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A MODEL OF

CORRECTIVE DEVELOPMENTAL ACTIVITIES

FOR REDUCING PHONOLOGICAL INSUFFICIENCY IN PRESCHOOL CHILDREN

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INTRODUCTION

The study consists of three interrelated steps: Step 1 – a theoretical analysis of the concept of phonetic-phonemic insufficiency in a speech-language pathology and educational context; Step 2 – the theoretical foundations of the corrective-developmental activity model and the role of game in corrective-developmental activity were analyzed; Step 3 – a survey of speech-language pathologists in preschool educational institutions was conducted, and the results were interpreted; the opinions of the experts involved in the study regarding the set of games *I Did It!* created by the author were explained, and a study of phonematic perception in preschool-aged children was conducted, corrective-developmental activities were implemented, and the results of the study were analyzed. The conclusion of the study reflects the sequential fulfillment of the research objectives, summarizes the main results, and draws conclusions.

One of the most important tasks in early childhood is the development of speech (sound pronunciation) and phonematic perception (phonological apprehension, phonematic analysis, phonematic synthesis). Phonematic perception can be explained as a specific mental process in which an individual is able to distinguish between speech sounds and identify the sound structure of a word – that is, by analyzing syllables or words, they can break them down into sounds / syllables or synthesize (combine) into a unified whole (Berk, 2013; Charlesworth, 2014; Tūbele, 2019; Lūse et al., 2020; Gendler-Shalev et al., 2021).

Preschool-aged children are active, curious, and very persistent. At this age, children gain experience through various activities, and one such activity is game, which should be viewed as the most optimal learning method in preschool, as children learn to learn through game. Elements of game in corrective developmental activities aimed at reducing phonological insufficiency contribute to the development of phonological awareness, phonematic analysis and phonematic synthesis – create an emotionally supportive environment, develop imagination, foster confidence in one's own strengths and abilities, and allow children to take the initiative (Tūbele & Lūse, 2012; Karagiorgas & Niemann, 2017; Naida, 2024).

As part of the study, a set of games in the Latvian language was created and systematized to address phonological insufficiency in preschool-aged children. Experts were asked to evaluate the developed set of games based on established game evaluation criteria.

OBJECTIVE(S) AND METHODS

Research objective: To study and practically test a corrective developmental activity model that includes games for reducing phonological insufficiency.

The following **research methods** were used to obtain the necessary data:

1) *Theoretical* – analysis of theoretical literature in the context of the problem under study.

2) *Empirical data collection* methods: a survey of speech therapists working in pre-school educational institutions; expert opinion method (evaluation of the game set *Man izdevās!* (I did it!); logopedic speech assessment for children (with an emphasis on initial and repeated testing of phonematic perception).

3) *Empirical data processing* and analysis methods: sequential explanatory method, thematic analysis of qualitative data.

Boundaries of the study:

- primarily explains phonological insufficiency and its impact on a child's quality of life,
- the study examines the development of phonematic perception in children 5 – 6 year of age (with typical development) who have phonological insufficiency. The results obtained are analyzed and compared in terms of developmental dynamics for each child included in the study – at the beginning and end of the study – based on the individual developmental patterns of the children.
- in explaining the concept of game, the primary focus is on the impact of game on the development of phonemic perception in educational and speech-language therapy settings.

Study sample: 88 speech-language pathologists from preschool educational institutions and 10 experts in the fields of education and speech-language pathology (5 experts – academic staff, 5 – members of the Latvian Association of Speech-Language Pathologists) evaluated the *Man izdevās!* , 47 children (ages 5 – 6) diagnosed with phonological insufficiency.

To ensure compliance with the ethical requirements of the research, the Ethics Committee of the University of Latvia issued an opinion on compliance with the ethical principles of research (opinion No. 71-46/57).

RESULTS_1

The Nature of Phonological Insufficiency

Most children aged 4 – 5 years reach the language norm in their speech development, but there are children who, due to individual developmental peculiarities, exhibit incomplete speech development, which can manifest itself as phonological insufficiency.

