

NEW BULGARIAN UNIVERSITY

Department of Music

VIOLETA PETROVA GLOGOVA

Abstract on the topic

**Movement Therapy Through Dance Techniques and Its Impact on Nonverbal
Communication in Children with Autism Spectrum Disorders (ASD)**

Dissertation

for the award of the educational and scientific degree of “Doctor”

Professional field: 8.3. Music and Dance Arts

Supervisors:

Assoc. Prof. Dr Margarita Stankova

Assoc. Prof. Dr Asya Ivanova

Sofia, 2026

The thesis is composed of three sections: an introduction, findings and conclusion, and terminological clarifications; a bibliography; and two appendices, which collectively total 165 pages (157 pages of main text and 8 pages of appendices). The bibliography comprises 20 titles written in Cyrillic and 220 in Latin script, thus amounting to a total of 240.

As outlined in the following section, three scientific publications and three presentations at scientific forums have been produced on the topic of the doctoral thesis:

- Glogova, V., & Bojinova, I. 2024. *Methodology for the selection of movements in dance-movement therapy for children with autism spectrum disorders*. Yearbook of the National Sports Academy, 2: 99–107.
- Glogova, V. 2024. *Development and use of nonverbal communication in children with autism spectrum disorders (ASD) and their parents*. Norwegian Journal of Development of the International Science, 124: 108–116. <https://doi.org/10.5281/zenodo.10515068>

- Glogova, V. 2024. Dance as a form of nonverbal communication and a therapeutic tool for autism spectrum disorders (ASD). XV National School for Doctoral Students and Young Researchers in the Social Sciences – “Fundamental and Applied Research and Innovation,” ISSN (online) 2683-0868.
- Glogova, V. 2025. Assessment of changes in nonverbal behavioural responses in children with suspected autism spectrum disorder (ASD) following dance-movement therapy. The Scientific Heritage (Budapest, Hungary), 168: 57–63. ISSN 9215-0365.
- Glogova, V. 2025. Pilot study of a methodology for selecting music in dance-movement therapy for children with autism spectrum disorders. XX Young Scientific Forum on Music and Dance, NBU – currently under review and awaiting approval for publication.

Scientific jury composed of:

1. Assoc. Prof. Dr Margarita Marinova Krasteva – Stoychevska, NBU, professional field 8.3. Music and Dance Arts
2. Assoc. Prof. Dr Polina Mikhova Mikhova – Pavlova, NBU, professional field 7.4. Public Health
3. Prof. Dr Zhelka Koleva Tabakova, SWU “Neofit Rilski,” professional field 8.3. Music and Dance Arts
4. Assoc. Prof. Dr Katya Gineva Kairyakova, VSU “Chernosrizets Hrabar,” professional field 8.3. Music and Dance Arts
5. Assoc. Prof. Dr Katya Ivanova Dionisieva, SWU “Neofit Rilski,” professional field 1.2. Pedagogy

TABLE OF CONTENTS of the dissertation:

I. INTRODUCTION 5

II. THEORETICAL FRAMEWORK 8

1. NONVERBAL COMMUNICATION – DEFINITIONS, THEORIES. 8

1.1. Definitions of nonverbal communication 8

1.2. Theories of nonverbal communication 11

1.3. Relationship between verbal and nonverbal communication 14

1.4. Basic functions of nonverbal communication 17

1.5. Main components of nonverbal communication 19

2. DEVELOPMENT OF NONVERBAL COMMUNICATION IN CHILDREN WITH AUTISM SPECTRUM DISORDERS 37

2.1. Nature of ASD 37

2.2. Symptoms of ASD—classification and development 38

2.3. Comparison and relationship of ASD with other disorders and conditions 41

2.4. Social difficulties in autism spectrum disorders 42

2.5. Diagnosis of ASD and initiation of therapy 44

2.6. Nonverbal Communication in Autism 46

2.7. Stress Among Parents of Children with ASD 48

2.8. Specifics of Communication Between Children with ASD and Their Parents 49

2.9. Main Approaches to Educating Children with ASD 50

2.10. Modern Technologies and Innovative Approaches in Working with Children with Autism Spectrum Disorders (ASD) in Bulgaria 55

3. DANCE AS A MEANS OF NONVERBAL COMMUNICATION 58

3.1. Movement as a means of therapy. Basic methods of movement therapy. 58

3.2. Dance as a means of therapy 64

4. APPLICATION OF DANCE TECHNIQUES AS A MEANS OF DEVELOPING
NONVERBAL COMMUNICATION 70

4.1. Dance as a form of nonverbal communication and a means of therapy 70

4.2. Dance to assist children with ASD 71

4.3. Dance to assist parents of children with ASD 72

III. MATERIALS AND METHODS 76

1. Method for assessing the nonverbal behavioural responses of the subjects 81

2. Method for measuring the effect of therapy: ATEC (Autism Treatment Evaluation Checklist) 82

3. Methodology for selecting movements in dance and movement therapy for children with autism
spectrum disorders 84

4. Methodology for selecting musical themes in dance-movement therapy (DMT) for children with
autism spectrum disorders (ASD). 88

