

- Balalardy erte damytu instituty. (2025b). *Mektepke deiingi üiymdarda balalardyñ tanymdyq jáne zertteu äreketin üiymdastyru boiynsha ädistemelik üsynymdar*. <https://irrd.kz/old/sites/irrd.kz/uploads/docs/2025/04/d-k1410.pdf>
- Bovina, I. (2020). Empatiya: Kriticheskiy analiz i novye issledovatel'skie perspektivy. *Kulturno-istoricheskaya psikhologiya*, 16(1), 88–95. <https://doi.org/10.17759/chp.2020160109>
- Creswell, J.W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Gorelov, A.A. (2009). *Ekologiya*. KNORUS.
- Zhakupova, A.Zh., & Smagulova, B.B. (2025, November 4). “Zhasyl balabaqsha” zhobasy: Zertteuler men iske asyru tetikteri. In *Bilim beru strategialary: Bolashaq kadrlardy dairlau: Qoǵam qayratkeri, QR ŪǵA akademigi Serik Zhailauıly Pirälievti eske aluǵa arnalǵan III Khalyqaralyq pedagogikalyq forumynyñ zhinaǵy* (pp. 25–28). *Abai atyndaǵy Qazaq űlttyq pedagogikalyq universiteti*.
- Kursabaev, M.K., & Saidakhmetov, B. S. (2026). *Mektepte balalardyñ qoǵamdyq birlestikteri arqyly ekologialyq tárbiye jumystaryn üiymdastyrudyñ etnopedagogikalyq erekshelekteri*. *Abai atyndaǵy QazŪPU-dyñ Khabarshysy*. “Pedagogika ğylymdary” seriasy, 1(89), 320–329. <https://doi.org/10.51889/2959-5762.2026.89.1.030>
- Lambert, L.M. (2024). *Ecological empathy: Relational theory and practice*. *Ecosystems and People*, 20(1). <https://doi.org/10.1080/26395916.2024.2396919>
- Luo, J., Zhao, R., & Li, Y. (2025). The role of empathy training in promoting pro-environmental behavior: A comprehensive review. *Frontiers in Educational Research*, 8(9), 82–89. <https://doi.org/10.25236/fer.2025.080914>
- Mankesh, A.E., Taubaeva, G.Z., & Meterbaeva, K.M. (2024). *Qazaqstandaǵy mektepke deiingi bilim berudiñ teoriasy men tájiribesi: Ūjymdyq monografiya. Ūlaǵat baspasy*.
- Qazaqstan Respublikasy Ūkimeti. (2024, October 31). *Ekologialyq mádenietti damytudyñ 2024–2029 jyldarǵa arnalǵan “Taza Qazaqstan” tújyrymdamasyn bekitu turaly (№ 910 qauly)*. <https://adilet.zan.kz/kaz/docs/P2400000910>
- Shildebaev, Zh. B. (2024). *Ekologialyq bilim men tárbiye berudiñ teorialyq negizderi jáne ädistemesi*. KEMEL KITAP.
- Smetana, V. (2025). *Eticheskie soobrazheniya i ekologicheskaya otvetstvennost postchelovecheskikh tekhnologiy*. *Flagman nauki*, 7(30). <https://doi.org/10.37539/2949-1991.2025.30.7.013>
- Van Zyl, L. (2025). Wonder and empathy in environmental ethics. *South African Journal of Philosophy*, 44(1), 4–16. <https://doi.org/10.1080/02580136.2025.2462436>
- Weber, R. (2021). Somatics: Practices toward developing environmental empathy. *Avant*, 12(2). <https://doi.org/10.26913/avant.2021.02.06>

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ASSYK-BASED PLAY FOR PRESCHOOL ORAL LANGUAGE AND SYLLABLE AWARENESS

Abstract

This study examines a pedagogical technology for preschool speech development based on the traditional Kazakh Asyk game (assyk-based game intervention). The aim was to determine whether the integration of structured Asyk game activities into speech development sessions improves pronunciation accuracy and syllable awareness among preschool children. The participants were 50 children aged 3–6 years (29 girls and 21 boys) enrolled in middle, senior, and preparatory groups of a preschool institution in Almaty, including children with diverse levels of speech development and special educational needs.

The intervention was implemented over one academic year and incorporated Asyk positions (*zhatystar*) as visual representations, rhythmic–syllabic tasks using colored Asyk pieces, speech games focused on verbalizing actions, and motor and sensorimotor components supporting speech engagement. Children’s pronunciation and syllable awareness were assessed before and after the intervention using level-based scales (low, medium, high).

Post-intervention results demonstrated a substantial increase in the proportion of children achieving medium and high pronunciation levels (from 30.0% to 74.0%), as well as improvements in syllable awareness (from 80.0% to 92.0%). The findings suggest that the proposed assyk-based game intervention represents an effective culturally responsive game-based approach for supporting oral speech development and early literacy precursors in preschool education.

Keywords: early childhood education, oral language development, game-based learning, «Asyk» game, culturally responsive pedagogy, syllable awareness.