Phonological insufficiency is based on underdeveloped phonological perception. In cases of underdeveloped phonematic perception, it is particularly difficult to differentiate between sounds that are similar in articulation and acoustic characteristics, i.e. the child confuses voiced and unvoiced, hard and soft consonants, sibilants and fricatives, long and short vowels. Phonological perception disorders are complex disorders, corrective developmental work is labour-intensive, and a variety of techniques are used to reduce and eliminate these disorders (Bishop et al., 2017; Gendler-Shalev et al., 2021; Neumann et al., 2009; Hempenstall, 2016; Lūse u. c., 2020; Gendler-Shalev et al., 2021; Brayunova & Simonska, 2024).

The development of phonological processes proceeds in three directions: a) phonological awareness (the ability to name words that begin with a certain sound, words containing a specific number of sounds, and words with a sound in a certain position), b) phonematic analysis (the ability to determine which sounds a word consists of, the order in which the sounds are arranged, and the ability to determine the functions of phonemes in distinguishing the meaning of words), this can be simple (it develops unconsciously and spontaneously in preschool children), complex (children learn these skills in a specially organised learning process), 3) phonematic synthesis (the ability to combine separate parts into a unifield whole).

In the process of learning written language, the initial stage is the analysis of the sounds of spoken language, but when reading and writing a word, it is necessary to synthesise a combination of individual letters that reflects the sequence of sounds in the word (Neumann et al., 2009; Hempenstall, 2016; Lūse et al., 2020; Gendler-Shalev et al., 2021; Brayunova & Simonska, 2024).

RESULTS_2

Theoretical foundations of the corrective developmental activity model

The corrective developmental model of speech (Figure 1), illustrating all stages of speech development. However, in accordance with the chosen research topic, focuses on *the stage of sound differentiation,* which is related to the correction of phonological insufficiency.

The sound differentiation stage is implemented in five directions: 1) differentiation of isolated sounds according to acoustic characteristics; 2) distinguishing isolated sounds by articulation features; 3) distinguishing the sounds to be learned in syllables by ear and/or using graphic images; 4) distinguishing the sounds to be learned in words by ear, picture cards (objects) and/or using graphic images; 5) developing and activating phonematic analysis and synthesis skills (Laua, 1997; Miltiņa, 2005; Snowling & Hulme, 2012; Tūbele & Lūse, 2012).

It is important to note that sound differentiation in syllables, words, word combinations, sentences and connected speech is only implemented if the child has understood the acoustic and articulatory differences between the distinguishable sounds.

