

Ways of Developing Language Skills of Preschoolers With General Underdevelopment of Speech in the Context of Bilingualism

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The study described in this article evaluates the effectiveness of methods of improving phonetic, grammatical, and syntactic skills in children with general speech underdevelopment in a bilingual environment. The method is based on a theoretical study of severe speech disorders, a structural analysis of linguistic samples, and a comparative study of the results of research by various scientists in an interdisciplinary discourse. An experimental study was carried out concerning the assessment of the effectiveness of speech therapy exercises for forming linguistic skills (phonetic-phonemic, morphological, word-formation, lexical, and syntactic) at different language levels in preschoolers with a general speech disorder in the context of bilingualism (Kazakh was considered the main language, and Russian was considered an additional language). The materials presented in this paper can be used to develop linguistic skills for various speech defects.

Keywords: **Bilingualism, Speech Therapy Exercises, Sound Pronunciation, Morphological Category, Sentence Construction**

Introduction

Speech and language disorders are a prevalent concern worldwide, affecting a significant number of children across various cultures and languages. They can impede a child's ability to communicate effectively, leading to challenges in social interaction, academic achievement, and overall development. Studies have highlighted that speech, language, and communication disorders are among the most common referrals for developmental assessments in early childhood, indicating a strong correlation with social, emotional, and academic difficulties in later years (Polly, 2022). The complexity of these disorders is amplified in bilingual contexts, where children must navigate the intricacies of two linguistic systems (Spytska, 2023).

In Kazakhstan, the language situation is particularly unique due to its bilingual landscape, where Kazakh and Russian coexist as significant languages in society (Kulakhmet et al., 2022). The strategic emphasis on revitalizing the Kazakh language while maintaining the cultural functions of Russian presents a complex backdrop for addressing language disorders (Tazhibayeva & Kozyrev, 2015). This bilingual environment creates a distinctive challenge for speech therapy, necessitating tailored

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approaches that consider the interlingual dynamics and phonotactic restrictions of both languages (Goldstein & Gildersleeve-Neumann, 2015). Within this bilingual context, the issue of general underdevelopment of speech (GUS) is particularly significant (Iskakova et al., 2014). GUS refers to a condition where children exhibit delayed or insufficient development in their speech and language skills that is not attributable to any specific neurological, sensory, intellectual, or emotional causes. This condition encompasses a broad spectrum of speech and language difficulties, including, but not limited to, challenges in articulation, vocabulary acquisition, syntax, and phonological awareness (Iskakova et al., 2014).

Research in this field has explored various dimensions, including the impact of bilingualism on speech-sound disorders, training speech therapists, and the role of music in developing phonetic and phonemic skills. However, a gap remains in understanding the specific challenges faced by bilingual children with speech disorders in Kazakhstan (Karibayeva & Kunanbayeva, 2018). Studies such as those by Bonuck et al. (2022) and Riva et al. (2021) have begun to address the complexities of language disorders in bilingual children. However, more focused research that integrates these findings with the unique sociolinguistic context of Kazakhstan is needed.

Interprofessional collaboration is crucial for helping children with developmental language disorders (Rocha et al., 2023), and evidence-based practice is needed in speech-language pathology (Souza & Cáceres-Assenço, 2023). However, how these approaches can be used in Kazakhstan's bilingual setting has not been fully explored. The burgeoning challenges faced by bilingual children with speech disorders in Kazakhstan's unique linguistic landscape underscore the necessity for a nuanced exploration of speech therapy methodologies (Nukusbekova et al., 2022). Consequently, this study endeavors to bridge the existing research gap by investigating the intricacies of linguistic skill formation at the phonetic, grammatical, and syntactic levels among children with general speech underdevelopment. This research aims to pioneer effective strategies to significantly enhance the support system for bilingual children grappling with speech disorders by scrutinizing the efficacy of tailored speech therapy exercises within this context, offering insights that could extend beyond Kazakhstan's borders to inform global practices in bilingual speech therapy.