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АСЫҚ-ОРИЕНТИРОВАННАЯ ИГРОВАЯ ТЕХНОЛОГИЯ РАЗВИТИЯ УСТНОЙ РЕЧИ И СЛОГОВОЙ ОСВЕДОМЛЁННОСТИ У ДЕТЕЙ ДОШКОЛЬНОГО ВОЗРАСТА

Аннотация

В исследовании рассматривается педагогическая технология развития речи дошкольников, основанная на традиционной казахской игре «Асық» (игровая интервенция на основе асыка). Целью работы было определить, способствует ли включение структурированных игровых заданий с асыками в занятия по развитию речи повышению точности произношения и формированию слоговой осведомлённости у детей дошкольного возраста. В исследовании приняли участие 50 детей 3–6 лет (29 девочек и 21 мальчик), посещающих среднюю, старшую и подготовительную группы дошкольной организации г. Алматы, включая детей с различным уровнем речевого развития и особыми образовательными потребностями. Интервенция реализовывалась в течение одного учебного года и включала: использование положений асыка («жатыстар») в качестве наглядных репрезентаций, ритмико-слоговые задания с применением цветных асыков, речевые игры, направленные на вербализацию действий, а также двигательные и сенсомоторные компоненты, поддерживающие вовлечённость детей в речевую деятельность. Оценка произношения и слоговой осведомлённости проводилась до и после интервенции с применением уровневых шкал (низкий, средний, высокий). Результаты посттестирования показали существенный рост доли детей, достигших среднего и высокого уровней произношения (с 30,0% до 74,0%), а также улучшение показателей слоговой осведомлённости (с 80,0% до 92,0%). Полученные данные позволяют заключить, что предложенная игровая интервенция на основе асыка является эффективным культурно-отзывчивым игровым подходом, поддерживающим развитие устной речи и предпосылок ранней грамотности в дошкольном образовании.

Ключевые слова: дошкольное образование, развитие устной речи, игровое обучение, игра «Асық», культурно-отзывчивая педагогика, слоговая осведомлённость.

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ДӘСТҮРЛІ «АСЫҚ» ОЙЫНЫ НЕГІЗІНДЕГІ МЕКТЕПKE ДЕЙІНГІ БАЛАЛАРДЫҢ АУЫЗША ТІЛІН ЖӘНЕ БУЫНДЫҚ ХАБАРДАРЛЫҒЫН ҚАЛЫПТАСТЫРУ ТЕХНОЛОГИЯСЫ

Аңдатпа

Бұл зерттеу мектепке дейінгі жастағы балалардың сөйлеуін дамытуға арналған дәстүрлі қазақтың «Асық» ойынына негізделген педагогикалық технологияны (асыққа негізделген ойындық интервенция) қарастырады. Зерттеудің мақсаты - сөйлеуді дамыту сабақтарына құрылымданған асық ойын әрекеттерін енгізу мектепке дейінгі балалардың дыбыстау дәлдігін және буындық хабардарлығын арттыратынын анықтау. Қатысушылар Алматы қаласындағы мектепке дейінгі ұйымның ортаңғы, ересек және мектепалды даярлық топтарында тәрбиеленетін 3–6 жастағы 50 бала болды (29 қыз және 21 ұл); олардың құрамына сөйлеу дамуының деңгейі әртүрлі және ерекше білім беру қажеттіліктері бар балалар да енгізілді. Интервенция бір оқу жылы бойы жүзеге асырылып, асықтың түсу қалыптарын (жатыстарды) көрнекі бейнелеу ретінде қолдануды, түсті асықтармен ырғақ-буындық тапсырмаларды орындауды, әрекеттерді сөзбен сипаттауға (вербалдауға) бағытталған сөйлеу ойындарын, сондай-ақ сөйлеу белсенділігін қолдайтын қимыл-қозғалыс және сенсомоторлық компоненттерді қамтыды. Балалардың дыбыстау дағдылары мен буындық хабардарлығы интервенцияға дейін және кейін деңгейлік шкалалар (төмен, орта, жоғары) бойынша бағаланды.

Интервенциядан кейінгі нәтижелер дыбыстау бойынша орта және жоғары деңгейге жеткен балалар үлесінің айтарлықтай артқанын көрсетті (30,0%-дан 74,0%-ға дейін), сондай-ақ буындық хабардарлық көрсеткіштері жақсарды (80,0%-дан 92,0%-ға дейін). Нәтижелер ұсынылған асыққа негізделген ойындық интервенцияның мектепке дейінгі білім беруде ауызша сөйлеуді және ерте сауаттылықтың алғышарттарын қолдауға бағытталған тиімді, мәдениетке бағдарланған ойын арқылы оқыту тәсілі екенін дәлелдейді.

Түйін сөздер: мектепке дейінгі білім беру, ауызша тіл дамуы, ойын арқылы оқыту, «Асық» ойыны, мәдениетке бағдарланған педагогика, буындық хабардарлық.

Introduction. The development of oral speech in preschool age is one of the core objectives of early childhood education and a significant predictor of successful school readiness. Accumulated evidence indicates that early growth in language skills is associated with later learning readiness and reading outcomes in primary school (Logan et al., 2024). Longitudinal studies further demonstrate that early productive vocabulary levels can predict subsequent academic achievement, underscoring the importance of oral speech development as a key focus of pedagogical practice in early childhood (Bleses et al., 2016). Consequently, preschool settings require pedagogical technologies that support speech development systematically through daily educational interactions, communication, and intentionally organized activities rather than sporadically.

