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TOMATIS AUDITORY STIMULATION AND LEARNING DIFFICULTIES – AN OVERVIEW OF RECENT STUDIES

INTRODUCTION

Hearing and listening processes are crucial for any aspects of learning. However, there is a great difference between hearing and listening as listening requires our full attention whereas hearing requires no particular effort on our side.¹ According to Tomatis² our ears “act as a dynamo, sending stimuli to our brain, keeping it alert and in good shape so it works optimally.” It also controls our balance and coordination as well as the quality of our speech. Listening, though, belongs to different dimension than hearing as it involves desire, curiosity, concentration and focusing of our attention on the very process.³ Listening is an active focusing process which has a volitional (motivational) component. The desire to listen, as well as the capability to listen, must be present for the successful recognition and analysis of sound, especially the complex sounds of language. Good listening implies that the individual is both able and motivated during the hearing process.⁴

Tomatis⁵ definition of listening ability included both neurophysiological component and a motivational component as according to him in order to

¹ P. Sollier, *Listening for Wellness. An Introduction to the Tomatis Method*, Hong Kong 2005.

² Ibidem, p. 41.

³ Ibidem, p. 42.

⁴ Ibidem.

⁵ A.A. Tomatis, *The Conscious Ear*, New York 1991; idem, *The Ear and the Language*, Ontario 1996.

learn, you have to be able to listen. Tomatis⁶ was the first one to discover the role of ear in the production of the speech and far reaching effects of sound stimulation used to condition our discrimination of sounds and frequencies. His method, developed specifically to stimulate the both interconnections between the ear and the nervous system, proved to impact and integrate different aspects of human development and behaviour.⁷ Another important theory by Tomatis is that the quality of an individual's listening ability will affect the quality of both their spoken and written language development. Because of the fact that sounds of language are introduced to the individual long before the written or graphic forms, it is assumed that the way a given child integrates the sound of language will directly affect the way in which they can understand and express language, first in the spoken form and later in its written form.⁸ Tomatis⁹ demonstrated that good hearing is not sufficient for correct reproduction of sounds. As a result, the majority of language learning difficulties should not be related to hearing disorders but to listening problems. Consequently, it is possible to hear well without being able to decode and understand given sounds. In other words, distortions in the perception of sounds might lead to both comprehension and verbal production difficulties, not to mention difficulties in written restitution.

Most language is learned by listening. To learn, a child must be able to attend to, listen to, and separate important speech from all of the other noises at school and home.¹⁰ When auditory skills are weak, the child may experience auditory overload. This makes learning more challenging and sometimes an auditory processing disorder might occur. Auditory processing disorder is the inability or decreased ability to attend to, discriminate among or between, recognize, or understand auditory information.¹¹ The Tomatis method is a program of auditory stimulation and counselling primarily used to assist children, adolescents, and adults with learning and communication disorders.

⁶ Idem, *The Conscious Ear*.

⁷ B. Thompson, S.C. Andrews, *An Historical Commentary of Physiological Effects of Music: Tomatis, Mozart and Neuropsychology*, "Integrative Physiological and Behavioral Science" 2000, vol. 35, 3, p. 175.

⁸ P. Sollier, *Listening for Wellness...*

⁹ A.A. Tomatis, *The Conscious Ear*; idem, *The Ear and the Language*.

¹⁰ D. Ross-Swain, *The Effects of the Tomatis Method of Auditory Stimulation on Auditory Processing Disorder: A Summary of Findings*, "International Journal of Listening" 2007, vol. 21, no. 2, p. 141.

¹¹ Ibidem.

In the last few decades there have been numerous studies and surveys which confirmed the benefits of the method for a variety of conditions. Below we are to present some recent ones with a special emphasis placed on learning difficulties among primary school children.