IV. RESULTS AND DISCUSSION 94

4.1. Results of the assessment of nonverbal behavioural responses in the studied children with
autism spectrum disorders following dance and movement therapy 94

4.2. Results of using the ATEC (Autism Treatment Evaluation Checklist) method to measure the
effect of therapy 101

4.3. Results from the application of the methodology for selecting movements in dance and
movement therapy for children with autism spectrum disorders 104

4.4. Results from the application of the methodology for selecting music in dance and movement
therapy for children with autism spectrum disorders 109

4.5. Expected benefits of the developed methodologies for the Methodology for the Selection of Movements and for the Selection of Musical Themes in Dance and Movement Therapy for Children with Autism Spectrum Disorders 118

V. CONCLUSIONS 120

5.1. Conclusions related to the results of the assessment of nonverbal behavioural reactions in the studied children with autism spectrum disorders following dance and movement therapy 120

5.2. Conclusions from the use of the Methodology for the Application and Interpretation of the ATEC (Autism Treatment Evaluation Checklist) 121

5.3. Conclusions related to the results of applying the Methodology for the Selection of Movements in dance and movement therapy for children with autism spectrum disorders 122

5.4. Conclusions from the application of the methodology for selecting music in dance-movement therapy for children with autism spectrum disorders 122

VI. CONCLUSION 124

VII. PROSPECTS FOR FUTURE EXTENDED RESEARCH AND APPLICATION 126

VIII. CONTRIBUTIONS OF THE DISSERTATION 128

1. Scientific contributions 128

2. Applied scientific contributions 128

Acknowledgments 130

IX. REFERENCES 131

I. INTRODUCTION

Autism spectrum disorders (ASDs) are neurodevelopmental conditions characterised by impairments in social communication and the interpretation and use of non-verbal cues. Children diagnosed with ASD frequently exhibit limited eye contact, vague or absent facial expressions, difficulties with gestural communication and unusual motor responses. These characteristics render them incapable of comprehending social cues, thus impeding their capacity to engage in collaborative activities and exerting a detrimental effect on their emotional and cognitive development.

Non-verbal communication is a pivotal component of social interaction and frequently serves as the sole available conduit of expression for children who possess limited verbal capabilities. Consequently, interventions that employ body expression, movement and rhythm specifically have the capacity to enhance contact, attention, imitation and social engagement. Dance-Movement Therapy (DMT) employs these mechanisms by integrating components of movement, spatial orientation, rhythm and emotional expression. The implementation of structured movement activities has been demonstrated to facilitate the development of more purposeful non-verbal responses in children. Furthermore, these activities have been shown to enhance body control and promote more active participation in communication.

In light of the significance of non-verbal competencies and the paucity of research on the impact of dance movement techniques on children diagnosed with autism spectrum disorders within the Bulgarian context, there is a clear necessity for scientific research to evaluate the actual impact of this therapeutic modality and to propose methodological frameworks for its practical implementation. The present study aims to analyse the effect of dance-movement therapy on the development of non-verbal communication in children diagnosed with ASD. The study will examine changes in participants' behaviour and the potential for parents, teachers and specialists to utilise the developed approaches in their work with this group.

The present study focuses on the development of non-verbal communication in children diagnosed with autism spectrum disorder (ASD) within the context of targeted dance and movement therapy. The study is conducted through a structured 12-week programme developed according to the participants' specific motor, communicative and sensory characteristics. The programme incorporates a series of meticulously selected motor exercises and musical compositions, designed to promote coordination, rhythm, social interaction and emotional expression.

The present dissertation has two overarching aims. Firstly, it seeks to investigate the effect of structured dance-movement therapy on the development of non-verbal communication in children diagnosed with autism spectrum disorders. Secondly, it will evaluate the applicability of the methodological approaches developed for selecting movements and musical themes in therapeutic practice.

To achieve this objective, the following main tasks were formulated:

- 1) To develop a dance-movement therapy programme tailored to the specific needs and perceptions of children with ASD, including a methodologically sound selection of movements and musical content.
- 2) To conduct an experimental implementation of the programme and perform a pre- and post-intervention assessment of the participants' non-verbal behavioural responses.
- 3) To assess the effect of the therapeutic intervention using validated assessment tools to evaluate and analyse the changes that have occurred.
- 4) To analyse the practical applicability of the developed methodologies as a complementary tool in therapeutic work with children with ASD.

The research methodology employs four complementary tools: an original matrix for assessing non-verbal behavioural responses; a standardised ATEC test for quantitatively measuring therapeutic effect; a methodology for selecting movements; and a methodology for selecting musical themes. Together, these tools provide a thorough evaluation of the intervention through structured observation and quantitative analysis of the results. This allows for an evaluation of the intervention's effect through both quantitative measurements and structured observation and analysis of behavioural manifestations.