International research emphasizes the role of pedagogical language interaction as a central mechanism of language development in preschool classrooms. Meta-analytic findings show that specific types of teacher talk such as open-ended questions, contingent feedback, expansion of children's utterances, and the use of conceptually rich vocabulary are associated with gains in children's oral language and the development of "school-valued" language skills (Hadley et al., 2022). This suggests that effective speech development practices should be embedded within the broader educational environment and instructional methodology rather than treated as a narrowly specialized component.

A distinct area within preschool pedagogy concerns the development of phonological awareness, which is widely recognized as a critical precursor to literacy. Reviews of early childhood practice highlight that phonological awareness and oral language are interrelated components of early literacy, and that pedagogical strategies can purposefully support their development in preschool contexts (Pullen & Justice, 2003). For young children, the syllable level often represents the most accessible unit of linguistic analysis. Work with syllable structure commonly referred to as syllable awareness or syllable skills helps children notice word structure, maintain rhythmic-syllabic patterns, and prepare for more complex sound-level operations.

One of the most promising approaches to addressing speech development objectives is game-based learning. A systematic review and meta-analysis of studies on game-based learning in early childhood indicate positive effects on cognitive development, motivation, and engagement (Alotaibi, 2024). This is particularly relevant for preschool education, as play provides a natural context for speech interaction, supports children's initiative, and reduces anxiety and fatigue associated with repetitive training activities. From a pedagogical perspective, it is therefore justified to organize speech development through game scenarios in which speech tasks are embedded within rules, roles, and object-based actions.

Contemporary early childhood education increasingly adopts culturally responsive approaches that utilize culturally meaningful practices and materials as resources for learning and engagement. Research on teacher preparation and educational environment design emphasizes that culturally responsive pedagogy fosters more inclusive and motivating learning contexts, supporting the diverse experiences of children and their families (Gunn et al., 2021). This is particularly relevant for integrating national traditions into preschool educational practice.

In the context of Kazakhstan, a culturally significant resource is the traditional game *Asyk*, which has been included in UNESCO's Representative List of the Intangible Cultural Heritage of Humanity (UNESCO, 2017). *Asyk* is not merely a form of leisure but also a traditional practice of children's socialization, interaction, and rule-based behavior. From a pedagogical perspective, the game offers substantial potential for speech development through object-manipulative actions, rhythmic repetition of game cycles, the verbalization of actions and rules, and collaborative forms of activity and communication within the group.

Despite the growing body of research on game-based learning and early language development, pedagogical literature still lacks studies in which a traditional ethnocultural game serves as the core of a structured preschool speech development program, with its effectiveness empirically evaluated in real preschool settings. This highlights the need to design and test pedagogical technologies that simultaneously support speech development, align with the play-based nature of preschool age, and draw on culturally meaningful practices.

The present study introduces a pedagogical technology in which the traditional *Asyk* game is used as the foundation of a game-based speech development program (*assyk*-based game intervention). The program targets two pedagogically significant components of oral speech pronunciation and syllable structure of speech (syllable awareness) through a system of game rules, verbal instructions, and rhythmic-syllabic tasks integrated into speech development sessions.

Although international research on game-based learning, oral language development, and culturally responsive practices in early childhood education has expanded considerably (Alotaibi, 2024; Gunn et al., 2021; Hadley et al., 2022), there remains a shortage of empirically described and evaluated programs in which a traditional ethnocultural game constitutes the core of a structured speech development technology implemented in authentic preschool contexts. This issue is particularly salient in Kazakhstan, where *Asyk* represents a culturally significant practice included in UNESCO's list of intangible cultural heritage (UNESCO, 2017) and thus holds potential for integrating speech development objectives with cultural education.

The purpose of the study is to evaluate the effectiveness of a pedagogical technology based on the traditional *Asyk* game (*assyk*-based game intervention) in developing pronunciation and syllable structure of speech / syllable awareness among preschool children aged 3–6 years in a preschool setting.

Research Objectives

1. To describe the structure and pedagogical principles of the *Asyk*-based technology as a tool for oral speech development in preschool groups.
2. To conduct baseline (pre-intervention) and post-intervention assessments of preschool children's pronunciation levels.
3. To conduct baseline and post-intervention assessments of preschool children's syllable structure of speech / syllable awareness.
4. To compare pre- and post-intervention results by examining changes in the distribution of children across performance levels (low / medium / high) for each indicator.

Research Questions

RQ1. Is the implementation of the *assyk*-based game intervention associated with improvements in level-based pronunciation outcomes (low / medium / high) among preschool children?

RQ2. Is the implementation of the *assyk*-based game intervention associated with improvements in level-based syllable structure of speech / syllable awareness outcomes (low / medium / high) among preschool children?

The expected contribution of this study lies in providing a clearly described and replicable pedagogical technology grounded in a culturally significant game, as well as empirical evidence of its effectiveness across two practically meaningful indicators of speech development that are considered important precursors of successful school learning (Bleses et al., 2016; Logan et al., 2024).

