Book review

Developmental Speech-Language Training through Music for Children with Autism Spectrum Disorders
Hayoung Lim

Reviewed by Varvara Pasiali
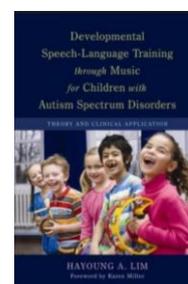
Varvara Pasiali, Ph.D., MT-BC, Neurologic Music Therapy Fellow, is an assistant professor of music therapy at Queens University of Charlotte. She completed her Master's in music therapy at the University of Kansas and her doctorate at Michigan State. Her research interests include early intervention, prevention, resilience, and parent-child attachment/reciprocity. Dr Pasiali is a regular presenter at conferences and has published in various journals. She also serves on the editorial board of the *Journal of Music Therapy*, and *Approaches: Music Therapy & Special Music Education*.

Email: pasializ@queens.edu

Dr Hayoung Lim developed the book *Developmental Speech-Language Training through Music for Children with Autism Spectrum Disorders* based on her research findings and clinical experience regarding speech and language acquisition of children with developmental delays. Learning about the author's background, clinical training and theoretical orientation will give insight into how Lim may have formulated the clinical concepts outlined in her book. Lim has a diverse clinical background working with individuals who have medical problems, mental illness, developmental disorders, dementia and neurologic impairments. She completed her clinical internship at Lutheran General Hospital, in Park Ridge, IL. She worked as a music therapist at the Cleveland Music School Settlement in Cleveland, OH and was a director of music therapy at Children's Health and

Education Management in Miami, FL. A current member of the American Music Therapy Association, Lim is also a board-certified clinician and a Neurologic Music Therapy Fellow (NMT Fellow) (SHSU 2013).

Currently, Lim is an assistant professor and coordinator of Sam Huston State University's graduate program in music therapy and has an undergraduate degree in cello performance from the Catholic University of Korea. She completed a Master's degree in both music therapy and cello performance at Illinois State University, and her Ph.D. in music therapy at the University of Miami. Her clinical focus is speech and language acquisition skill of children with developmental delays (Gautt 2012).

Lim describes her theoretical orientation as a combination of Cognitive Behavioural Psychology

and NMT. For her book, she used Gestalt psychology principles to help her investigate and interpret the structure of various musical components and organisation of musical sounds (Lim 2013; e-mail communication). Neurologic music therapists are trained in the scientific model of NMT and its specific standardised approaches at the Centre for Biomedical Research in Music (CBRM) and become members of the Robert F. Unkefer Academy of Neurologic Music Therapy (Thaut 2013).

The author's training is similar to my own professional experience. I also worked at the Cleveland Music School Settlement (an agency that adheres to a cognitive-behavioural treatment approach) and have completed the NMT training. My primary clinical focus is family-based music therapy; however, I have conducted research and worked with individuals with Autism Spectrum Disorders (ASD). I completed my Master's degree at the University of Kansas, receiving training solidly based on cognitive-behavioural approaches. However, during my clinical career and my doctoral training at Michigan State University I was exposed to existential, humanistic and psychodynamic approaches to music therapy (including clinical improvisation). I reviewed this book from the lens of a clinician who is well-informed about behavioural strategies and chooses to use a more eclectic, client-centred approach in her own practice.

Establishing music therapy as a viable intervention for children with ASD is important. In the introduction chapter of her book, Lim states that by writing the book she aimed to: (a) make a theoretical contribution by exploring the neurological commonalities between activating speech/language and music, and (b) make a clinical contribution by exploring how musical materials combined with related props can enhance language and communication skills of children with ASD. Because the title of the book is not referring directly to music therapy, it might be misleading to therapists unfamiliar with NMT terminology. In NMT, Developmental Speech-Language Training through Music (DSLM) is considered a standardised approach that encompasses therapeutic applications targeting language development.

Her book is divided in two sections. In the first section (introduction to chapter 5) the author focuses on reviewing pertinent literature. The second section includes descriptions of clinical interventions targeting speech and language skills for children with ASD. In the introduction, the author briefly describes what disorders fall under the ASD umbrella. Very helpful is the categorisation of the different types of interventions needed (p.22). Then, the author proceeds by

building a concise rationale, supporting the use of music with children who have ASD. Specifically, the author discusses research evidence regarding the musical sensitivity, perceptual preferences, and the production of musical patterns of children with ASD. The author continues with an overview of research literature about the general effects of music and then, more specifically the effects of music on language/communication skills.