This exploration of speech therapy methodologies tailored for bilingual children with general speech underdevelopment in Kazakhstan raises two critical research questions. The first is, "How do tailored speech therapy exercises impact phonetic, grammatical, and syntactic skill formation in bilingual children with general speech underdevelopment?" This question seeks to understand the direct effects of customized interventions on specific linguistic competencies. The second question is, "What are the comparative effects of different speech therapy exercises on language skill acquisition in a bilingual context?" This question aims to discern which methodologies yield the most significant improvements in bilingual acquisition. These questions guide the investigation toward uncovering effective strategies for developing linguistic skills, aiming to offer a comprehensive support system for bilingual children with speech disorders.

Methods

Materials

The study was conducted in the unique bilingual setting of Kazakhstan, leveraging the intricacies of Kazakh and Russian linguistic systems. Materials for the experimental intervention included a carefully curated set of speech therapy tools: logo-rhythmic aids, music therapy instruments, visual aids such as pictures and flashcards, and tangible materials for isotropy and color therapy activities. Additionally, specialized exercises were developed to address phonetic, morphological, lexical, and syntactic aspects of speech development and tailored to Kazakh and Russian languages. All the exercises focused on the practical application of language skills, incorporating gaming and visual methods to enhance engagement and information assimilation. The experimental context was enriched by using real-life scenarios and interactive sessions to simulate everyday communication environments.

Participant Recruitment

The study targeted preschool children aged 5–6 years with diagnosed general speech underdevelopment (GUS). Participants were recruited from Correctional Day Care Center No. 66 in Almaty, which specializes in assisting children with severe speech disorders. The selection process involved consultations with speech therapists and educators at the center and a preliminary assessment to confirm the severity of speech underdevelopment consistent with the study criteria. Parental consent was obtained for each participant, ensuring ethical compliance and understanding of the study's aims and procedures.

Experimental Context

The intervention was conducted over two months (July–August 2022) in the supportive and controlled environment of Correctional Day Care Center No. 66. This setting provided a conducive atmosphere for the children to engage in the therapy sessions without the distractions of their routine environments. The center is equipped with appropriate facilities and materials to support a range of speech therapy activities, from logo-rhythmics to music therapy, isotropy, and visual-based learning.

Descriptive Statistics of the Participants

The experimental group comprised eight bilingual children (five boys and three girls) with an average age of 5.5 years. Prior to the intervention, assessments were conducted in Kazakh and Russian to gauge each child's active vocabulary, cognitive status, and specific areas of speech underdevelopment. The initial evaluation revealed significant variance in language proficiency between the two languages, with a noticeable lag in the Kazakh language among most participants, despite it being the native language for the majority. It should be noted that the tests employed during the assessment phase comprised informal assessment tools. These materials are available upon request from the authors.

Measurement Procedures

The assessment framework involved a combination of standardized tests and bespoke exercises designed to evaluate phonetic, morphological, lexical, and syntactic skills in both languages. Pre- and postintervention assessments were conducted to measure the effectiveness of the speech therapy methods. The tools used for these assessments were designed to capture the following competencies:

- Phonetic analysis: custom exercises to identify specific phonological issues, alongside standardized speech sound production assessments;
- Morphological and lexical skills: tasks designed to evaluate the understanding and use of morphemes and vocabulary in context, including picture naming, sentence repetition, and morphological rule application exercises; and
- Syntactic skills: sentence structure and grammatical understanding assessed through storytelling, sentence construction tasks, and comprehension questions based on short passages.

A team of speech therapists fluent in Kazakh and Russian recorded all the sessions and examined the responses to ensure an accurate interpretation of bilingual responses. It is important to note that the standardized tests used in this study were conducted in the Kazakh language, targeting a specific and relatively small population group. They are not available outside of Kazakhstan. Interested readers are encouraged to contact the authors for more detailed information regarding these tools.

Experimental Design

The intervention followed a structured approach, with sessions tailored to address the linguistic needs at different levels of speech underdevelopment. Therapy combined individual and group sessions, allowing for focused attention and interactive learning. Techniques included logo-rhythmic exercises, music therapy, verbal games, and visual aids to enhance phonetic accuracy, lexical richness, grammatical correctness, and syntactic complexity in both languages.

The study design aimed to document the progression of language skills in a bilingual context, contributing valuable insights into effective speech therapy practices for bilingual children with GUS.