In international early childhood education research, the development of oral language is regarded as a core objective of preschool education and a critical foundation for school readiness. Empirical evidence indicates that early language achievement is closely associated with later indicators of school readiness and reading outcomes in primary education (Logan et al., 2024). Moreover, early productive vocabulary has been shown to function as a long-term predictor of academic achievement, underscoring the importance of systematic language support beginning in the preschool years (Bleses et al., 2016). Consequently, pedagogical programs that foster oral language development through regular and embedded educational activities may make a substantial contribution to the quality of school preparation.

Within emergent literacy frameworks, phonological awareness occupies a central position, particularly when instructional practices focus on linguistic units that are developmentally accessible to preschool children. Reviews of early childhood practice demonstrate that targeted interventions supporting phonological awareness, print awareness, and oral language constitute an effective component of preschool education (Pullen & Justice, 2003). In this context, the syllable represents a particularly functional unit of linguistic analysis. Rhythmic-syllabic exercises, verbalization of syllable

patterns, and game-based tasks involving syllables help children attend to word structure and maintain it during production, which is considered a pedagogically meaningful step toward more complex speech and language operations.

Systematic reviews and meta-analytic findings further confirm that game-based learning in early childhood is associated with positive outcomes in motivation, engagement, and a range of cognitive indicators (Alotaibi, 2024). From the perspective of language development, play is especially valuable as it generates natural communicative situations, encourages verbal interaction, repetition of linguistic structures, and the explanation of one's own actions. As a result, game-based pedagogical interventions can provide sustained opportunities for speech practice without inducing cognitive overload or excessive formalization, which aligns with the developmental characteristics of preschool learners.

The quality of teachers' language practices constitutes one of the central factors influencing language development in preschool classrooms. Meta-analytic evidence demonstrates that specific forms of pedagogical talk such as the expansion of children's utterances, clarifying questions, contingent feedback, and the use of conceptually rich vocabulary are systematically related to children's language outcomes (Hadley et al., 2022). Interactive language scaffolding can be implemented across diverse instructional formats. For example, reviews of shared book reading in multilingual preschool settings highlight that adult strategies including questioning techniques, stimulation of child talk, and deliberate choices regarding language use and interactional formats are decisive for language-related effects (Zhou et al., 2025). These findings underscore an important design principle for pedagogical technologies: activities such as play, reading, or construction become language-enhancing only when adult mediation intentionally structures children's verbal participation.

Language development in preschool age occurs not only through adult-child interaction but also through peer interaction. Research on peer-mediated interventions indicates that organizational arrangements which expand children's social connections and promote interaction within the group can lead to meaningful changes in both language and social development (Justice et al., 2025). Game-based pedagogical technologies that rely on shared rules, turn-taking, negotiation, and collaborative activity create favorable conditions for spontaneous peer communication, thereby amplifying the effects of speech development programs.

International preschool education research increasingly addresses the use of multimodal supports including gestures, object-based scaffolding, and visual models as a means of enhancing children's participation and accessibility of language tasks. For instance, studies on sign-supported speech in preschool groups suggest that multimodal support can influence children's communicative engagement, although its effectiveness depends on pedagogical relevance and appropriate integration into instructional practice (Larsson et al., 2025). In addition, research examining the relationship between motor and language skills highlights the potential significance of sensorimotor components within educational environments for language development (Kisjes et al., 2025). Rhythmic and musical practices are also considered valuable resources for speech and language development, as rhythm and structured temporal patterns may support the perception and production of linguistic units (Torppa & Huottilainen, 2019).

Contemporary approaches further emphasize the importance of culturally responsive pedagogy in early childhood education, as the integration of culturally meaningful practices can enhance motivation, engagement, and the overall quality of the learning environment (Gunn et al., 2021). Within this framework, the traditional Kazakh game *Asyk* holds a stable cultural status and is recognized as an element of intangible cultural heritage (UNESCO, 2017). Despite this, pedagogical literature provides limited empirical evidence on interventions in which a traditional game serves as the core of a structured preschool speech development program evaluated in authentic educational settings. This gap highlights the relevance of developing and empirically testing an *assyk*-based game intervention aimed at supporting oral language development and syllable skills in preschool children.

Materials and methods. The study was conducted in an authentic preschool education setting and employed a formative pedagogical experiment with a one-group pretest-posttest design. The

pedagogical program based on the traditional Asyk game was integrated into regular speech development sessions and play-based educational activities throughout one academic year.

The sample consisted of 50 preschool children aged 3–6 years (29 girls and 21 boys) enrolled in middle, senior, and preparatory groups of a preschool institution in Almaty. The sample included children with diverse levels of speech development, including children with special educational needs (SEN). The distribution of participants by age group and speech-related characteristics is presented in Table 1.

Table 1 - Characteristics of the sample by age groups

Age group	Children's age	N	Girls	Boys	Phonetic–phonemic underdevelopment (PPU), n	General speech underdevelopment (GSU), n	Speech delay (SD), n	SEN, n
Middle group	3–4 years	16	12	4	3	5	6	2
Senior group	4–5 years	18	10	8	5	3	7	3
Preparatory group	5–6 years	16	7	9	3	4	4	5
Total	3–6 years	50	29	21	–	–	–	–

Note. Categories of speech characteristics may overlap; therefore, their sums within rows do not equal N.