II. THEORETICAL FRAMEWORK

1. Nonverbal Communication – Essential Characteristics and Components

Non-verbal communication constitutes a fundamental element of human interaction, encompassing all forms of information transmission beyond speech. These include facial expressions, gestures, movements, eye contact, spatial behaviour, vocal characteristics, and interaction with the environment. This phenomenon is characterised by its uninterrupted nature, multi-channel

communication, and frequent spontaneity. Consequently, it is perceived as a more authentic expression of inner states in comparison to verbal communication. Non-verbal signals fulfil a variety of functions, including complementing, emphasising, contradicting, or entirely replacing verbal messages, as well as regulating the course of social interaction. The scientific literature delineates a series of components that are integral to the study of non-verbal communication. These components encompass spatial behaviour, touch, gaze, the temporal organisation of interaction, vocal characteristics, physical appearance, sensory perceptions, and motor expression.

In children diagnosed with autism spectrum disorders (ASD), many of these components function in a specific way. The following observations have been made: limited eye contact, a limited range of facial expressions and gestures, difficulties with motor coordination, atypical sensory reactions, and peculiarities in spatial and temporal behaviour. These characteristics have been shown to significantly impact an individual's social interaction and communication abilities.

Dance, as a form of motor expression, encompasses a wide range of non-verbal communicative behaviours. Its therapeutic application involves interpreting movements, body tone, spatial relationships, and reactions to the environment, making it a particularly suitable tool for working with children diagnosed with ASD.

2. Development of nonverbal communication in children with Autism Spectrum Disorder

In children diagnosed with Autism Spectrum Disorder, communication difficulties are most evident in the domain of non-verbal interaction. Several specific characteristics have been observed in relation to eye contact, facial expressions, gestural behaviour, and intonation regulation. In addition, there is evidence to suggest that the subjects demonstrate limited skills in joint attention and social engagement. Difficulties in sensory processing frequently accompany these characteristics, heightened anxiety, emotional lability, and sleep disturbances, which in turn have a detrimental effect on the ability to participate in social situations and acquire communication skills.

Non-verbal communication is a pivotal aspect of the profile of a child diagnosed with ASD. Notwithstanding the challenges posed by language barriers, a significant proportion of children exhibit the capacity to articulate their emotions and requirements through non-verbal cues such as eye contact, facial expressions, gestures, and physical contact. However, it should be noted that the

nature and expression of these cues vary considerably from individual to individual. Contemporary therapeutic approaches encompass play-based methods, peer-mediated learning, video modelling, and various art therapy practices. These approaches have been demonstrated to support the development of social, cognitive and motor skills, whilst also stimulating the sensory systems. Furthermore, they create a safe environment for self-expression and emotional regulation.

3. Dance as a Means of Nonverbal Communication

Movement is a primary vehicle for meaning and communication, playing a key role in self-expression and social interaction. Within a therapeutic framework, it facilitates access to emotional experiences that are challenging to articulate verbally. Somatic and movement-based approaches emphasise the connection between body awareness, motor control, and mental functioning. It has been demonstrated that these activities facilitate the development of coordination, sensory integration, and body awareness.

Movement analysis provides a systematic framework for understanding the relationship between motion, emotion, and intention. The utilisation of mirroring techniques facilitates the establishment of contact through the synchronisation of movements, thereby supporting the development of a therapeutic relationship.

Proponents of this therapeutic modality regard dance/Movement Therapy as a reciprocal interaction between bodily experience and cognitive processing. The act of movement has been shown to initiate emotional and symbolic processes that can subsequently be verbalised, thereby making this approach particularly suitable for children with limited verbal expression.

4. The Application of Dance and Movement Therapy for Children with ASD

Dance/Movement Therapy is a psychotherapeutic approach that uses movement as a means of expression, communication, and personal development. The programme is grounded in the interconnection between bodily processes, emotional experiences, and social functioning. It employs structured movement activities to create conditions that stimulate non-verbal interaction and body awareness.

The extant scientific data indicate the potential of this approach to support the development of social engagement, emotional regulation, and communication skills in children diagnosed with autism spectrum disorders. This paper explores the efficacy of techniques based on mirroring,

imitation, and rhythmic movement organisation in enhancing social engagement, attention, and participation in joint activities.

Movement-based interventions are regarded as a means of promoting body coordination, sensory integration, and body awareness. The act of movement fosters an environment conducive to the articulation of emotions, thereby facilitating the integration of sensory, motor, and communicative processes. Despite the growing interest in this approach, further research is needed to evaluate its effectiveness and to develop methodological frameworks for practical application.

III. MATERIALS AND METHODS

1. Purpose and Hypotheses

The objective of this section is to develop and implement an intervention using Dance/Movement Therapy (DMT) with the aim of enhancing non-verbal behaviour and communication skills in children diagnosed with Autism Spectrum Disorder (ASD).

Following a comprehensive review of the extant literature and a thorough analysis of previous studies, it was determined that specific methods and tools can be utilised to evaluate changes in non-verbal communication, emotional expression, and motor coordination in children following the implementation of the DMT intervention. It is hypothesised that the implementation of the selected methods will result in increased activity, enhanced emotional engagement, and optimised social behaviour.

At the outset of the study, the following hypotheses were formulated:

Hypothesis 1:

The implementation of a therapeutic intervention using DMT has been demonstrated to result in a significant improvement in all key indicators of non-verbal communication in children diagnosed with ASD (e.g. eye contact, facial expressions).