Results

The peculiarities of language development at levels I–IV in general speech underdevelopment

General speech underdevelopment is a violation of sound formation, lexical-grammatical, and semantic aspects of speech against the background of complex speech disorders in children who do not have problems with hearing or intellect. Speech underdevelopment is expressed in varying degrees, from a complete lack of communication skills to extended speech with pronounced lexical-grammatical and phonetic problems.

At the first level of speech underdevelopment, the child completely or almost completely lacks speech skills, with minimal use of verbal means. At the age

of 4–5 years, a child's active vocabulary comprises onomatopoeia as well as sound complexes, which are insufficient for communication in society. Sound complexes are frequently used with reciprocal gestures, making it possible for the child to communicate with adults.

Babbling speech consists of so-called sound elements that are close in sound to certain lexemes. It can also be based on words that are dissimilar in sound. Although common words are also used, they have a distorted structure and sound design. Different objects can be named using the same word, and lexemes denoting actions can be replaced by lexemes denoting objects, and vice versa, violating the grammatical structure of the language. Morphological elements to express grammatical meanings are not used (i.e., there are no skills for the declension of nouns by cases, verbs by tenses, or adjectives by gender). The basis of speech consists of root words without inflections.

Preschoolers with the first level of general speech underdevelopment practically do not speak in phrases but sometimes use babbling sentences, while their passive vocabulary is much larger than their active one. Therefore, it often seems that children understand everything but cannot speak. Moreover, communication is possible only in a specific context. Understanding of the lexical meaning of many words and grammatical changes is lacking. The sound aspect of speech is practically unformed, the pronunciation of sounds has no fixed articulation, and the syllabic structure of the word is not reproduced.

At the second level of general speech underdevelopment, communicative activity in children is higher than that at the first level, since phrasal speech begins to form but is distorted in phonetic and grammatical terms. Speech skills are limited to a detailed answer about the family or events, or a concise description of a picture. Vocabulary consists of nouns and verbs. A minimum number of adjectives is used. Since the lexical layer has no names for body parts, animals, professions, or flora, the child often replaces these lexemes with similar meanings, for example, "water" instead of "fountain." Word-building skills are absent.

Expressive speech demonstrates grammatical violations; several grammatical constructions contain gross mistakes, particularly incorrect case definitions, a lack of understanding of gender, and the coordination of adjectives and numerals with nouns. Difficulties also arise when using prepositions. As a rule, they are omitted or replaced, while conjunctions and particles are seldom used.

The phonetic pattern of speech is characterized by distinct consonant pronunciation (hissing, sonorous, whistling, voiced and deaf, hard and soft) manifested in the fuzzy articulation of loud sounds, omissions of consonants, disturbances in sound filling, and the addition of extra vowels. Due to a lack of phonemic perception, children cannot perform a sound analysis of words or synthesize speech. Phonological disturbances lead to structural changes:

- elision (reduction in the number of syllables);
- perseveration (rearrangement of syllables);
- contamination (unification of syllabic structures in two different words); and
- anticipation (similarity of syllables).

Errors in syllable construction indicate a low level of phonemic and articulatory abilities in the child. At the third level of general speech underdevelopment, although detailed phrasal speech is present, it is strongly underdeveloped at the lexical-grammatical and phonetic-phonemic levels. The phonetic aspect of speech is formed, but mistakes regarding the undifferentiated pronunciation of whistling, sonorous, hissing sounds, and affricates frequently occur. Sounds can be replaced depending on the proximity of the phonemic group: for example, "soft s" instead of "s," "sh," "zh," "ts," "sch," and "ch." Unstable sound use is observed when it is pronounced in different ways, as well as mixing sounds, articulation distortion, devocalization, or the lack of softening sounds.

Lexical distortions are associated with the following mistakes: a reduction in the number and rearrangement of syllables and the assimilation of unnecessary sounds. Most of the time, phonemic underdevelopment indicates that an individual cannot tell the difference between sounds that are produced slightly differently. Consequently, it takes them longer to learn how to analyze and combine sounds.

Vocabulary in preschoolers is characterized by many lexical mistakes: incorrectly introducing words into the speech context, incorrectly articulating passive vocabulary, word replacement, using incorrect nominations to designate objects that are similar in appearance, replacing part of the object with its name, problems with introducing lexemes to designate generic and specific concepts, and replacing a word with a phrase or a sentence.