The study implemented a pedagogical technology for preschool speech development grounded in the traditional Kazakh Asyk game as a culturally meaningful play-based resource. The technology was structured as an *assyk-based game intervention*, in which speech-related tasks (development of phonetic skills, syllable awareness, and overall speech activity) were embedded within game scenarios, rules, rhythmic–syllabic exercises, object-based actions, and group interaction.

The key pedagogical principles underlying the intervention included: play-based motivation and recognition of play as the leading activity in preschool age; visual and object-based scaffolding (Asyk pieces, their positions (zhatystar), rhythmic boards, and game-related materials; see Figures 1–2); rhythm and repetition of game cycles to support syllable structure of speech; integration of speech and motor components providing sensorimotor support for speech activity.

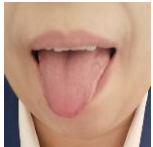
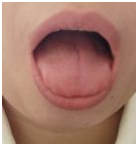
					
					
<i>Ozhau</i> The “Shik” position of the asyk is a position in which the asyk lies with its hollow (concave side) facing upward.	<i>Bük</i> The “Syrғанак” exercise is performed to teach the pronunciation of whistling sounds. It strengthens the muscles of the tongue.	<i>Alshy</i> The “Ine” exercise teaches how to make the tongue narrow, extend it forward, and hold it steady without vibration.	<i>Täyke</i> The “Bälsh” exercise teaches how to gently relax the tongue and keep it in a calm, loose position.	<i>Ompy</i> The “Bant” exercise teaches how to rest the front part of the tongue against the lower teeth and hold it while pressing lightly with the upper teeth.	<i>Sompy</i> The “Tütikşe” exercise teaches how to protrude the lips forward and bring the two sides of the tongue together.

Figure 1 - illustrates the main Asyk positions (zhatystar) used as visual game-based models linked to articulation exercises

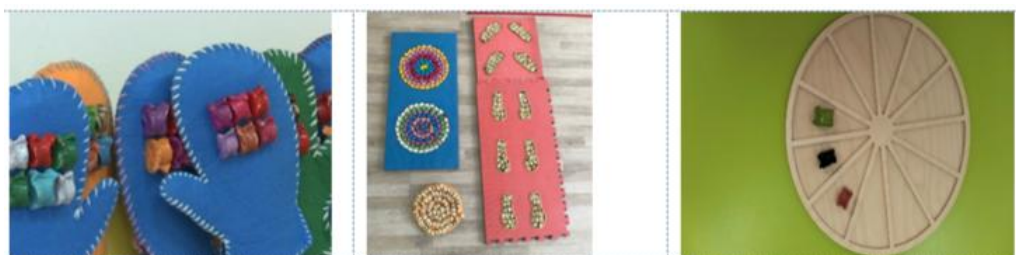


Figure 2 - shows the didactic materials employed in the intervention (colored Asyk pieces, rhythmic boards, floor mats, and related tools)

Duration and Intensity of the Program

The intervention was implemented over one academic year (September–May) and organized into monthly thematic units. The total instructional time differed by age group:

- 72 hours for the middle group,
- 108 hours for the senior group,
- 72 hours for the preparatory group.

Table 2 - Program implementation volume by age group

Group	Total duration (hours per academic year)	Average monthly intensity
Middle group (3–4 years)	72	8 hours
Senior group (4–5 years)	108	12 hours
Preparatory group (5–6 years)	72	8 hours

Note. Instructional time is reported in academic hours as defined by the institution

The effectiveness of the intervention was assessed before the implementation of the program (pretest) and after its completion (posttest) using two pedagogically relevant indicators of speech development:

1. Pronunciation level (low / medium / high).
2. Syllable structure of speech (syllable awareness) (low / medium / high).

Level classification was based on the results of pedagogical assessment conducted during speech development sessions and included performance on speech tasks, reproduction of syllables and words, verbalization during game-based activities, stability of rhythmic–syllabic patterns, and consistency of target sound production in words and short phrases. To ensure transparency of the assessment framework, the indicators and evaluation format are summarized in Table 3.

Table 3 - Study indicators and assessment format

Indicator	Description (pedagogical focus)	Recording format
Pronunciation	Stability of target sound production in words and phrases during game-based speech situations	Levels: low / medium / high
Syllable structure of speech (syllable awareness)	Reproduction of syllable patterns, rhythmic–syllabic structure of words, performance in rhythmic–syllabic tasks	Levels: low / m

Results and discussion. The study involved 50 preschool children aged 3–6 years (29 girls, 58.0%; 21 boys, 42.0%). By age group, the distribution was as follows: middle group (3–4 years) 16 children (32.0%), senior group (4–5 years) 18 children (36.0%), and preparatory-to-school group (5–6 years) 16 children (32.0%). Ten children (20.0%) were identified as having special educational needs (SEN) (Table 4).