TOMATIS AUDITORY STIMULATION AMONG PRIMARY SCHOOL CHILDREN – OVERVIEW OF RESEARCH

Gilmor¹² in his study presented a meta-analysis of data from five research studies evaluating the efficacy of Tomatis method in assisting children with learning and communication disorders. Positive effect sizes were found for each of the five behavioral domains analyzed: linguistic, psychomotor, personal and social adjustment, cognitive and auditory. These results, although positive, were limited by several factors including small sample sizes and limited use of random assignment. Still, according to the author, the results suggest that effect sizes favoring children who had participated in the program were significant and consistent with clinicians' reports of beneficial effects.

In another study¹³ 32 underachieving children were compared with a control group of 40 children not diagnosed with any learning difficulties. After the auditory stimulation treatment the treated group showed greater improvements in listening, oral reading and behaviour skills.

Ross-Swain¹⁴ studied the effects of the Tomatis method on 41 subjects from age 4 to age 19 with auditory processing disorders. Standardized tests were used pre and post treatment. Results of the study suggest that overall auditory processing skills improved following participation in a 90-hour Tomatis method auditory stimulation protocol. At the same time comparison of pre- and post treatment evaluations indicated that skills of immediate auditory memory, auditory sequencing, interpretation and following directions, auditory discrimination and auditory cohesion improved.¹⁵ According to the author auditory processing skills are a hierarchy of skills that are basic to the listening, communication, and learning processes. Although sequential in de-

¹² T. Gilmor, *The efficacy of the Tomatis Method for children with learning and communication disorders: A Meta-Analysis*, "International Journal of Listening" 2000, 13, 1.

¹³ M. Sandislands, *The Tomatis Listening Training Program: A Quasi-Experimental Field Evaluation*, "International Journal of Special Education" 1989.

¹⁴ D. Ross-Swain, *The Effects of the Tomatis Method...*

¹⁵ Ibidem, p. 152.

velopment, these skills overlap and are essentially inseparable. Consequently, auditory processing skill weaknesses result in difficulty in the ability to use auditory information to listen, communicate, and learn. However, it needs to be highlighted that all subjects in Ross-Swain study demonstrated statistically significant improvement with skills of immediate auditory memory, auditory sequencing, interpretation of directions, auditory discrimination and auditory cohesion. Ross-Swain suggested by that the Tomatis method could be effective as an intervention strategy for auditory processing disorders.

The Tomatis Center in Toronto, Canada, studied the results of Tomatis Listening Therapy on over 400 children and adolescents, 95% of parents saw positive response in their children as far as following aspects of learning are concerned: 89% greater communication abilities, 86% better attention span, 80% frustration level decreased, 74% quality of speech improved, 73% memory improved, 69% better spelling aptitude, 84% showed more maturity. Six months after the program, 83% of those children had maintained the improvements and/or had continued to make even further gains. An additional 14% of the children had maintained some of the gains. Only 3% had maintained none of the improvements.¹⁶ Research by Stutt concluded a significant increase in I.Q., better reading skills and perceptual processing, increased academic skills, a general sense of adjustment, more developed communication skills and a greater ability to verbally express thoughts and feelings.¹⁷

Similarly, Ratyńska¹⁸ mentioned that the effectiveness of the Tomatis method in improving auditory processing, pre-reading skills, and classroom behavior in primary school children, was researched by Andrews, Thompson and Trumps using a double-blind, placebo control group, random assignment research study. Children were divided into a Tomatis listening therapy group and a placebo control group. The Tomatis group showed more improvement than the placebo control group on all of the mentioned variables.

Kurkowski¹⁹ describes a research project by Sylvia Lozano in which children between the ages of 5 and 6 were exposed to the Tomatis Method. Using a pre test post test design, a total of 78 children were divided into three groups of

¹⁶ P. Sollier, *Listening for Wellness...*, p. 380.

¹⁷ Ibidem, p. 381.

¹⁸ *Metoda Tomatisa. Publikacja końcowa projektu „Uwaga! Sposób na sukces”*, red. J. Ratyńska, Gdańsk 2013.

¹⁹ Z.M. Kurkowski, *Tomatis method applied in the diagnosis and speech therapy*, “Logopedia” 2013, 42, p. 251.