Children with the third level of general speech underdevelopment exhibit stability in distorting grammatical speech forms and impressive agrammatism (a lack of understanding of the morphological structure). They experience difficulties in perceiving complex logical grammatical structures used for the linguistic construction of causal and spatial relationships in sentences. At the level of expressive speech, mistakes are made with grammatical changes in words, introducing simple and complex prepositions, and the agreement of adjectives, numerals, and nouns.

Many mistakes are also present in word formation when using prefixed verbs, choosing words with the same root, and forming adjectives from nouns. The monologue speech of preschoolers is a source of information about the severity of violations in terms of vocabulary, grammar, and sound pronunciation. A child can compose a story according to their own design using a description. When listing events, a logical sequence is observed, but certain fragments are frequently lost (names of persons, actions, or objects are omitted; Spytska, 2024).

At the fourth level of speech underdevelopment, disturbances in sound differentiation are demonstrated. A preschooler understands the meaning of a word, but a distortion of the phonemic image in different variations is present: perseveration, paraphasia, permutation, sound omissions, and syllable rearrangement. Since the articulation is fuzzy, it gives the impression of blurred speech flow. Diction is absent. Awareness of word-formation processes represents significant difficulty. Mistakes are distinguished by stability when introducing nouns with diminutive suffixes, suffixes of singularity, and possessive adjectives (Proskurina & Kravchenko, 2018). The main directions of speech therapy are indicated in Table 1.

Table 1. Speech Therapy Working With General Speech Underdevelopment

Level 1	Level 2	Level 3	Level 4
imitation development	development of the sound structure of speech	mastering practical skills in lexical and grammatical means	improvement of skills in the formation of sentence structure
speech understanding development	development of prosodics (tempo, rhythm, intonational means)	formation of competent pronunciation	work on differentiating sounds
visual attention development	development of understanding the functioning of grammatical categories	preparation for teaching written language	development of expressiveness and diction skills
auditory development	development of speech structure and phrasal speech	work on improving coherent speech	work on the use of grammatical forms (for example, possessive adjectives)
memory development	vocabulary building	work on the formation of syntactic patterns	vocabulary replenishment

Note. compiled by the author, based on Proskurina and Kravchenko (2018)

Results of the experiment

The study was conducted in Correctional Day Care Center No. 66 for children with severe speech disorders in Almaty in July–August 2022. An experimental group was created comprising bilingual children aged 5–6 years with level III general speech underdevelopment (eight children). Classes for the children were held in groups separately in Kazakh and Russian, since one of the first tasks of a speech therapist is to understand the child's key problems, taking into account their main communication language. Elements of the Russian language were occasionally used when studying Kazakh, and vice versa.

The analysis of the effectiveness of speech therapy classes was used to determine which methods and exercises are highly effective and which are not. The most commonly used methods were

- logo-rhythmics (dance exercises, walking in different directions, games using onomatopoeia);
- music therapy (listening to music, singing); and
- isotherapy and color therapy (creating drawings and applications, using puzzles and constructors).

The basis for the speech therapy classes was

- pratique (articulation exercises, plot-role-playing, outdoor games);
- visual (use of drawings, layouts for assimilating information);

– verbal (conversations, descriptions of pictures);
– modeling (constructing sentences based on cards).

All the children demonstrated difficulties expressing holistic thought. Therefore, speech therapy exercises focusing on the formation of a competent sentence structure were carried out. Cards depicting people and objects were used for this purpose; the child was required to name them and construct a sentence from the presented lexemes. For example, the words "girl" and "boots" were given ("The girl wears boots"). When studying shoes, lexical errors were found in the names of professions: "Boots are sewn at a confectionery factory" (correctly, "shoe factory").

The method of constructing a drawing was also used. In turns, the children took a carved object (e.g., a sun, tree, or animal) and glued it to a canvas to create an overall picture. After the drawing was completed, the children described what they saw prompted by the speech therapist's corrective questions. Thus, the output was a complete text. Work on the transition of words from the passive to the active vocabulary was carried out using games and interactive methods. Conducting a confidential dialogue contributed to replenishing the vocabulary and the acquisition of communication skills by preschoolers with severe speech disorders.