Table 4. Sample characteristics by age group (N = 50)

Age group	Children's age	N	Girls	Boys	PPU, n	GSU, n	SD, n	SEN, n
Middle group	3–4 years	16	12	4	3	5	6	2
Senior group	4–5 years	18	10	8	5	3	7	3
Preparatory group	5–6 years	16	7	9	3	4	4	5
Total	3–6 years	50	29	21	–	–	–	10

Note. Categories of phonetic–phonemic underdevelopment (PPU), general speech underdevelopment (GSU), and speech delay (SD) may overlap; therefore, their sums within rows do not equal N. SEN is reported by age group, as each child belongs to one age group only.

To examine changes in pronunciation, children were classified into three performance levels: low, medium, and high. The distribution of children across levels before and after the intervention is presented in Table 5.

Table 5 - Distribution of children by pronunciation levels before and after the program (N = 50)

Stage	Low level, n (%)	Medium level, n (%)	High level, n (%)	Total N
Pre-intervention	35 (70.0%)	12 (24.0%)	3 (6.0%)	50
Post-intervention	13 (26.0%)	32 (64.0%)	5 (10.0%)	50

Following the implementation of the program, the proportion of children demonstrating medium and high levels of pronunciation increased from 30.0% to 74.0%. Syllable structure of speech (syllable skills / syllable awareness) was also assessed using three levels: low, medium, and high. The pre- and post-intervention distributions are presented in Table 6.

Table 6 - Distribution of children by syllable structure of speech levels before and after the program (N = 50)

Stage	Low level, n (%)	Medium level, n (%)	High level, n (%)	Total N
Pre-intervention	10 (20.0%)	33 (66.0%)	7 (14.0%)	50
Post-intervention	4 (8.0%)	30 (60.0%)	16 (32.0%)	50

After the intervention, the proportion of children demonstrating medium and high levels of syllable structure of speech increased from 80.0% to 92.0%.

To provide a consolidated view of changes across both indicators, a summary table of level shifts (post – pre) in absolute numbers and percentage points was constructed (Table 7).

Table 7 - Changes in level distribution (post – pre), N = 50

Indicator	Level	Pre, n (%)	Post, n (%)	Change, Δn	Change, Δpp
Pronunciation	Low	35 (70.0%)	13 (26.0%)	–22	–44.0
	Medium	12 (24.0%)	32 (64.0%)	+20	+40.0
	High	3 (6.0%)	5 (10.0%)	+2	+4.0
Syllable structure of speech	Low	10 (20.0%)	4 (8.0%)	–6	–12.0
	Medium	33 (66.0%)	30 (60.0%)	–3	–6.0
	High	7 (14.0%)	16 (32.0%)	+9	+18.0

Overall, both indicators demonstrated a shift toward higher performance levels following the intervention. For pronunciation, this shift was primarily driven by a substantial reduction in the proportion of children at the low level and a corresponding increase at the medium level. For syllable structure of speech, improvements were mainly reflected in the growth of the high-level category and a reduction in the low-level category.

The present study aimed to evaluate a pedagogical technology for preschool speech development based on the traditional Kazakh Asyk game as a culturally responsive game-based learning resource. The

findings indicate positive dynamics across two pedagogically significant components of oral language: pronunciation and syllable structure of speech (syllable awareness). Following completion of the program, the proportion of children demonstrating medium and high pronunciation levels increased from 30.0% to 74.0%, while the corresponding proportion for syllable structure of speech increased from 80.0% to 92.0%. These results suggest that the *assyk*-based game intervention may represent a promising approach for organizing speech development activities and supporting early literacy precursors in preschool education.

The observed improvements are consistent with international evidence highlighting the importance of early language development for later educational outcomes. Longitudinal studies indicate that growth in early language skills is associated with school readiness and subsequent reading achievement (Logan et al., 2024), and that early productive vocabulary can serve as a predictor of later academic success (Bleses et al., 2016). Although the present study focused specifically on pronunciation and syllable structure rather than broader language measures, the positive dynamics observed support the general conclusion that systematic pedagogical support for oral language in preschool settings has educational value.

One plausible mechanism underlying the effectiveness of the intervention is the use of play as the organizing core of instructional activities. Meta-analytic evidence demonstrates that game-based learning in early childhood is associated with positive effects on motivation and engagement, thereby creating favorable conditions for repeated practice and consolidation of learning actions (Alotaibi, 2024). Within the *Asyk*-based program, speech tasks were embedded in clear rules, rhythmic game cycles, and object-based actions, which may have reduced fatigue and sustained children's engagement in speech-related activities.

Another important pedagogical resource of the program was the quality of language interaction within the group. Previous research has shown that specific forms of teacher talk such as contingent feedback, clarification, expansion of children's utterances, and questioning are associated with children's language development (Hadley et al., 2022). The *assyk*-based intervention naturally provides multiple opportunities for such interaction, including explanations of rules, verbalization of action sequences (e.g., "first-then"), prompts for children to describe their choices and actions, and joint discussion of outcomes. This interpretation is consistent with findings indicating that the quantity and quality of adult language input are related to children's language outcomes (Aija et al., 2025). Although Aija et al. (2025) focused on a different population, the underlying principle regarding the importance of adult-mediated language environments supports the pedagogical emphasis of the present intervention.