Hypothesis 2:

The application of therapeutic intervention through DMT has been demonstrated to result in significant improvements across the primary domains of functioning in children diagnosed with

ASD (Speech-Language Communication, Social Skills, Sensory-Cognitive Function, and Physical/Behavioural Health).

Hypothesis 3:

It has been demonstrated that children diagnosed with ASD exhibit enhancement in specific motor elements and patterns. This facilitates the identification and selection of movements that are optimally suited to their abilities. This selection contributes to more effective structuring and implementation of dance-movement therapy.

Hypothesis 4: Children with ASD distinguish among and respond in specific ways to different musical stimuli, thereby allowing the selection of music most appropriate to the goals of therapy.

2. Research Participants and Organisation

The present study comprised eight children diagnosed with ASD, aged between 7 and 11 years, who were assessed in accordance with the criteria set out in the 2019 International Classification of Diseases, 11th Revision (ICD-11). Prior to the intervention, all participants were assessed using the Childhood Autism Rating Scale (CARS 2-ST), thereby ensuring sample homogeneity and a reliable baseline assessment. Six of the eight children participating in the therapeutic programme were included in the application of two of the methods for assessing and selecting movements and choosing musical themes, which were conducted during the preliminary (exploratory) phase. The selection was made to ensure greater comparability of results and the ability to track changes in the performance of motor tasks. The six children included in the analysis exhibited a moderate to high level of functioning (mild to moderate autism according to the CARS2-ST), which enabled more accurate observation of changes in nonverbal behaviour and communicative manifestations.

The study incorporated a 12-week DMT programme conducted on a weekly basis for a duration of 30 minutes. Prior to the commencement of the primary phase, an extended preparatory period was initiated, during which the children's individual reactions, motor preferences, and musical sensitivities were meticulously observed. This stage provided the empirical basis for selecting movements, tempo, and musical themes for the programme.

3. Dance/Movement Therapy (DMT) Program

The program is tailored for children with ASD and includes exercises in body awareness, breathing, imitation, mirroring, and free dance movements. Each session consists of three parts:

- (1) introductory playful movement activities;
- (2) a core dance and rhythm module;
- (3) a brief relaxation and creative expression through music or drawing.

A progression of gradually increasing complexity characterises the programme's stages, the stabilisation of rhythmic patterns, the development of social synchronisation, and the integration of movements within the group.

4. Methodological Framework

4.1. Assessment of Nonverbal Behavioural Reactions

A specialised matrix for the assessment of non-verbal behaviour has been developed, comprising nine indicators grouped into three behavioural domains:

The following behaviours are indicative of social interaction:

- non-verbal expression of needs;
- initiation of and participation in joint interactions.

The indicators are then subjected to a four-point scale assessment, ranging from absent to adequate and sustained response. The structure is based on the criteria of the DSM-5 and ICD-11.

The interpretation of the results ranges from a **low level** of nonverbal communication (9–17 points) to an **adequate level** (27–36 points). The methodology is applied through observation in natural or structured play settings, allowing for quantitative and qualitative tracking of behavioural dynamics.

4.2. ATEC Method (Autism Treatment Evaluation Checklist)

The ATEC (Rimland & Edelson) was utilised to evaluate the impact of DMT on four primary domains: speech and language communication; social skills; sensory-cognitive function; and physical/behavioural health.

The scale comprises 67 items and yields a total score ranging from 0 to 179 points, with lower scores indicating superior functioning. It is a widely utilised instrument for the monitoring of change in the aftermath of interventions, particularly in children diagnosed with ASD.

The interpretation range of the scale varies from minimal signs of autism (0–30 points) to **severe symptoms** (101–179 points). In the context of this study, the ATEC is employed as a validated metric for the assessment of changes in overall functioning.

4.3. Methodology of Movement Selection in DMT

The methodology was developed for the purposes of this dissertation research and was formulated by combining expert assessment, a pedagogical experiment, and frequency analysis.

From a predetermined list of 34 movements (including ballet, social, play-based, and rhythmic steps), six children with mild-to-moderate ASD performed all exercises. These were then evaluated by two experts based on six criteria: complexity, difficulty, effectiveness, enjoyment, integration, and utilisation.

The evaluation is conducted on a three-point scale, and movements achieving a total score of 15–18 points are considered optimal for inclusion in DMT for children with moderate to high functionality. This process culminated in the identification of a select group of ten movements that were incorporated into the therapeutic segment of the programme.

The methodology enables the targeted selection of movements that support attention and rhythmic organisation, emotional recognition, social interaction, and motor adaptation.

4.4. Guidelines for Music Selection for DMT of Children with ASD

A standardised methodology for the selection of musical themes has been developed based on five principles well established in therapeutic studies: personalisation, simplicity and predictability, gradual complexity, emotional regulation, and cultural relevance (LaGasse, 2017).

