

Multisensory Approach in Speech Therapy for Preschool Children

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ABSTRACT

The paper is devoted to topical issue – multisensory approach in speech therapy. The aim of the paper is to substantiate the necessity of multisensory approach in speech therapy sessions for pre-schoolers. The number of children with speech and language disorders is increasing every year and help is needed to alleviate the disorders. Children with developmental language disorder (DLD) have to work hard to overcome developmental difficulties. They have common features because of language problems, nevertheless they are so different in their learning styles, individual and personal characteristics, and the severity of their speech and language disorder.

Speech therapist has to be creative and find the way to each child alongside the strict methodology, and promote their development.

Multisensory approach in the essence is the use of all senses in the learning process and intervention. Speech therapists know how important it is to attach the attention and keep interest of a child to achieve the best results. Some senses are more accustomed in daily use; others are used only in special cases. The development in pre-school age is the basis for the future life, wellbeing and success. Therefore the fundamental must be strong, confident and reliable.

Used methods: literature review based on specific key words in Google Scholar, questionnaire for speech therapists and statistical analysis of the obtained results.

Main results specify frequently used senses (vision, hearing, touch) and more rarely used senses (smell and taste). Nevertheless the results of speech therapy intervention suggests more frequent use of all the senses. One of the conclusions is related to the need in the education of future speech therapists to pay more attention to the use of a multisensory approach in daily sessions for children with speech and language disorders.

Keywords: developmental language disorder, intervention, multisensory approach, preschool children, speech therapy

Introduction

The study was conducted to develop theoretical principles on the use of a multisensory approach in speech therapy sessions for preschool children with developmental language disorder. An initial empirical study was also conducted, the results of which are described in the results section.

Developmental Language Disorder (DLD) is a comparatively new term in speech therapy, created in 2017 instead of the previous term Specific Language Impairment (SLI). This was done in order to use common terminology and clearly show the essence that these are children with primary speech and language disorders in the developmental process (Bishop et al., 2017). It also makes it easier for researchers to understand the signs of the disorder, and several studies have been devoted to this very concept. Latvia has also been involved in them and contributed by comparing different approaches in Europe (Tubele & Daniela, 2019). An accurate explanation of the disorder also provides for common principles in the choice of intervention, correcting the pronunciation of sounds in preschool children, developing phonematic perception, clarifying and enriching the vocabulary, as well as improving communication skills. It envisages the use of various methods, including a multisensory approach in speech therapy.

The simultaneous stimulation of two or more of the sensory receptors is considered a multisensory approach (Neumann et al., 2012). Early childhood educators emphasize that young children learn through all their senses. This is how they get to know the world, learn the language and prepare for the learning process (Jeyabalan et al., 2017; Maxheimer, 2013; Neumann et al., 2012; Wilkinson et al., 2022). Sensory stimuli enter the child's brain and this strengthens neural pathways, which will be important for any type of learning. Research on multisensory integration and child neurodevelopment is essential here (Dionne-Dostic et al., 2015). It is believed that the child's neurodevelopment is fragile, vulnerable and at the same time has great opportunities for development. Neuropsychological and neuroimaging studies show that multisensory interactions are widespread in the cortex. In a child's everyday life, there are countless multisensory experiences deriving from a combination of information acquired through several sensory modalities (Dionne-Dostic et al., 2015). This multisensory information is processed and integrated in the child's brain, providing an appropriate and complete picture of what is perceived. Here, the idea that early intervention involving as many senses as possible is essential and necessary is emphasized once again (Dionne-Dostic et al., 2015; Kucirkova & Kamola, 2022; Mason, Goldstein & Schwade, 2019; Neumann et al., 2012). Some articles emphasize the use of a multisensory approach for preschool children and the promotion of phonemic perception skills (Jeyabalan et al., 2017). Despite the study being conducted in Malaysia, the insights and data obtained are also relevant in the context of this study.