The first chapter begins with an overview of the symptomatology and topography of behaviours characteristic of individuals with ASD. Then, it presents a review of the non-music therapy literature about speech and language impairments and abnormal cortical processing. The second chapter is a continuation of the literature review. Statements and claims made in the previous chapter are repeated and expanded. What I believe will be most helpful to music therapists is the author's summary of research literature that establishes echolalia as a coping mechanism leading to the development of language. In other words, echolalia is explored as a necessary stage leading to language acquisition.

The third chapter is dedicated to exploring the laws governing music and language perception, concluding that both show similar patterns of cortical activation. Subsequently, the focus of the fourth chapter centres on how children with ASD may perceive different musical elements such as rhythmic patterns, pitch, melody, dynamics and form. What I find useful in this chapter is the simple description and definition of the psychological properties of each musical element. However, I want to caution the reader about the claims made in the fourth chapter. The current literature does not contain enough substantiating evidence to draw the type of conclusions outlined in the chapter. For example, there is only one study conducted by Thaut (1987) that compared the responses of children with ASD to visual and auditory stimuli. Similarly, there is only one study about children with ASD's ability to perceive affect in music (Heaton, Hermelin, & Pring 1999). A recent study (see Katagiri 2009) about the effects of background music and lyrics on the emotional understanding of children with autism is not included in the review. Moreover, in chapter 4, all comments about perception of rhythm patterns, pitch, melodic contour, prosody, dynamics and structure are derived from clinical observations. The observations will be useful for clinicians who would like to understand the therapeutic function that each musical element may play in shaping client responses during sessions.

Regarding chapter 4, it would perhaps be informative if the author compared her clinical observations to those of other clinicians for

corroboration. Detailed and in-depth descriptions of client responses to music therapy interventions are included in case studies and systematic qualitative research. For example, Holck (2004) described how musical interactions that occur within the context of clinical improvisation may function as ways of establishing meaningful communication channels with children who have lower functioning autism. Also in chapter 4, the author discusses the musical behaviour of children with autism. Including a discussion of the Music Therapy Diagnostic Assessment for children who have autism (MTDA – Oldfield 2006) may also have been helpful. Overall, while summarising important information, this chapter also highlights the need for additional research on how children with ASD perceive music. The fifth chapter is a thorough and objective review of quantitative research studies in the music therapy literature specifically targeting language/communication skills.

The philosophical underpinnings of NMT are founded on the Rational-Scientific Mediating Model (R-SMM) of music therapy. According to Thaut (2000) researchers should develop their clinical theories based on a close examination of physiological and psychological human responses. Researchers must analyse those responses in both musical and non-musical contexts to draw parallels, develop theories and derive research hypotheses. Based on R-SMM, clinicians should follow a deductive logic pathway to develop clinical interventions targeting functional responses. Part I of Lim's book follows the logic of the R-SMM model by attempting to establish the therapeutic effect of music on language acquisition by comparing both musical and non-musical response exemplars within the framework of Gestalt psychology principles.

Regarding Part I of the book, as a reader, I would prefer if the writing style was less formal and more concise. Overall, the writing style reflects how tricky the process of translating one's dissertation into a book can be. Chapters contain repetition of ideas and previously presented information that hinders flow and readability. Such repetition may perhaps dampen a clinician's interest in reading the material. I would like to see the chapters edited to highlight the main claims, substantiating each claim with relevant literature and condensing information to avoid repetition. Also, I would like to suggest editing the chapters to avoid using the word 'prove' when referring to research findings and for applying person-first language (e.g., 'child with autism' instead of 'autistic child').

The second part of the book includes chapters 6 to 8. Chapter 6 includes specific recommendations regarding the function of the different music elements (pitch, melodic contour, rhythm, etc.) when creating songs that include target words or phrases for language acquisition. The author emphasises the importance of pairing visual cues corresponding to the target word and phrases. She also recommends live presentation of the songs to allow the therapist the flexibility of adapting the songs in accordance with how the client is responding to the musical elements. Those recommendations are well summarised. In chapter 6, the author suggests that children with ASD might not pay full attention to a song composed in a minor key and at a slow tempo. The statement, however, is not substantiated by research findings. While I agree with the recommendations in this chapter that songs "must include melodies within a limited pitch range, adjacent intervals and repetitive melodic contour" (p. 82), given the lack of research, I disagree that a therapist should limit himself/herself to only major and upbeat tempo songs. Nor do I agree that a therapist should avoid using non-symmetrical metres. A music therapist may be able to use a 'rich musical vocabulary' of modal melodies, various tempi, unusual metres and rhythmic patterns as a catalyst of effectively highlighting the target words or phrases emphasised in the song.