A preliminary list of 20 musical pieces has been created, encompassing a variety of genres including sports, social and children's dances, classical and popular music. During the preparatory stage, the six children listened to the compositions, and their engagement, motor activity, calmness, and social reactivity were observed. A panel of experts, comprising a music therapist, a dance instructor and an ASD specialist, will evaluate each composition based on six criteria: tempo,

rhythmic clarity, melodic simplicity, dynamics, emotional valence and compatibility with movement.

Compositions that attain a total score of at least 15 points are selected to form a "shortlist," which is then utilised in the 12-week programme. The eight compositions that have been selected provide a foundation for the development of therapeutic tasks, including circle dances, dyadic work, mirror coordination, and group interaction.

The musical selection has been demonstrated to facilitate the development of rhythmic organisation, emotional regulation, social engagement, and a smooth transition from individual to group forms of participation.

The analysis was conducted utilising a range of statistical methodologies, including descriptive statistics, significance tests (Wilcoxon Signed-Rank Test and Mann–Whitney U Test), and graphical representations. These analyses were performed using the R statistical software package.

IV. FINDINGS AND DISCUSSION

1. The Impact of DMT on Nonverbal Behavioural Responses

The utilisation of dance-movement therapy (DMT) resulted in a discernible and statistically significant enhancement in nonverbal behaviour among all participants.

The data demonstrate consistent improvement at both the group and individual levels, with no instances of regression. The most significant positive change was observed in the domain "Expressing Needs and Preferences". In this particular case, the enhancement reached its zenith, with children who initially exhibited minimal use of gaze, gestures, and facial expressions achieving consistent levels by the conclusion of the study. This observation is of immediate functional significance, as the individual's signalling needs are a fundamental component of adaptive behaviour.

With regard to the transitions of each child between the three categorical levels of the matrix ("no response," "moderate level," "adequate level"), it was observed that six participants maintained an "adequate" level from start to finish, and two transitioned from "moderate" to "adequate". It was observed that no participants remained in or returned to a lower category. Consequently, 100% of

the children were classified as "adequate", thereby substantiating the intervention's efficacy at the categorical level.

The findings corroborate **Hypothesis 1**, which posits that the implementation of a therapeutic intervention incorporating dance and movement therapy results in a substantial enhancement in all salient indicators of nonverbal communication in children diagnosed with ASD. The observed increase in mean scores on the nonverbal behaviour matrix indicates a real and practically significant effect of the intervention. The most significant changes are evident in the parameters of eye contact, facial expressiveness, and initiative in communication, thereby confirming that rhythm, movement, and group interaction within the framework of DMT support the regulation of attention, social inclusion, and the ability for nonverbal exchange.

These results are consistent with those of previous studies, which indicate that dance-movement approaches activate the mirror neuron system and facilitate emotional recognition and synchronisation in social contexts.

2. Outcomes of the application of the ATEC (Autism Treatment Evaluation Checklist) method for assessing treatment effectiveness

The ATEC results show a clear trend towards reduced autistic symptoms and noticeable improvements compared to baseline levels in most children. The most significant improvements were observed in the 'Sensory/Cognitive Function' and 'Physical/Behavioural Health' subscales. This confirms that dance therapy has the greatest impact on body regulation, attention, and adaptive behaviour. There is a slight positive trend in social skills and communication, but these differences are not statistically significant. Children with more severe initial difficulties demonstrate more noticeable progress, particularly in the sensory and behavioural domains.

These results corroborate the findings of several international studies indicating that dance therapy can enhance non-verbal communication, attention, and adaptive behaviour in children with ASD. In our study, the most pronounced effects were observed in the cognitive-sensory and behavioural domains. This can be explained by the fact that movement integrates motor, emotional, and social components simultaneously, creating an opportunity for 'embodied learning'.

The results obtained allow us to conclude that **Hypothesis 2**—which posits that the application of a therapeutic intervention using DMT leads to **improvement in the main areas of functioning in**

children with ASD, with no significant differences between them (*Speech-Language Communication, Social Skills, Sensory-Cognitive Function, and Physical/Behavioural Health*) – **was partially confirmed**. The data showed that the changes were not uniform: **the most significant improvements were observed in sensory-cognitive function and physical/behavioural health, while indicators related to speech, communication, and social skills were affected to a lesser but still positive extent**. These results suggest that **the initial effect of dance-movement therapy manifests primarily in body awareness, regulation, and sensory integration**, which subsequently support the development of more complex communicative and social skills.

3. Results of the Application of the Methodology for Selecting Movements in Dance and Movement Therapy for Children with Autism Spectrum Disorders

Following the application of the assessment methodology to the initial selection of 34 movements (termed the 'long list'), a group of 10 optimal exercises was identified as being suitable for children with moderate to high levels of functioning. The development of the motor repertoire, motor control, and body representation in the sensorimotor loop is achieved through early spontaneous movements, sensorimotor experiences, and proprioceptive feedback in children. Consequently, when devising the methodology for selecting movements for children with ASD, it was imperative that these movements be largely consistent with and aligned to their spontaneous movements. The methodology was founded on two principles: the selection of appropriate movements and the establishment of a two-way connection. The objective of the programme was twofold: firstly, to develop and refine the movements inherent to children with ASD into comprehensive complexes; and secondly, through these movements, to facilitate the therapist's understanding of the child with ASD and the child's self-awareness.