The multisensory approach is considered in many different contexts, but there are also several common features. In teaching hard-of-hearing and deaf children, the main focus is on the fact that sign language is used in these children's families, that significantly affects language competence. The use of a multisensory approach significantly reduces delayed language skills, hard-of-hearing and deaf children benefit from this approach (Hettiarachchi, Ranaweera & Disanayake, 2021). Saratikjan talks about shy children and children with autism spectrum disorders. In order to more accurately diagnose communication skills and ensure an effective intervention process, it is necessary to use a multisensory approach (Saratikyan, 2021). Rompas and Recard recommend creating an intervention that uses different strategies that enable language comprehension. Thus, multisensory activities stimulate the child's involvement in the process of language acquisition (Rompas & Recard, 2021). There are also studies on the effects of multisensory environments on children with autism spectrum disorders (Unwin et al., 2022). These rooms prepare children with autistic spectrum disorders for the learning process by increasing attention, reducing repetitive motor behavior, anxiety. There is a study specifically on the implementation of a multisensory approach in improving articulation and the use of various methods and their combinations. It is emphasized that besides traditional phonemic perception and articulation exercises, Tactile-kinesthetic techniques, Moto-kinesthetic speech training, Hand signal system, Cued speech, Visual phonics and others are also used (Maxheimer, 2013). The author mentioned Sound Strategies for Sound production which is a multisensory approach based on current phonological and motor training practices where auditory sequencing skills are developed. This method in multisensory approach includes also use of a written signal, that means – visual component is included. Multisensory stimulation is important because it is used to teach pronunciation of sounds. Auditory discrimination, visual recognition, cognitive understanding and kinesthetic awareness are developed (Maxheimer, 2013). If we are talking about where the vocabulary is enriched and with other areas of activity in speech therapy, then the involvement of all senses is essential.

Several authors believe that multisensory learning should be viewed much more broadly than just using the five senses. There are studies that confirm that as many as 22 senses are known (Kucirkova & Kamola, 2022). Multisensory learning can be used in the process of learning mathematics (Cuturi et al., 2021), in learning English (Hettiarachchi, Walisundara & Ranaweera, 2020). A study on the use of a multisensory approach in learning English includes audio, visual, tactile and physical movement input (Rompas & Recard, 2021). In the course of research, authors came to the conclusion that using not only vision but also other sensory modalities, the result is better and more durable. Multi-sensory interaction has given good results proving the effectiveness of the multi-sensory approach. The importance of developing multisensory experiences is to

move beyond the visual. Nevertheless it is challenging for teachers, requiring more effort and also knowledge. It is incomparably more difficult for children with pre-existing disorders to acquire language and speech, especially if the surrounding environment is noisy. If children have various sensory processing disorders, then the main principle is to think about incoming sensory inputs to make sure that they are functioning accordingly (Fuxe et al., 2020). For a long time it was believed that children with sensory processing deficits should only stimulate one sense in order not to overload the system. However, recent studies (Fuxe et al., 2020) show that this is not the case and that using a combined audiovisual stimulus, language acquisition is more successful. Gascoyne also talk about vulnerable children who have behavioral and emotional disorders. They are offered various materials in the form of toys to use all their senses as much as possible. Gascoyne emphasizes that sensory stimulation is the most important way children can learn about themselves and the world around them. Using multisensory tools for engaging children in learning will benefit and enrich children's ability to mastery in mainstream education (Gascoyne, 2017). It will help also in acquiring language and early literacy. In relation to literacy and language skills active learning through multisensory experience is more effective. They also emphasize that at an early age hearing and vision interact during the speech perception (Neumann et al., 2012). A multisensory approach may be used during speech therapy sessions when children explore letters, objects through multisensory activities. Multisensory methods could be used also in the home settings, then parents should be involved in the work. Interesting experience is presented about sensory food education programme "Flavour School", where there are opportunities to get to know fruits and vegetables, learn their names not only by looking, but also by smelling and tasting (Wilkinson et al., 2022). In speech therapy, it can be successfully used to enrich the vocabulary.

The process of teaching and learning of preschool children is traditionally carried out through sight and hearing. When learning a language, children should feel comfortable and happy to be part of the process when learning letters. Learning based on basic neurodevelopmental knowledge would require multisensory approach. Multisensory approach to learning is the continual use of the five senses, including the use of body movement to teach abstract concepts making them concrete and accessible for memory usage and transference (Wrighton, 2010). Using several modalities at one time to strengthen neural pathways.