Phonetic work on pronouncing sounds incorporated visual materials: The children named the objects on the pictures individually. For example, lexemes were selected for the sound "z": "teeth" (*zuby*), "nest" (*gnezdo*), and "vase" (*vaza*). In addition, the syllable division technique was employed. The speech therapist listed rows of syllables ("zo," "za," "z," "zu," "ze," and "zo") and the children repeated them in turn. They were also told where the sound "z" stands: at the beginning, middle, or end of the word. Four children had not developed the ability to differentiate several sound pairs before the start of the study. However, during the learning process, positive dynamics in the pronunciation of whistling and hissing sounds were observed.

Classes for developing word-formation and morphological skills were built on the principle of association and reproducing patterns corresponding to the rules and principles of the Russian and Kazakh languages. In the practice of selecting adjectives for nouns, the correct forms of the verb (for example, temporary) were used. Word declension skills were formed in parallel with phonetic and syntactic skills, enabling the children to simultaneously practice sentence construction and correctly reproduce grammatical patterns in speech (Nikolenko et al., 2023).

During the speech therapy sessions, notable advancements were observed in several dimensions of language development in the participating children. The effectiveness of the intervention was quantitatively and qualitatively assessed, revealing significant enhancements in vocabulary, morphological understanding, word-building capabilities, and phonetic precision. Active vocabulary expansion was particularly impressive: Each child demonstrated an average increase effectively doubling their initial capacity. This growth, initially quantified at a 100% increase for clarity, reflects the successful integration of new words into their communicative repertoire, spanning essential categories such as food, clothing, animals, and professions. This marked improvement underscores the sessions' capacity to enrich the children's linguistic landscape significantly.

Morphological literacy was elevated, quantified as a 4% enhancement. This metric was derived from assessments focusing on the children's ability to navigate

the complexities of noun declension, adjective-noun agreement, and verb tense applications more accurately than before the intervention. This progress is indicative of a deeper, more nuanced grasp of grammatical structures in both languages. Word-building skills, essential for creative and adaptive language use, improved by 3%. This increase was measured through exercises designed to test the children's ability regarding morphological rules, particularly their use of suffixes to generate new words. This gain demonstrates an enriched understanding of language mechanics, allowing for more sophisticated expression. Phonetic accuracy also indicated a 3% improvement, capturing the children's enhanced ability to distinguish between closely related sounds and articulate them more clearly. This metric reflects the targeted exercises' effectiveness in honing the auditory and articulatory skills necessary for precise speech production.

The application of game activities and music therapy contributed significantly to these outcomes by reinforcing language skills and enhancing engagement and motivation (Dayirbekova et al., 2019; Romash et al., 2022). The observed improvements in vocabulary, grammar, and phonetics facilitated by these methods indicate a holistic approach to language learning that resonates well with the children's cognitive and emotional development. Overall, these percentage-based improvements serve as a visible indicator of the children's progress throughout the therapy. They reflect a methodical approach to measuring language development, where each percentage point represents a step toward greater linguistic competence and confidence in a bilingual context.

Exercises for developing language skills in the context of bilingualism

A set of phonetic exercises for preschoolers with general speech underdevelopment should be formed, depending on the severity of the violation and the native language. The development of speech skills in the Kazakh language is preferable if the child uses Kazakh in the domestic environment, and vice versa. The skills of a second language should be developed in parallel, but only when the pronunciation of a similar sound has already been formed in the native language. A lesson for developing phonetic and phonemic skills is only effective if the following steps are followed:

1. Articulatory gymnastics: "Chicks" exercise (the child opens their mouth wide, tongue and lips in a tense state, and counts from 1 to 4–6);
2. Exercises for developing oral exhalation: "Butterflies" exercise (the child blows on butterflies made of paper while ensuring their cheeks do not puff out and their shoulders do not rise during the exhalation);
3. Exercises for developing speech breathing: "Sniffing-a-flower" exercise (the child rises on their toes, inhaling through their nose and then lowers to the starting position, saying "Ah!" during exhalation);
4. Height development: "Rocking-the-doll" exercise (sound pronunciation occurs with an increase or decrease in voice); and
5. Voice strength: "Echo" exercise (a particular sound is pronounced either loudly or quietly).