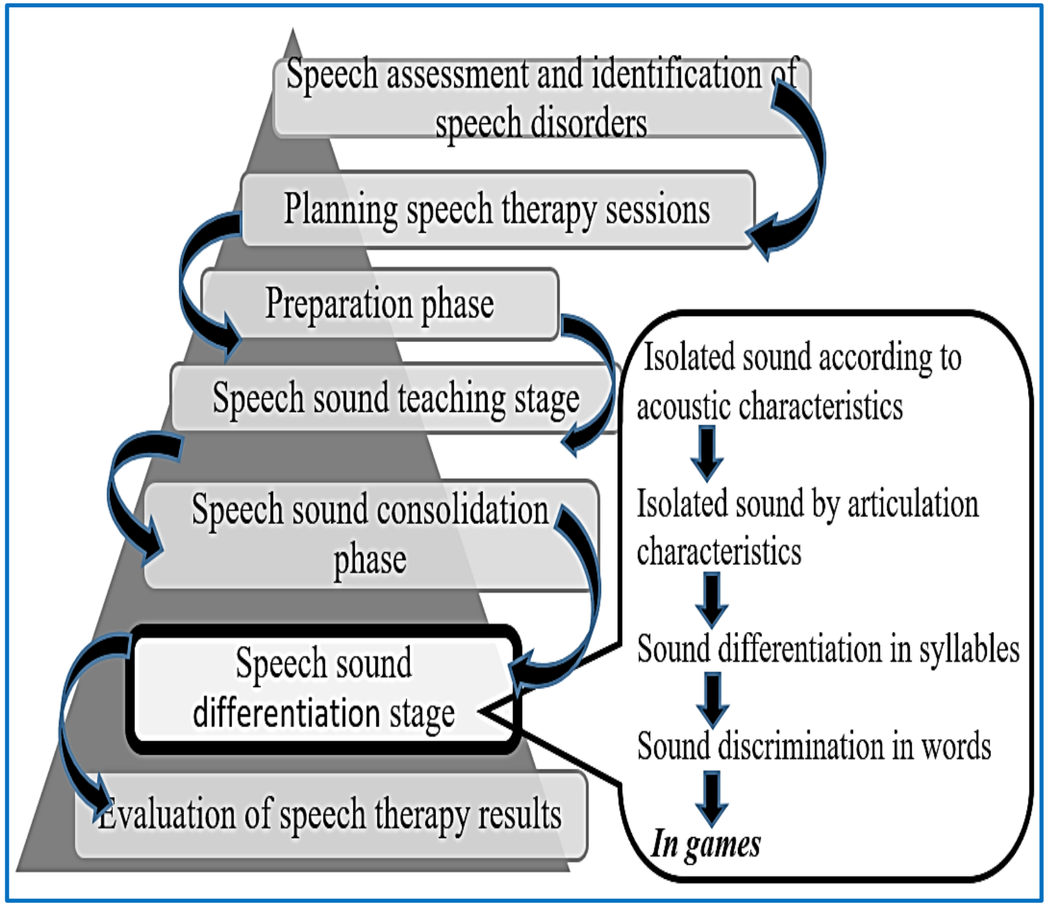

Figure 1. *Corrective developmental activity model (author's construct)*
Note The figure was created by summarising Seeman, 1974; Bishop et al., 