Methodology

The theoretical method used was literature review. There was only one relevant article in the Scopus database that was included in this literature review. It was dated 2022, and it corresponded to the chosen keywords. The research

profile in the Web-of-Science database did not match the selected one, so other articles were analyzed using the Google Scholar website. The Google Scholar website was searched by key words: multisensory approach, preschool children, speech therapy sessions also limiting the research years (2021-2022). There were only a couple of specifically relevant articles, so the search was slightly expanded by excluding speech therapy sessions or by changing preschool age to school age.

The empirical part used a survey for speech therapists. The sample of respondents is random, nevertheless all of them are speech therapists. The questionnaire was posted on the Facebook profile of speech therapists' followers and an Idea exchange point for speech therapists. The questionnaire was anonymous and answers were recorded in a google form. There were a total of 161 responses.

Results

Theoretical findings are related to clarify the understanding of the multisensory approach and the possibilities of its use for preschool children with speech and language disorders in speech therapy sessions. By clarifying the obtained information, theoretical knowledge about several aspects was obtained.

Empirical part was carried out using survey for speech therapists. The study was conducted to find out how Latvian speech therapists understand and use the multisensory approach in daily speech therapy sessions with preschool children. There were eight questions to find out general trends in the use of multisensory approach in Latvia. The first question is related to the length of professional activity in speech therapy. Up to one year is 13% respondents; one to five years – 1.1%; five to ten years – 44.7%; ten to twenty years – 26.7%; more than 20 years – 15.5%. This means that there are numerically fewer speech therapists who have been working for one to five years but mostly those whose work experience is between five and ten years. There are also many specialists (15.5%) who are working in the profession for more than twenty years. The second question was asked in order to roughly understand whether speech therapists know what a multisensory approach is. Just over half (51.6%) say they know what a multisensory approach is; surprisingly, 41% of respondents admit that they know only approximately and 7.4% believe that they have no knowledge, which is a multisensory approach.

The next question was about the use of all senses in speech therapy classes where there was an opportunity to choose several options (see Figure 1).

It is clear that almost all speech therapists use vision, hearing and touch nevertheless there are slight differences. 160 or 99.38% of respondents use vision; 159 or 98,76% use hearing, and 156 or 96.89% of respondents use touch. This happens because speech therapy classes include exercises and tasks that not only develop visual and auditory perception.

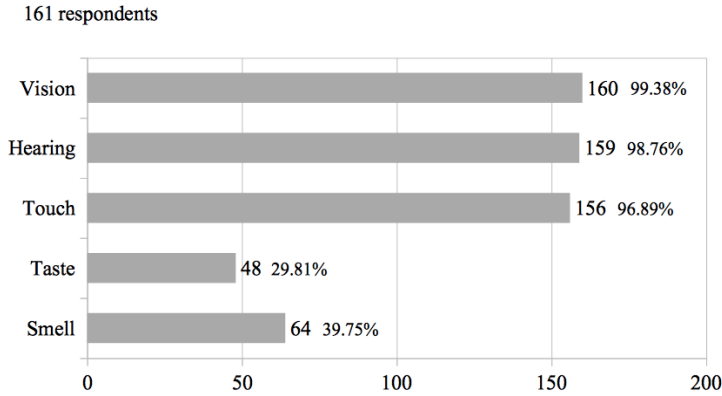


Figure 1. Using different senses in speech therapy classes

Fine motor skills are exercised, which contributes to the development of speech, so the involvement of touch is logical and significant. 48 or 29.81% of respondents use taste, it is almost one third of respondents. More than half of the respondents, 64 or 39.75%, use smell in their lessons. In future research, it would be interesting to find out exactly how this happens and what skills are promoted in this way.

More detailed questions were asked about the frequency of use of all senses. So, for example, about vision and hearing, the respondents answered with only two options – in every lesson or very often. Sight is involved in every lesson in 88.8% and very often in 11.2%. Hearing is involved in every lesson in 91.3% and very often in 8.7%. Basically, speech therapy lessons involve both vision and hearing, perhaps some respondents thought that they should be responsible for specially prepared tasks or exercises.