Understanding the differences between languages is crucial when developing language skills in bilingual children. First, one should develop a particular skill in

the native language and then practice the same technique in the second language. Attention should be paid to pronouncing sounds with distinctive features (in the Kazakh language, the sounds "ä," "i," "ö," "u," "ü," "ı," "ğ," "q," "h," "ŋ," which are absent in Russian), synharmonism in compliance with soft and hard syllables ("ə-zhe-leŕ," "a-ta-lar"), and the laws of assimilation ("bas-tıq," "awıl-ğa," "qala-lıq," "bilezik" – "bilezigi," "taraq" – "tarağı"; Darkulova & Nurumbetova, 2022).

The problem of the undifferentiated pronunciation of pairs or groups of sounds frequently occurs in the context of bilingualism since a child can not only identify sounds that are similar in their phonetic nature but also confuse phonemes with pronounced differences in terms of articulation ("t'" can be replaced by "s," "ch," "sh," "l" – "r," "f" – "sh," hard "ұ" can be used instead of soft "ү," and soft "i" can be used instead of hard "ы"). Bilingual children also have problems replacing Kazakh sounds with Russian ones, and vice versa, since "қ" (Kaz.) is similar in pronunciation to "х" (Rus.), and "ғ" (Kaz.) is similar to "к" (Rus.; Zhunisbek, 2018).

The following exercise is effective for developing the skills of differentiating sounds. For example, to develop a competent pronunciation of hissing, the child is first asked to repeat a series of words with one sound (*zhanbyr*, *zhatyp*, *zhasisyn*), followed by a series of words with a similar sound (*shabyr*, *shalkyp*, *ashisyn*), and then reproduce these sounds in pairs: *zhanbyr–shabyr*, *zhatyp–shalkyp*, *zhasisyn–ashisyn*. The skill of differentiated sounding is also developed using examples of the Kazakh and Russian languages simultaneously: *kardyn–gardyna* (Kaz. қ, Russian *g*), *angal–signal* (Kaz. ғ, Rus. *g*), *tomen–doma* (Kaz. ө, Rus. *o*), *tabasyn–syn* (Kaz. ң, Rus. *n*), and *bult–mult* (Kaz. ұ, Rus. *u*).

The optimal method of developing an understanding of syllabic structure is to use exercises dividing words into syllables and practice techniques on words with a similar syllable division. First, lexemes are spoken with the child in syllables. The child is then presented with words with a similar structure: (Kaz.) *ber-dın*, *shop-ter* (closed); *zhu-rek*, *ba-typ* (open + closed); (Rus.) *ko-ro-na*, *so-ro-ka* (open); (Kaz.) *zha-ryk*, (Rus.) *ve-ter* (open + closed; Comparative features of the Kazakh and Russian languages, 2015).

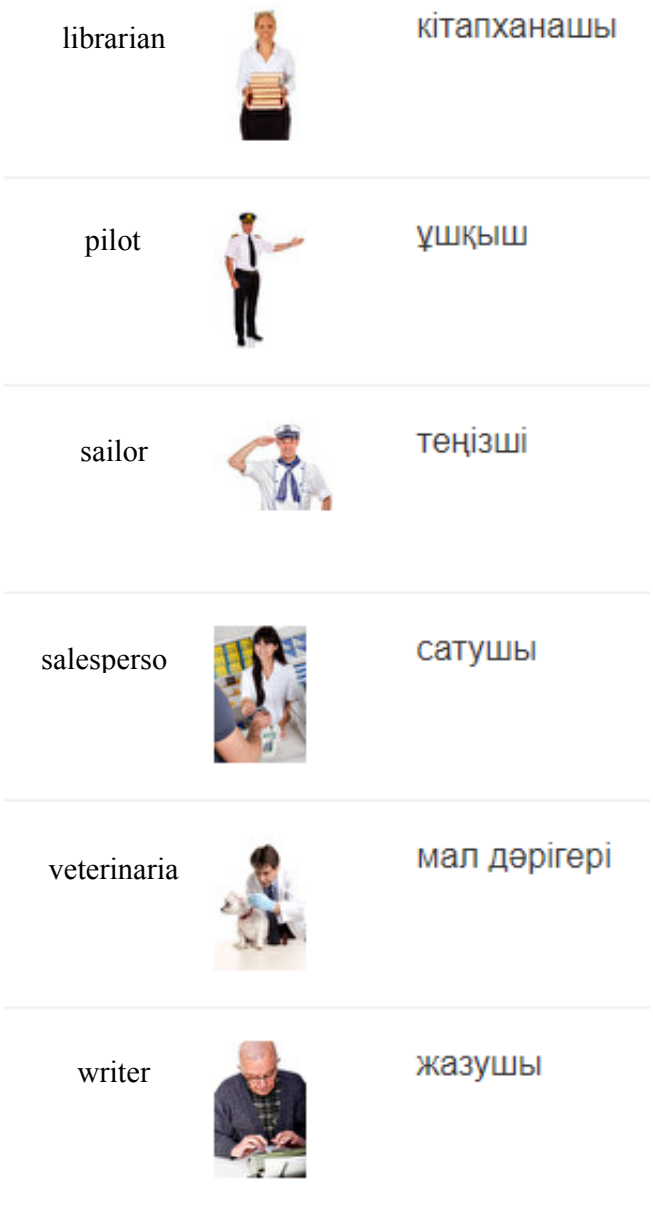
Morphological (declension of words) and word-building skills are developed by selecting several words in the same case and introducing them into a phrase or sentence. For example, the skill of using the genitive case can be learned by using several words with suffixes:

- -nıŋ, *saxaranıŋ*;
- -niŋ, *dünïeniŋ*;
- -dıŋ, *maldıŋ*;
- -diŋ, *ämidiŋ*;
- -tıŋ, *baqıttıŋ*; and
- -tiŋ, *esettiŋ*.

The task is for the child to first repeat the given words and then try to place them into context, describing certain events from life. The skills of matching adjectives and numerals with nouns are formed similarly.

The visual method is effective for enhancing the vocabulary of preschoolers by category, for example, the names of professions (Figure 1) or body parts (Figure 2), to study particular grammatical categories of nouns, adjectives, and verbs. For

example, the child is first shown cards depicting groups of masculine, then feminine, then neuter words. The cards are then shuffled and the words are displayed in random order.



Note. Professions in the Kazakh language (2022)

Figure 1. **Names of Professions in Kazakh**

Note. Parts of the body in pictures for children in Kazakh (2022)

Figure 2. **Names of Body Parts in Kazakh**

Intonation skills and correct syntactic structure can be developed by studying children's poems:

- *Qwır*, *qwır*, *qwırmaş*,
  - *Men aytayın qolıŋdı aş*!
  - *Mınaw turğan bas barmaq*,
  - *Jumıs sodan bastalmaq* (Qwır, qwır, qwırmaş, 2016);
- *Kak u nashej*, *u Burenki*
  - *Molochko*, *nu chistyj med*!
  - *Slashhe dazhe toj sgushhenki*,
  - *Chto hozjajka ne daet* (Ukrainian Poetry Portal, n.d.).

In the context of bilingualism, it is advisable to study verses in both languages since sentences are constructed very differently: In Kazakh, subordinate clauses come before the main clause, while Russian has no strict sequence (Comparative features of the Kazakh and Russian languages, 2015).

Thus, when developing language skills in children with general speech underdevelopment in the context of bilingualism, the key task is to balance the formation of skills in the native and second languages in the correct sequence. First, a particular skill is practiced in Kazakh, then in Russian. Only then is it possible to consolidate an example of two languages simultaneously. Since bilinguals can confuse the pronunciation of sounds and use word-building formants from another language, it is crucial to build a clear lesson plan for practicing all language skills. For children with levels I–II of general speech underdevelopment, it is preferable to work on phonetic problems (division into syllables, differentiation of sounds, correct pronunciation) and the formation of the concepts of grammatical categories and word declension skills, while at levels III–IV, forming sentence-building skills and understanding text structure and connected speech are of importance.

Discussion

This study, conducted in a bilingual setting in Kazakhstan, observed significant advancements in the linguistic skills of preschoolers with general speech underdevelopment (GUS). These results contribute to an expanding body of research exploring the complexities of speech disorders in bilingual children. Similar to the findings of Strand and McCauley (2008), the differential diagnosis played a crucial role in tailoring the intervention to the specific needs of each child, reflecting the dynamic nature of speech therapy, where strategies evolve in response to the child's progress.