26. Group 1 received the Tomatis method. Group 2 received musical stimuli and group 3 received no auditory intervention. All three groups simultaneously performed the same creative manual exercises appropriate to their age. The results of the study revealed that the Tomatis group had significant results in communicative, linguistic and cognitive categories, improved vocabulary, reading and writing and showed better socialization with classmates. The project concluded that the Tomatis method overall helped develop communicative, linguistic, emotional and cognitive abilities and therefore is a useful tool in prevention within school stimulation. Similar conclusions were presented in the large scale longitudinal study in Poland where 1111 students from 62 schools were researched.²⁰ Ratyńska²¹ noted that results of the study suggest strong positive effect of the auditory stimulation with the use of the Tomatis method on the increase of competence level in children in the first school grades. Mularzuk²² presented identical findings based on the same research project measuring the influence of the Tomatis method on learning difficulties but this time with the sample of 776 schoolchildren from 57 primary schools among which 275 participants were diagnosed with speech disorders. Overall, it could be concluded that more than 50% of the children had better scores in the control tests, however no statistical analyses were presented to verify the significance of the postulated influence of the Tomatis auditory stimulation on improvement of various learning skills.

CONCLUSION

The results of the presented overview suggest that there might be a significant relationship of the Tomatis auditory stimulation method and the improvement of different learning skills as well as minimizing learning difficulties among primary school children. These results, although positive, are limited by such factors as relatively small sample sizes, limited use of random assignment as well as lack of the statistical analysis in the case of Polish large scale longitudinal studies. Nevertheless, it needs to be highlighted that even though presented studies are not devoid of some weaknesses they suggest a possible

²⁰ *Metoda Tomatisa. Publikacja końcowa projektu...*

²¹ *Ibidem.*

²² M. Mularzuk, *Skuteczność terapii Tomatisa u dzieci ze specjalnymi potrzebami nauczania na podstawie wyników badań własnych*, [w:] *Metoda Tomatisa. Publikacja końcowa projektu...*

solution for a growing number of students diagnosed with different types of learning difficulties and disabilities. We must remember that the appropriate education of children with disabilities, learning difficulties and disadvantages is a key factor in creating social cohesion and inclusion through the efficient use of education provision.

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STYMULACJA SŁUCHOWA METODĄ TOMATISA A NIWELOWANIE TRUDNOŚCI W UCZENIU SIĘ – PRZEGLĄD BADAŃ

Streszczenie: Celem niniejszego artykułu jest przegląd współczesnych badań zajmujących się wpływem stymulacji słuchowej metodą Tomatisa na takie aspekty

trudności w uczeniu się zaobserwowane wśród badanych uczniów szkół podstawowych jak: trudności w czytaniu, komunikacji czy zachowaniu. Zaprezentowane rezultaty wskazują na pozytywny wpływ stymulacji słuchowej na wymienione wyżej trudności w uczeniu się. Pozytywne efekty metody Tomatisa zostały stwierdzone zarówno, jeżeli chodzi o same rezultaty w nauce, jak i, w niektórych przypadkach, w zachowaniu badanych osób, co może stanowić potwierdzenie skuteczności tej metody w terapii służącej dzieciom mającym trudności w uczeniu się.

Słowa kluczowe: stymulacja słuchowa, metoda Tomatisa, trudności w uczeniu się, czytanie, pisanie, zachowanie

TOMATIS AUDITORY STIMULATION AND LEARNING DIFFICULTIES – AN OVERVIEW OF RECENT STUDIES

Summary: The present article aims to present a short overview of recent studies researching the use of Tomatis auditory stimulation while addressing various types of learning difficulties like difficulties in reading, communication or behavior among primary school students. The results of the presented studies clearly show positive influence of the auditory stimulation on mentioned before skills. It was shown that Tomatis method seemed to improve significantly students' learning outcomes as well as, in some cases, behavior and could be used to aid students with different kinds of learning difficulties.

Keywords: auditory stimulation, Tomatis method, learning difficulties, reading, writing, behaviour