2017; Murphy et al., 2015; Miltiņa, 2005; Adams, 2012; Mndeme & Ligembe, 2022, and others.

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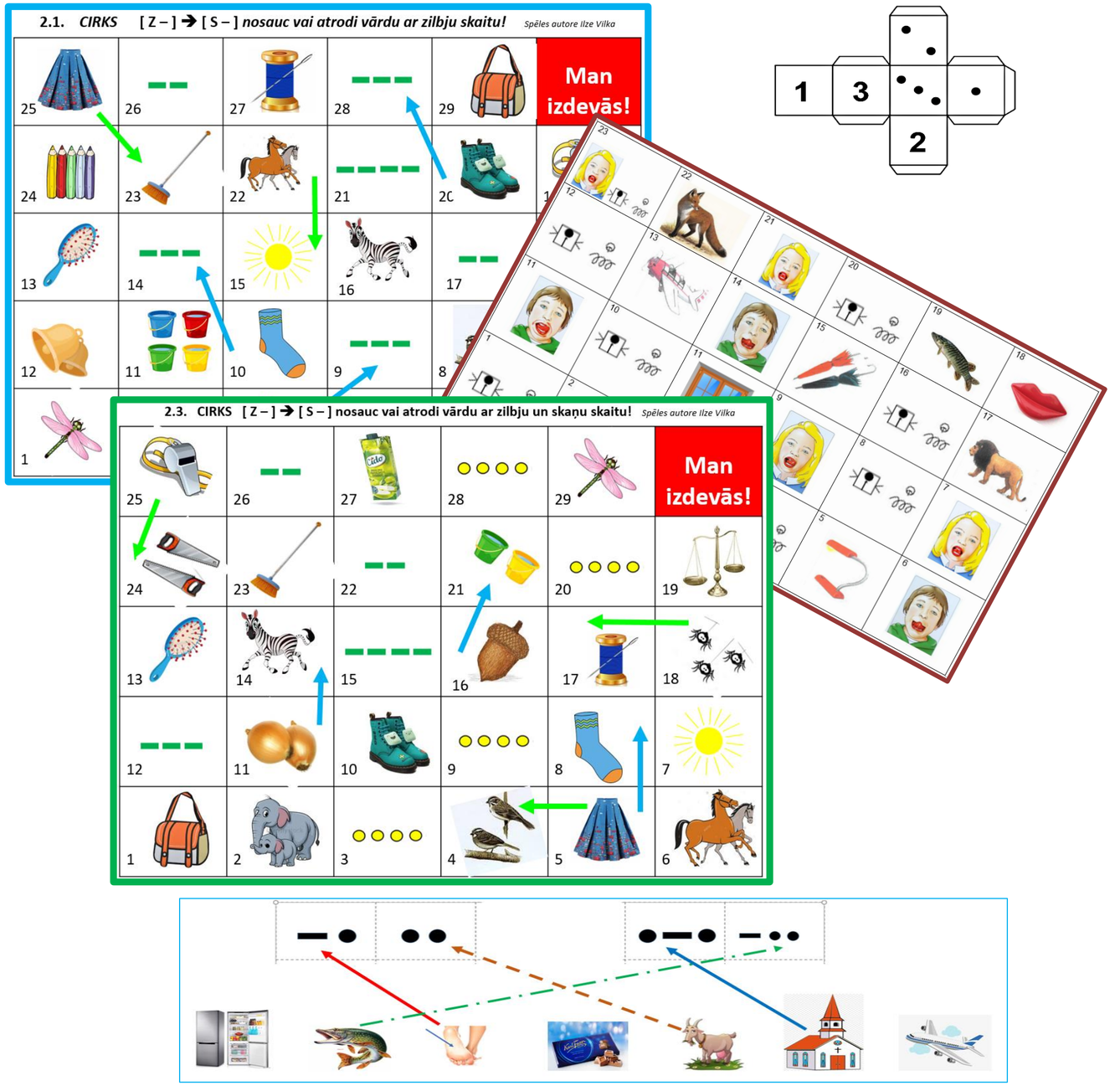
RESULTS_3