The observed improvements in phonetic, morphological, lexical, and syntactic competencies highlight the efficacy of early intervention, according to Hildebrand et al. (2020) and Pamplona et al. (2020). These findings align with the notion that understanding the genetic and neurobiological underpinnings of speech disorders can inform the development of targeted therapies. In this study, integrating game activities and music therapy facilitated linguistic improvements and promoted cognitive engagement and social adaptation, echoing the emphasis on active communication strategies highlighted by Chenausky and Tager-Flusberg (2022).

This research corroborates the insights of Choo et al. (2022) who found that bilingualism does not exacerbate speech disorders and could, in certain contexts, contribute to a lower prevalence of these impairments. This study's findings, which demonstrate notable linguistic advancements in bilingual children with GUS, support the view that bilingual environments can offer a rich linguistic framework conducive to speech and language development. While Byrd et al. (2016) view bilingualism as a possible risk factor for speech disorders, the results of this study demonstrate that bilingualism does not impede correcting speech disorders in a structured therapeutic setting but facilitates it. This distinction highlights the significance of context and methodology in assessing the impact of bilingualism on speech development.

The use of technology in speech therapy, as Murero et al. (2020) explored, offers a promising path for improving therapeutic results. Using software such as Voiceitt® could complement traditional speech therapy techniques by providing personalized, technology-assisted interventions that cater to the unique needs of children with speech disorders (Mukataeva et al., 2023). This approach mirrors the adaptability and personalized nature of the differential diagnosis strategy in offering tailored interventions. In line with Namasivayam et al. (2021), the PROMPT technique's efficacy in improving articulation and speech intelligibility was mirrored in this study's use of multimodal interventions, which included visual, verbal, and musical exercises designed to target specific areas of speech development. The positive outcomes observed underscore the potential of integrating various therapeutic modalities to address the multifaceted challenges presented by GUS in a bilingual context (Bocheliuk et al., 2022).

Research conducted by Pikanova et al. (2021) on the socialization of preschoolers with GUS resonates with this study's findings, which also highlight the role of play and interactive activities in fostering communication skills. The gradual improvement in speech and language competencies observed in this study emphasizes the necessity of creating comprehensive, contextually sensitive speech therapy programs that consider the linguistic and cultural milieu of the child.

This study's findings, within the bilingual landscape of Kazakhstan, contribute valuable insights into effective strategies for addressing GUS among preschool children. In comparison to other research, the results of this study highlight that a multifaceted approach based on understanding the linguistic, cognitive, and social aspects of speech disorders is needed to make real progress in speech and language development.

Conclusions

Analyzing methods of forming language skills in a bilingual environment in children with general speech underdevelopment demonstrates that to effectively master the rules, it is necessary to develop certain linguistic algorithms and form language patterns to guide the child when constructing phrases and sentences in the future. For speech development, in addition to focusing on particular speech therapy exercises, it is necessary to use game activities and interactive and visual materials, and conduct conversations, since communication in society is the primary task of forming language skills.

Competently constructing linguistic patterns requires observing language levels, from forming the phonetic-phonemic aspect of speech (syllabic division skills, correct pronunciation, differentiation of sounds), developing an understanding of morphological categories and word-formation processes (skills for coordinating nouns with adjectives and numerals, using case suffixes, affixal formants), to forming a lexical layer and syntactic skills for constructing phrases and understanding grammatical relationships between sentences.

In this experimental study, the most effective methods for developing linguistic skills of a phonetic, lexical-grammatical, and structural-syntactic nature in preschoolers with general speech underdevelopment in the context of bilingualism (Kazakh-native, Russian-second) were identified. Language defects were analyzed at four levels, including general speech underdevelopment. Attention was focused on the differences between the linguistic systems of the Kazakh and Russian languages. Examples of speech therapy exercises were given, and their effectiveness was evaluated in children with general speech underdevelopment in a bilingual environment.

The following areas regarding the formation of linguistic skills are promising: developing new speech therapy exercises for different levels of general speech underdevelopment, specific technologies that can effectively eliminate speech defects in the context of bilingualism, introducing machine methods in teaching, and evaluating the effectiveness of existing methods and introducing changes to improve their efficacy. Experimental work requires using different bilingual environments and adopting the speech therapy experiences of other countries.

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