Peer interaction also appears to play a meaningful role, as game-based formats inherently activate social communication among children. Research on peer-mediated interventions suggests that organizational arrangements promoting interaction within the group can influence both language and social development in preschool children (Justice et al., 2025). The collective *Asyk* game involves negotiation of rules, shared attention, turn-taking, commentary on actions, and brief dialogues, thereby functioning not only as a repetitive practice tool but also as a communicative context for expanding children's interactional experience.

Improvements in syllable structure of speech may additionally be explained by the program's deliberate use of rhythm and rhythmic-syllabic tasks, such as arranging sequences with colored *Asyk* pieces and verbalizing syllable patterns within game cycles. This approach aligns with evidence indicating that rhythmic and musical activities can support speech and language development (Torppa & Huotilainen, 2019). Although Torppa and Huotilainen (2019) primarily examined children with hearing impairments, the broader conclusion regarding the role of rhythm as a structuring resource for linguistic units is applicable to pedagogical contexts in which rhythm is used to support attention and speech production.

The sensorimotor component of the intervention including manipulation of *Asyk* pieces, coordination exercises, and elements of fine and gross motor activity may also have contributed to the observed speech dynamics. A systematic review by Kisjes et al. (2025) highlights the interrelationship between

motor and language skills in children and points to the frequent co-occurrence of difficulties in these domains. From a pedagogical perspective, this supports the rationale for integrated interventions in which speech tasks are complemented by movement and object-based actions that enhance children's participation and engagement.

Another relevant aspect of the intervention is its multimodal nature. Research on multimodal supports in preschool education, such as sign-supported speech, indicates that such supports can enhance children's communicative participation when applied in pedagogically appropriate ways (Larsson et al., 2025). In the present technology, visual and object-based scaffolds including Asyk pieces, color coding, visual representations of *zhatystar*, and rhythmic boards served a comparable function by making speech tasks more explicit, reducing cognitive load, and increasing accessibility for children with diverse language experiences, including those in potentially bilingual environments.

From the perspective of international research on language support in multilingual contexts, it is also relevant to consider findings from studies on shared reading, which emphasize adult strategies that actively stimulate children's verbal participation (Zhou et al., 2025). Although the present intervention was not book-based, it follows a similar pedagogical principle: effectiveness is enhanced when adults intentionally structure children's verbal engagement through questioning, prompting, and joint meaning-making. In this sense, the assyk-based intervention can be viewed as an alternative, non-text-based but comparably interactive format of language support.

In terms of practical implementation, the sustainability of such an intervention depends on teachers' readiness to use structured game-based approaches. Evidence suggests that play-based professional development can enhance teachers' scaffolding practices and instructional competencies, which in turn are associated with improved learning outcomes for children (Lazzara et al., 2025). This highlights an important practical implication of the present study: for sustained effects, the Asyk technology should be accompanied by methodological resources and teacher training, including lesson models, examples of teacher language, group game scenarios, and criteria for monitoring children's progress.

Finally, the cultural component of the program aligns with the principles of culturally responsive pedagogy, which conceptualizes culturally meaningful practices as resources for enhancing engagement and educational quality (Gunn et al., 2021). The Asyk game, recognized as part of UNESCO's intangible cultural heritage (UNESCO, 2017), integrates culturally significant content into preschool education and may strengthen children's motivation as well as family support. Thus, the proposed technology functions not only as a tool for speech development but also as a means of cultural education in early childhood settings.

The study has several limitations, including the use of a one-group design without a control group, reliance on level-based assessment, and the absence of delayed follow-up to examine the sustainability of effects. Future research should employ more robust designs with control groups, incorporate standardized measures of language and phonological/syllable awareness, and examine which specific components of the intervention such as rhythm, object-based scaffolding, peer interaction, or teacher language strategies contribute most strongly to observed outcomes.

Conclusion. This article presented a pedagogical technology for preschool speech development grounded in the traditional Kazakh Asyk game as a culturally responsive resource for game-based learning. Implemented over one academic year in an authentic preschool setting, the intervention targeted two pedagogically salient components of oral language: pronunciation and syllable structure of speech (syllable awareness).

Empirical results obtained from a sample of 50 children aged 3–6 years demonstrated clear positive shifts across both indicators. For pronunciation, the proportion of children classified at medium or high levels increased from 30.0% to 74.0%, accompanied by a reduction in the low-level category from 70.0% to 26.0%. For syllable structure of speech, the proportion of children at medium or high levels increased from 80.0% to 92.0%, with the low-level category decreasing from 20.0% to 8.0%. Taken together, these findings suggest that integrating Asyk into speech development sessions may represent an effective play-based practice for supporting oral language development and early literacy precursors in preschool education.

The practical value of the proposed technology lies in its reliance on a culturally meaningful traditional game, which can enhance children's motivation and engagement while expanding opportunities for culturally responsive pedagogy in early childhood settings. The intervention may be recommended for preschool educators as part of a systematic approach to fostering oral language, play-based communication, and syllable skills.