Game in corrective developmental activities

Game is considered one of the most attractive activities, allowing people to combine pleasure with usefulness. During game, active interaction takes place – with peers, friends, and other players, thus promoting cooperation skills (Ekeh, 2023; Kirstavridou et al. 2020; Naida et al., 2024).

An analysis of theoretical literature in the context of the problem under study allows the author of the research to explain the concept of game as *an activity with specific rules and techniques aimed at achieving a specific result in reducing or eliminating speech disorders. A speech therapist's purposefully planned and guided activity based on the child's previously acquired knowledge, skills, abilities and experience. During this activity, communication is promoted and a relaxed, free environment for verbal communication is created. Through game, the speech therapist creates a variety of differentiated situations and tasks of varying degrees of difficulty, which activate the child's participation in corrective work so that repeated activities improve motor skills, speech development and language acquisition, listening skills, emotional well-being, creativity and the child's attention are focused on problem solving.*



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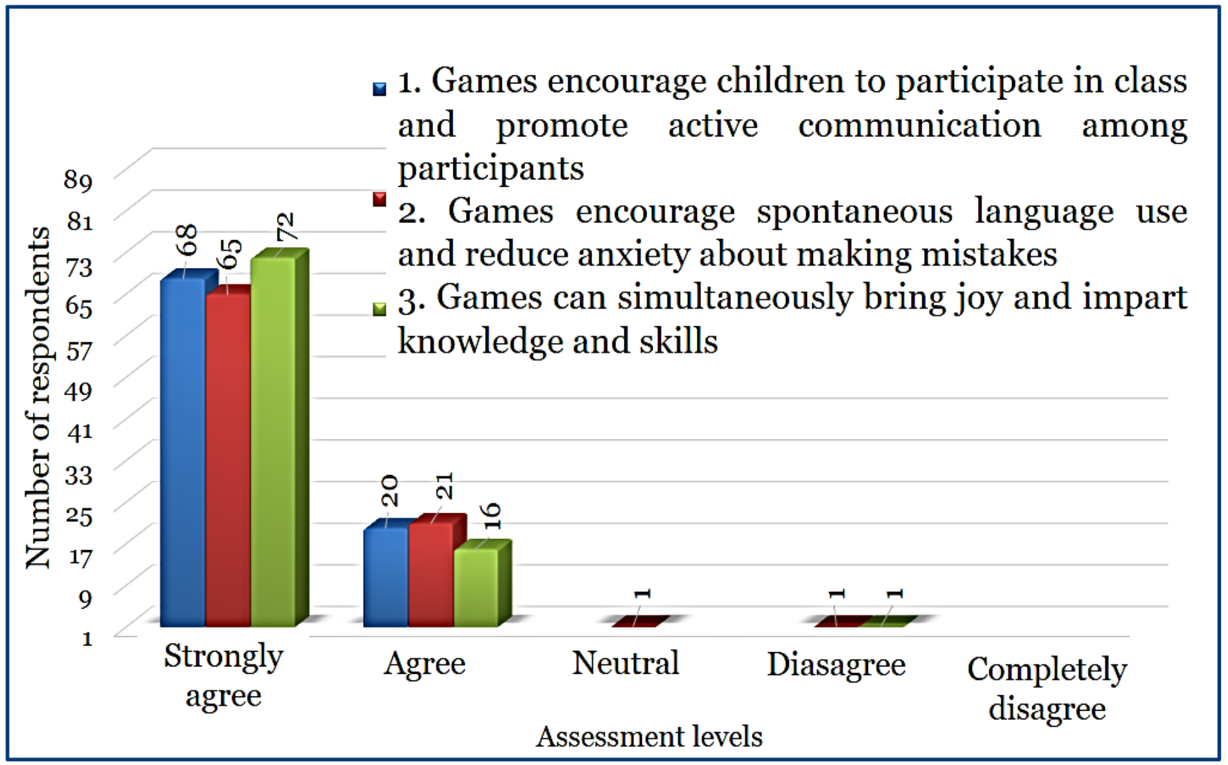
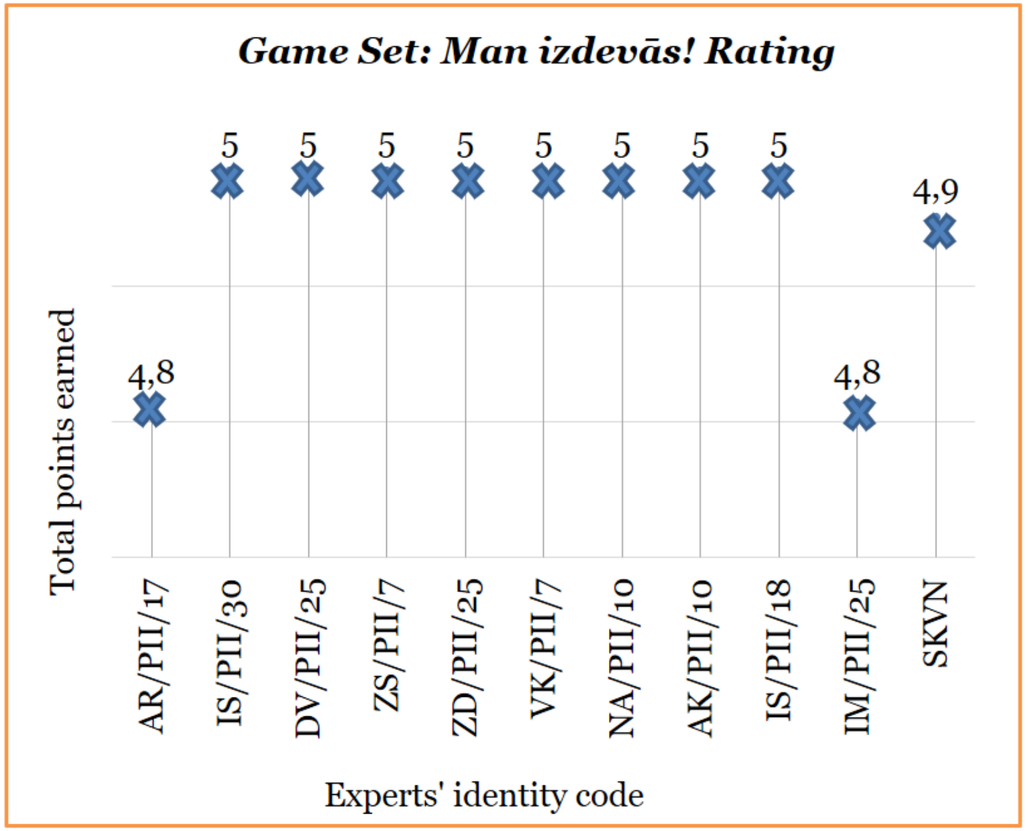
RESULTS_3.1

Speech-language pathologists were asked to evaluate the game's potential for corrective and developmental work in reducing phonological insufficiency by selecting the statement they believed most accurately described the game (88 speech-language pathologists from Latvian general education preschools).





Comments from experts indicate that the game set *Man izdevās!* can be successfully integrated into remedial educational work, as well as into the language learning component of the preschool curriculum. The game set sparked children's interest in the game because it included images not found in the traditionally designed game *Circus*.