The results indicate that the children demonstrate commendable performance with respect to the DMT methodology. The highest results are observed in the initial four indicators: The following terms are employed to describe the concept of movement in relation to physical performance: 'level of performance', 'level of perception', 'effectiveness of movements', and 'enjoyment of movement'. It was evident that a subset of the children exhibited more distinct gestural patterns when expressing fundamental emotions, a finding that corresponds with the kinetic prototypes delineated by Ivanova (2020). This observation included behaviours such as an open body posture in instances of joy, a

closed body posture in instances of sadness, and a retracted body in the presence of fear. This finding suggests that the intervention is effective in supporting the stabilisation of emotional motor skills. The remaining two tests: As demonstrated in Figure 1, both "integration" and "utilisation" exhibit a slight decline. However, it is hypothesised that this is attributable to the elevated demands associated with their execution. In the "integration" test, the movement must be combined with other learned movements or exercises, and in the "utilisation" test, they must be performed at the required rhythm and tempo. It is evident that this would result in a more complex learning process for these two tests. Consequently, greater attention must be paid to the introduction of new exercises.

In addition to the parameters previously outlined concerning the evaluation of particular movements, a significant factor in the manner in which children with ASD perceive these movements in their entirety pertains to the selection of musical themes and styles, the atmosphere during the sessions, personal contact with the child, and the energy with which the movements are demonstrated. The psychophysical approach forms the foundation of motor work aimed at regulating muscle tone, enhancing coordination, and linking movements to emotional responses. The psychophysical training paradigm emphasises the cultivation of concentration, comprehensive muscle relaxation, and the attainment of intrinsic freedom in managing energy and movement dynamics.

The findings corroborate **Hypothesis 3**, which posits that children diagnosed with ASD exhibit distinct enhancements in specific motor abilities. This observation facilitates the identification of the most pertinent movements to incorporate within the therapeutic intervention. This approach has been demonstrated to engender enhanced adaptability and efficacy in the domain of dance-movement therapy. The analysis demonstrated that movements characterised by clarity, repetition and rhythm are more readily perceived and engender a greater degree of participation and coordination. It can thus be concluded that the preliminary selection of movements represents a pivotal component in enhancing the effectiveness and accessibility of dance-movement therapy for this target group.

4. Results of the Application of the Methodology of Selecting Music for Dance and Movement Therapy for Children with Autism Spectrum Disorders

The methodology employed in this study commenced with the formulation of a comprehensive list of themes, encompassing a specific selection of songs. These themes were then subjected to rigorous evaluation by the three members of the expert panel. Consequently, a shortlist of themes that had received the highest ratings was compiled. In this particular instance, the largest number of songs that have been assigned high rankings are those classified as belonging to the "Children's Songs" genre, with the "Popular Music" genre ranking second.

A number of sample song combinations (i.e. playlists) have been developed for inclusion in a potential long list, each with a specific therapeutic goal. The objective of these measures is to address the core challenges confronting children diagnosed with ASD.

In analogous studies of a particular nature, the musical selection has been known to precede that of the movements. However, within the scope of the present study, a different and theoretically grounded sequence has been applied, which is considered more appropriate when working with children diagnosed with ASD. The primary rationales supporting this approach are outlined below:

1. Movement is the primary form of response in children with ASD

In the extant literature on dance-movement therapy, movement is traditionally viewed as a basic channel for expression and regulation in children with ASD. In the initial phases of development, motor responses have been shown to be a more reliable indicator of emotional and sensory state than vocal or musical responses. Consequently, the observation of actual motor capabilities should logically precede the selection of musical stimuli.

2. Children's motor capabilities are more limited than musical parameters

Music is characterised by a broad spectrum of tempo, metre, rhythm, structure, and dynamics. This feature facilitates adaptability to diverse motor styles. Conversely, movement in children diagnosed with ASD is frequently constrained due to a range of factors, including deficiencies in coordination, hypersensitivity, low muscle tone, repetitive stereotypical behaviours, impaired motor planning, and other characteristics.

Consequently, it is a methodological imperative to initially establish pragmatic motor "boundaries," and subsequently select music that supports and expands, but does not exceed, the child's capabilities.

3. The methodology is based on the principle that “movement determines the musical environment,” not the other way around

This approach is consistent with the principles of dance-movement therapy, in which music is utilised to facilitate motor expression rather than serving as a predetermined framework for it. The therapist does not attempt to coerce the child into conforming to a musical tempo or structure. Rather, the therapist selects music that regulates, facilitates or soothes a specific movement pattern observed during the session.

4. Key Risks of the Reverse Sequence

In the event of the music methodology being placed before the movement methodology, there is a risk of creating a theoretical sequence that is not applicable in actual therapeutic practice. The therapist would then find themselves in a position of selecting movements to match the music, rather than selecting music to match motor characteristics. This approach would hinder the child's engagement, especially among children with ASD who function at a lower level.

