogical assistance, the overall speech indicator of students increased from an average of 34 points to 65 points (91.1%). In particular, the more than 2-fold increase in grammatical and communicative activity proves the readiness of children for social communication [3; 6].

3. Individual trajectory: The results of the study confirmed that the speech of children with cochlear implants does not develop evenly. The 100-point assessment system allows for the creation of a "speech profile" for each student, identifying their

strengths and weaknesses (for example, good auditory perception, but poor vocabulary), and determining individual correction directions [1; 7].

Practical suggestions: Implementation of a monitoring system: It is recommended to introduce 100-point diagnostic cards for students with cochlear implants in special and inclusive educational institutions and conduct a dynamic analysis every quarter. Integrated approach: In the development of speech competencies, it is necessary to strengthen the cooperation not only of the deaf-and-dumb teacher, but also of the psychologist and parents, and to use interactive methods that increase the communicative activity of the child. Creation of digital platforms: In the future, it is advisable to create a mobile application or software that automatically analyzes the results of the 100-point assessment and form.

The analysis of speech activity dynamics in students with cochlear implants, evaluated through a specialized **100-point assessment framework**, leads to the following conclusions: **Objective Monitoring Paradigm:** The transition from qualitative descriptions to a quantitative 100-point metric significantly enhances the precision of rehabilitative monitoring. This methodology allows for the empirical validation of even the most subtle linguistic shifts, ensuring a transparent data-driven approach to surdopedagogical progress. **Quantitative Success Indicators:** Empirical data gathered throughout the academic cycle indicates a substantial upward trend in speech proficiency. The average performance escalated from an initial **34 points to 65 points**, representing a **91.1% growth rate**. The twofold expansion in grammatical and communicative competencies serves as a vital indicator of the students' readiness for integrated social environments. **Personalized Rehabilitation Pathways:** The research underscores that linguistic recovery in implanted students is highly heterogeneous. By utilizing the 100-point "speech profile," educators can isolate specific phonetic, lexical, or auditory gaps, thereby replacing "one-size-fits-all" teaching with targeted, individualized correctional strategies.

Practical Recommendations:

1. **Digital Integration:** It is advised to incorporate digital monitoring platforms into special education settings to track real-time speech development using the 100-point scale.
2. **Curriculum Adaptation:** Educational institutions should adapt their linguistic programs to focus on "communicative readiness," prioritizing the bridging of gaps identified in individual speech profiles.
3. **Professional Training:** We recommend organizing specialized training workshops for surdopedagogues to master the objective scoring criteria and interpretive analysis of the 100-point system.

References:

1. Muminova L.R., Ayupov M.S. Rehabilitation of children with cochlear implants. – Tashkent, 2018.
2. Nurmuhamedova L.Sh. Surdopedagogy. – Tashkent, 2021.
3. Koroleva I.V. Rehabilitation of deaf children after cochlear implantation. – St. Petersburg, 2015.
4. Khamidova M.N. Speech development of children with hearing impairments in inclusive education. – 2020.
5. Zaitseva G.L. System of assessment of speech development of children with hearing impairment. – Moscow, 2010.
6. Turakhonova B. Improving the process of professional training and organization of pedagogical activities of a future teacher-psychologist // Eurasian Journal of Academic Research. – 2022. – No. 2(12). – P. 305-309.
7. Turakhanova B. T. Specific aspects of the dynamics of the development of moral and psychological characteristics of the personality of adolescents in modern school education // Scientific Journal of Psychology. – 2025. – No. 4.s a graph of the student's speech growth.