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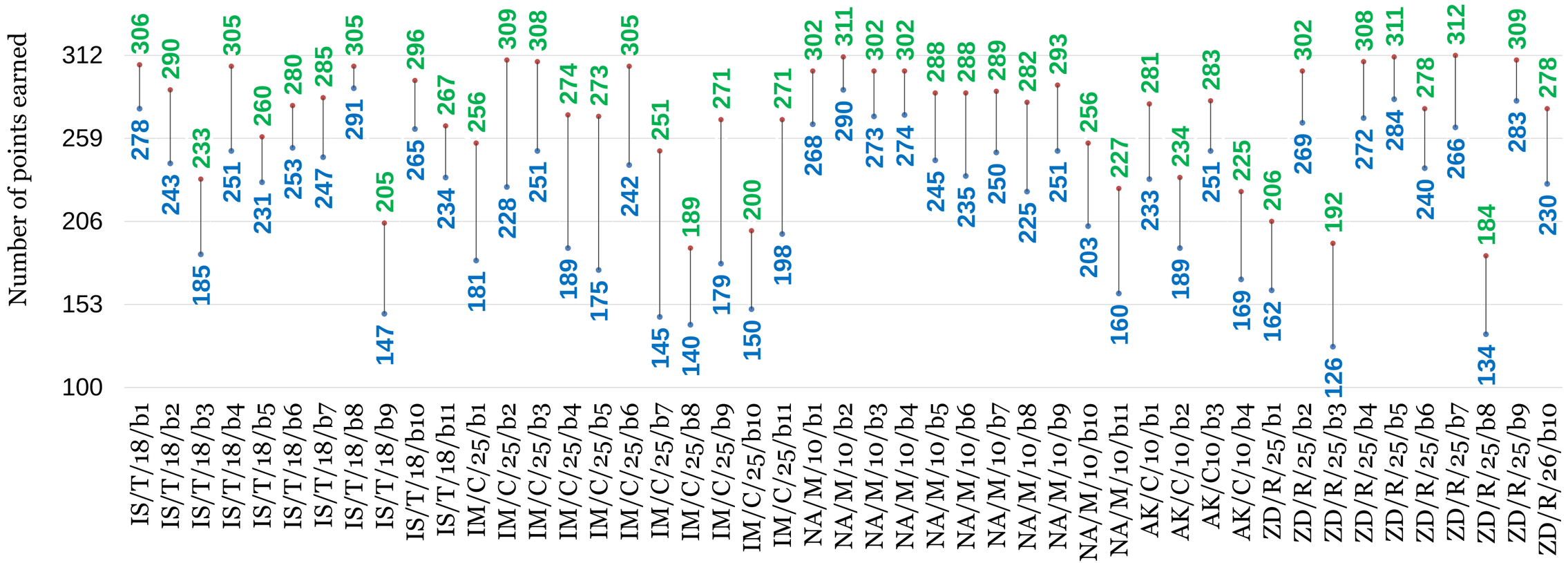
RESULTS_4

Initial and repeated assessment results for phonemic perception (47 children)



At the beginning **At the end**

Code of identity for the children participating in the study

CONCLUSIONS

When playing games, children learning to observe and follow the rules of the game. They learn to share, resolve conflicts that arise during the game (Cook, 2000), learn to defend and justify their opinions (Eden, 2008), and acquire the ability to apply their newly acquired knowledge in different circumstances and ways (Huizinga, 1949; Vygotsky, 1966; Karagiorgas & Niemann, 2017; Kirstavridou et al. 2020; Naida, 2024). Playing games activates communication, children learn from their own and others' mistakes, thus expanding their experience and gradually preparing themselves for learning (Brostrōm, 1996; Prisner, 2014; Edwards, 2017; Bay, 2020; Taylor & Boyer, 2020). However, it is important to strike a balance between playing and learning when offering children games and various activities.

During the analysis of remedial and developmental activities, it was found that:

- Speech-language pathologists at preschool institutions incorporate games into speech therapy sessions, stating that this promotes the child's engagement in the session and active communication, while simultaneously providing enjoyment, knowledge, and skills. Speech-language pathologists also noted that when selecting games, it is important that they have a clearly defined objective and appropriate tasks. Equally important is the visual design of the game – engaging and supportive of corrective developmental activities.
- The experts gave a positive evaluation of the "Man izdevās!" game set created by the author of the research, noting that it can be used both in the preschool educational process and in specially organized speech therapy sessions.
- Testing the corrective-developmental intervention model, in which the "Man izdevās!" game set was incorporated as an additional method for reducing phonological insufficiency, it was concluded that the set of methods used promotes the development of phonematic perception.

The results of the study regarding dynamic growth indicate that the set goal has been achieved, and it can be concluded that the reduction of phonetic-phonemic deficiencies in preschool-aged children will be successful if speech therapy sessions employ a corrective-developmental activity model that incorporates games.

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