5. The empirical structure of the study also implies movement first, then music

In this study, the methods are guided by the logic of empirical application:

1. The initial stage of the research process is the observation and assessment of motor responses.
2. The selection of movements is to be made according to individual profiles.
3. The subsequent adaptation of the musical environment to the selected movements is to be considered. It is imperative that this sequence accurately reflects the actual process of the intervention and should therefore be incorporated into the text with precision.

6. The theoretical framework of Dance Movement Therapy (DMT) also places movement at the centre

In dance-movement interventions, movement constitutes the primary unit of exploration, change, and therapeutic contact. Music functions as an intermediary, yet it does not inherently determine the viability or therapeutic necessity of movement. The methodologically grounded and clinically valid sequence prioritises the methodology for selecting movements, followed by the methodology

for selecting music, as the musical selection serves as an adaptive and supportive framework for the motor capabilities already established in children with ASD.

The results support **Hypothesis 4**, which states that children with ASD differentiate between and respond in specific ways to different musical stimuli. This enables the selection of music that is most appropriate to the goals of therapy. The findings of this study indicated that musical pieces characterised by a clearly defined rhythm, moderate tempo, and predictable structure were conducive to enhancing concentration, synchronisation, and emotional regulation during sessions.

These results indicate that the preliminary selection of music is a pivotal factor in optimising the therapeutic effect in dance-movement therapy.

4.5. Expected benefits of the developed methodologies for the selection of movements and musical themes in dance and movement therapy for children with autism spectrum disorders

The following key expected benefits have been identified in relation to the application of the two methodologies in a therapeutic context:

- Facilitating emotional regulation and attention during therapy.
- Improving social interaction through structured motor and musical cues.
- Opportunity to personalise therapy according to each child's profile.
- Increasing motivation and a sense of security through predictable movement and sound patterns.
- Supporting nonverbal communication and motor synchronisation in a group setting.

The developed methodologies demonstrate a practical, evidence-based approach to structuring dance-movement therapy for children diagnosed with autism spectrum disorders. The movement selection methodology facilitates the systematic identification of suitable exercises tailored to the individual's level of functionality, sensory sensitivity, and coordination abilities. Consequently, it engenders conditions conducive to achieving optimal exertion without the risk of overexertion, thereby fostering self-regulation and expression through movement.

The results demonstrated that more structured and rhythmic movements are perceived more easily and lead to greater participation and coordination. Conversely, chaotic or overly complex movement sequences can cause disorganisation and frustration.

The methodology for selecting musical themes, in turn, offers a structured assessment system that combines the therapist's expert judgment with observation of the child's individual reactions. This approach facilitates the selection of music tailored to participants' cognitive profiles and emotional regulation.

Music characterised by a clearly defined rhythm, moderate tempo, and predictable structure has been shown to support concentration, emotional stability, and the synchronisation of movements. Conversely, overly dynamic or unpredictable sound patterns have been shown to lead to declines in attention and motor organisation.

The incremental introduction of increasingly intricate rhythmic patterns has been demonstrated to facilitate the development of cognitive flexibility. Moreover, the utilisation of familiar or culturally resonant melodies has been shown to engender a sense of comfort, security, and trust in the therapeutic process.

The present study underscores the significance of the preliminary selection of both movements and music. This selection should not be regarded as a spontaneous choice by the therapist, but rather as a purposeful, structured decision informed by observations and the children's individual reactions. This approach aligns with contemporary trends in music therapy and neuromusicology, which emphasise the significance of rhythm and bodily synchronisation in regulating attention, emotional stability, and social engagement in children diagnosed with autism.

In a broader sense, the developed methodologies can be regarded as an integrative model for working with children diagnosed with ASD, combining scientific validity with high practical applicability. These findings have significant implications for the development of tailored therapeutic interventions, the training of professionals and parents in recognising musical and motor preferences, and the creation of more adaptable and effective programmes to support children's non-verbal communication, emotional regulation, and social adaptation.

V. CONCLUSIONS

5.1. Conclusions regarding the results of the assessment of nonverbal behavioural reactions in the children with autism spectrum disorders who participated in the study following dance and movement therapy

- The present study seeks to investigate the statistical significance of dance and movement therapy on non-verbal communication and social skills in children diagnosed with ASD. A marked enhancement in behaviour was evident within 12 weeks.
- The most significant impact was observed in the domain of "Expressing needs and preferences through non-verbal means". It has been demonstrated that children begin to utilise eye contact, facial expressions, and gestures with greater frequency and clarity in order to signal desires and emotional states. This has been identified as a key indicator of functional communication.
- It is evident that the response to social engagement by adults has undergone a substantial enhancement. Following the intervention, the children demonstrated higher levels of social awareness, partner orientation, and readiness to engage in two-way interactions.
- It is evident that a social initiative has been developed. It was observed that some of the participants who had not initiated contact at the beginning of the programme began actively seeking joint play or interaction by the end of the programme. This finding indicates an increase in social motivation and confidence.
- It was observed that 100% of participants demonstrated an "adequate level of non-verbal communication" by the conclusion of the therapeutic intervention. This finding provides compelling evidence of the efficacy of the applied model in supporting small groups with ASD.
- It has been demonstrated that even a low-intensity therapeutic frequency (1 session per week, 30 minutes each) is sufficient to produce significant changes, thus making the intervention realistically applicable in school and clinical settings without requiring extensive resources.
- The intervention has been shown to facilitate the integration of emotional, motor and social processes (Smith, 2023). The function of the aforementioned medium is twofold: firstly, as

a means of behaviour training, and secondly, as a form of physical expression and self-awareness. The medium has been shown to reduce anxiety and increase social engagement.