The answers about the use of touch are slightly different: in each lesson it is used in 45.3% of cases, very often exactly as many 45.3% of cases, but there are also answers that touch is used rarely – 8.1% of respondents. 1.3% of respondents believe that touch is used very rarely.

Interesting answers are about the use of taste. There are several answer options here (see Figure 2). When it comes to taste, only 0.3% of respondents admit that they use it in exercises and tasks in every lesson. There is also a comment in 0.3% of cases that it depends on the parents. This is related to various allergies, eating habits and the availability of products, including the need to use them. The number of respondents who use taste often is relatively small – 7.5%. An approximately similar number of respondents use taste rarely (28.2%); very rarely (32.3%) or never (30.5%). There are opportunities for the use of several senses in speech therapy classes.

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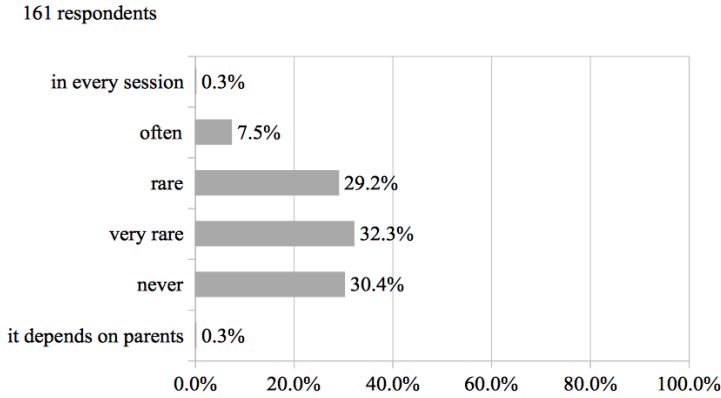


Figure 2. Taste is used

The same options were available for answers about the use of smell (see Figure 3).

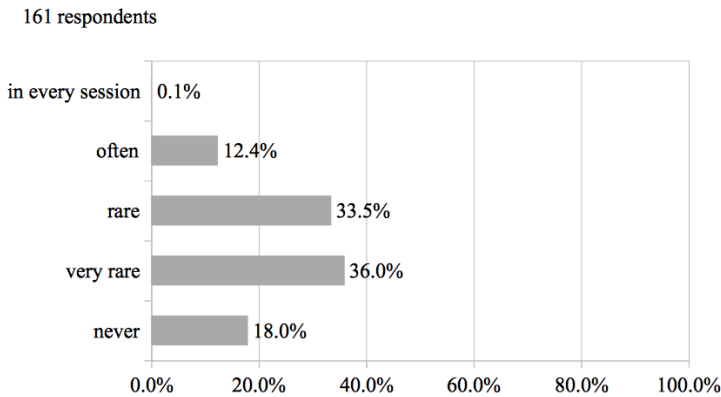


Figure 3. Smell is used

Smell is used in even fewer cases, only 0.1% use smell in every lesson, it would be interesting to hear comments about it. However, there are respondents who believe that smell is used more often (12.4% of cases) than taste (7.5%). On the other hand, respondents who admit that smell is never used (18.9%) are fewer than those who do not use taste (30.4%). More than a third of respondents express the opinion that smell is used rarely (33.5%) and very rarely (36.0%). This means that both smell and taste are senses whose use in speech therapy classes has the potential to give good results in the intervention process.

Conclusions

Based on the theoretical findings, it can be concluded that preschool children learn using all their senses and the earlier intervention is started, the better the results.

Sensory interaction promotes neurodevelopment and is a huge opportunity for the development of the child in general.

The multisensory approach can be used for children with various disabilities and in the learning of various fields, it can be especially successfully used in speech therapy both in teaching the pronunciation of sounds and in learning vocabulary.

Since about half of the respondents know only approximately what the multisensory approach is or do not understand it at all, it is necessary to improve the education of future speech therapists by paying more attention to examples of good practice in the use of the multisensory approach.

Coming out of the empirical study the survey results showed that the abilities of using some senses (smell and taste) are not fully used the same as the use of touch could also be improved and perfected by involving more relevant tasks in speech therapy sessions.

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