Chapter 7 includes twelve examples of therapeutic applications suitable for speech and language training. Students and entry level clinicians will find this chapter informative. At the beginning of the chapter, the author operationally defines a list of possible behavioural goal areas. For each intervention listed in this chapter, the author includes possible goal areas. After describing the musical experience (providing the song notation and implementation suggestions), the author offers specific strategies a therapist may use in order to emphasise speech and language behaviours. Overall, when combined together, those twelve examples may aid a student or a clinician in developing a session plan suitable for young children.

In the final chapter the author discusses applied behavioural analysis strategies. The author begins chapter 8 by presenting a table that lists all twelve of the musical examples discussed in the previous chapter. For each example, the author presents the antecedent variables that contribute to the specific verbal and nonverbal behaviours targeted through each suggested experience. Chapter 8 will be helpful for a clinician or a student unfamiliar with applied behavioural analysis. The author explains in concise language, concepts such as discrete trial learning, verbal behavioural approach, functional analysis, and task analysis. The author proposes that children with autism may find music a highly motivating medium, thus, engagement in "musical

experiences functions as a positive reinforcement for appropriate communicative behaviors" (p. 141). Particularly interesting is the definition of verbal operants that trigger language responses. Based on the explanation of what those verbal operants entail, Lim describes how a music therapist can assess verbal deficits in order to create a treatment plan tailored to individual needs.

The book has three appendixes. The first contains additional examples of songs conducive to speech and language training. The second contains suggested visual illustrations for each song. Lastly, the third appendix includes data collection results of a study conducted by the author. The findings indicated that both music and speech stimuli can increase verbal production of target words of children with ASD. However, children who are lower-functioning may show greater improvement when engaged in language training using music stimuli. Regarding the relationship of appendix C to the book, I believe the main text of the book was derived through the literature review that the author conducted for partial fulfilment of graduate doctoral work in combination with Lim's clinical experiences and observations. The third appendix is a summary of the actual doctoral research study she conducted at the University of Miami (c.f. Lim 2007).

The theoretical concepts outlined in this book can be relevant for music therapists across the field of various theoretical orientations. Clinicians may use theoretical concepts in this book to explain and discuss the viability of using music therapy intervention to target language acquisition. Overall, Part I of the text represents the only attempt in the music therapy literature to integrate important theoretical and research concepts regarding speech and language training for children with ASD, thus making a significant theoretical contribution to the profession. Part II will aid clinicians and students who follow a behavioural-based approach, in treatment planning and implementation. Clinicians trained in different approaches may choose to incorporate some the music examples referenced in the book in their clinical practice. Also, reading the book may help them understand the professional language and terminology relevant to using behavioural techniques in a session.

References

Gautt, J. (2012). *Music therapist works to give children with autism a voice.* Huntsville, TX: SHSU Communications Office. Retrieved on 3 February 2013, from: www.shsu.edu/~pin_www/T@S/sliders/2012/lim.html

Heaton, P., Hermelin, B., & Pring, L. (1999). Can children with autistic spectrum disorder perceive affect in music? An experimental investigation. *Psychological Medicine, 29,* 1405-1410.

Holck, U. (2004). Interaction themes in music therapy: Definition and delimitation. *Nordic Journal of Music Therapy, 13*(1), 3-19.

Katagiri, J. (2009). The effect of background music and song texts on the emotional understanding of children with autism. *Journal of Music Therapy, 46,* 15-31.

Lim, H. A. (2007). *The effect of "Developmental Speech-Language Training through Music" on speech production in children with autism spectrum disorders.* Doctoral Dissertation, University of Miami, Florida. Retrieved on 3 February 2013, from: http://scholarlyrepository.miami.edu/oa_dissertations/63/

Oldfield, A. (2006). *Interactive Music Therapy in Child and Family Psychiatry: Clinical Practice, Research and Teaching.* London: Jessica Kingsley.

SHSU (2013). Faculty bio. Retrieved on 3 February 2013, from: http://shsu.edu/~music/faculty/bio/lim.html

Thaut, M. H. (1987). Visual vs. auditory (musical) stimulus preferences in autistic children. *Journal of Autism and Developmental Disorders, 17,* 425-432.

Thaut, M. H. (2000). *A Scientific Model of Music in Therapy and Medicine.* San Antonio, TX: IMR Press.

Thaut, M. H. (2013). Robert F. Unkefer Academy of Neurologic Music Therapy. Fort Collins, CO: Colorado State University. Retrieved on 8 February 2013, from: www.colostate.edu/dept/cbrm/academymissionstatement.html