Several limitations should be acknowledged, including the one-group design without a control condition, the use of level-based assessment (low/medium/high), and the absence of delayed follow-up to evaluate the sustainability of outcomes. Future research should employ more rigorous comparative designs, expand sample sizes, incorporate standardized measures of oral language and phonological/syllable awareness, and examine longer-term effects as well as the relative contribution of specific intervention components.

References:

- Aija, A., Ståhlberg-Forsén, E., Toome, L., Aarnos, L., Ahlqvist-Björkroth, S., Stolt, S., & Lehtonen, L. (2025). Parents' speech in the NICU and language development of very preterm children at 12 and 24 months. *Journal of Pediatrics Clinical Practice*, 17, 200156. <https://doi.org/10.1016/j.jpdc.2025.200156>
- Alotaibi, M. S. (2024). Game-based learning in early childhood education: A systematic review and meta-analysis. *Frontiers in Psychology*, 15, 1307881.
- Berger, C., Angonin, S., & Lafay, A. (2026). Mathematical vocabulary in preschool children: Effects of linguistic and socio-economic factors on the production and comprehension of quantitative and spatial words and concepts. *Journal of Experimental Child Psychology*, 263, 106416. <https://doi.org/10.1016/j.jecp.2025.106416>
- Bleses, D., Makransky, G., Dale, P. S., Højen, A., & Aktürk Ari, B. (2016). Early productive vocabulary predicts academic achievement 10 years later. *Applied Psycholinguistics*, 37(6), 1461–1476. <https://doi.org/10.1017/S0142716416000060>
- Bolognesi, C., Cinini, A., Cutugno, P., Ferretti, M., & Chiarella, D. (2025). Towards a preschooler corpus of Italian: An experimental journey. *Research Methods in Applied Linguistics*, 4(3), 100252. <https://doi.org/10.1016/j.rmal.2025.100252>
- Gunn, A. A., Bennett, S. V., Alley, K. M., Barrera IV, E. S., Cantrell, S. C., Moore, L., & Welsh, J. L. (2021). Revisiting culturally responsive teaching practices for early childhood preservice teachers. *Journal of Early Childhood Teacher Education*, 42(3), 265–280.
- Hadley, E.B., Barnes, E.M., Wiernik, B. M., & Raghavan, M. (2022). A meta-analysis of teacher language practices in early childhood classrooms. *Early Childhood Research Quarterly*, 59(2), 186–202. <https://doi.org/10.1016/j.ecresq.2021.12.002>
- Justice, L.M., Pelfrey, G.L., Foster, T. J., Brock, M., & Jiang, H. (2025). Effects of a peer-mediated intervention on the language and socialization experiences and skills of preschool children. *Early Childhood Research Quarterly*, 73, 135–147. <https://doi.org/10.1016/j.ecresq.2025.07.002>
- Kisjes, J., van der Schaaf, A. L., Noordstar, J. J., Mombarg, R., Gerrits, E., Wijnen, F., & Luinge, M. R. (2025). A systematic review of language and motor skills in children with developmental coordination disorder (DCD) and developmental language disorder (DLD). *Research in Developmental Disabilities*, 161, 104994. <https://doi.org/10.1016/j.ridd.2025.104994>
- Larsson, K., Björk-Willén, P., Haraldsson, K., & Hansson, K. (2025). Teachers' use of sign-supported speech in interaction with multilingual children in Swedish preschools. *Linguistics and Education*, 87, 101398. <https://doi.org/10.1016/j.linged.2025.101398>
- Lazzara, L., Weber, A., & Leuchter, M. (2025). Building minds with blocks: The impact of a play-based professional development on preschool teachers' competencies and children's learning. *Teaching and Teacher Education*, 165, 105144. <https://doi.org/10.1016/j.tate.2025.105144>
- Logan, J. A. R., Piasta, S. B., Purtell, K. M., Nichols, R., & Schachter, R. E. (2024). Early childhood language gains, kindergarten readiness, and Grade 3 reading achievement. *Child Development*, 95(2), 609–624. <https://doi.org/10.1111/cdev.14019>
- Omarbekova, F. K. (2025). Mektepke deiingi uiymdagı balalardyn soileu tilin asyqıy zamanauı adistemelik-tehnologiyalyk negizde koldanu arkyly tuzetu (3 zhasıan bastap): Bagdarlama [Correction of preschool children's speech through an assyk-based modern methodological-technological approach (from age 3): Program] [Unpublished program]. Almaty, Kazakhstan.
- Pullen, P. C., & Justice, L. M. (2003). Enhancing phonological awareness, print awareness, and oral language skills in preschool children. *Intervention in School and Clinic*, 39(2), 87–98. <https://doi.org/10.1177/10534512030390020401>
- Torppa, R., & Huotilainen, M. (2019). Why and how music can be used to rehabilitate and develop speech and language skills in hearing-impaired children. *Hearing Research*, 380, 108–122. <https://doi.org/10.1016/j.heares.2019.06.003>
- UNESCO. (2017). Kazakh traditional assyk games. UNESCO Intangible Cultural Heritage.
- Zhou, T., Djonov, E., & Chik, A. (2025). Shared reading of picturebooks for supporting preschool children's multilingual learning: A scoping review. *International Journal of Educational Research*, 133, 102716. <https://doi.org/10.1016/j.ijer.2025.102716>