- The assessment methodology, based on the principles of the DSM-5 and the ICD-11, demonstrates good sensitivity to short-term changes. It can thus be used as a validated monitoring tool in therapeutic practice.
- The results of the study provide a clear indication of a trend that has the potential to inform the applicability of the method to early intervention for ASD.

5.2. Conclusions from the Use of the Methodology for the Application and Interpretation of the ATEC (Autism Treatment Evaluation Checklist)

- Dance-movement therapy (DMT) has demonstrated significant effectiveness as an adjunctive intervention for children with autism spectrum disorder (ASD), particularly in terms of sensory-cognitive functions and physical-behavioural health, where the most significant improvements are observed.
- Regular physical movement combined with music supports the development of body awareness, concentration, and emotional regulation by stimulating neural networks associated with empathy and social engagement.
- The effect on social skills and verbal communication is weaker and delayed over time, suggesting a need for a longer therapeutic period or a higher frequency of sessions to achieve sustainable results in these domains.
- The most significant improvements are observed in children with greater baseline difficulties, which supports the hypothesis of greater therapeutic potential of DMT in more severe forms of sensory and behavioural disorders.
- The use of the standardised ATEC instrument demonstrates its applicability for quantitatively tracking the effects of body-movement interventions and can be integrated into future multimodal assessment protocols.
- DT is a holistic method that combines motor, emotional, and social activity, aimed not only at reducing symptoms but also at building positive emotional experiences and reciprocity.

- In the context of limited access to specialised therapy in Bulgaria, dance therapy emerges as an accessible, low-risk, and socially meaningful tool for supporting children with ASD and their families.

5.3. Conclusions Regarding the Results of Applying the Methodology for Selecting Movements in Dance Movement Therapy for Children with Autism Spectrum Disorders

- The developed Methodology for the Selection of Movements and Exercises in DMT for children with ASD does not prescribe specific movements, but rather offers an approach for their selection based on practical observations of a specific group of children participating in DMT sessions.
- Following the application of DMT in children with ASD, the results showed that in 4 out of 6 children, the tests indicated progress. This gives us reason to assert that these differences are the result of the therapeutic intervention and the specialized methodology applied.
- We recommend that specialists working with children with ASD pay particular attention to DMT and the mastery of basic movements and exercises.
- The data obtained in this study can assist specialists and educators in the education of children with ASD.

5.4. Conclusions from the application of the methodology for selecting music in dance-movement therapy for children with autism spectrum disorders

The methodology for selecting music in dance-movement therapy for children with autism spectrum disorders (ASD) that is presented here has the potential to assist therapists specialising in DMT by offering:

- A structured approach to assessing and selecting music for DMT
- Tools for tailoring interventions to the child's sensory and emotional needs
- Evidence of the benefits of integrating rhythmic and melodic complexity to support development

- Future research should validate the methodology on larger samples and examine its impact on measurable outcomes such as reduced anxiety, improved motor coordination, and social interaction.

VI. CONCLUSION

The objective of this study was twofold: firstly, to elucidate the potential of dance-movement therapy as a means of developing non-verbal communication in children diagnosed with autism spectrum disorders; and secondly, to assess the applicability of the developed methodological approaches in therapeutic practice.

It is evident from the empirical study conducted and the subsequent analysis of the obtained data that the research objectives have yielded well-founded conclusions regarding the effect of the applied dance-movement intervention on the development of non-verbal communication in children diagnosed with ASD.

The results indicate a trend towards positive dynamics in behavioural manifestations related to social interaction, movement coordination, rhythmicity, and emotional expressiveness among the participants. The observed changes are reflected in an improved ability to establish and maintain contact, more active participation in joint activities, and increased communicative engagement.

The utilisation of the standardised ATEC instrument and the developed observation matrix facilitated objective monitoring of the alterations that transpired. The data demonstrate positive changes in social skills, behavioural regulation, and communicative sensitivity, providing evidence for a demonstrable impact of the systematically structured motor and musical intervention.

The practical application of the developed methodologies for selecting movements and musical themes demonstrated their adaptability to individual children's characteristics and their functionality in a real therapeutic setting. It was also established that they create conditions to expand the therapeutic process by involving parents and educators, thereby contributing to the sustainability of the observed results.

The findings obtained provide substantial evidence to support the hypothesis that dance-movement therapy is a viable method for enhancing non-verbal communication in children diagnosed with

autism spectrum disorders. This conclusion is supported by the research objectives and tasks, which contribute to a favourable evaluation of the therapeutic potential of dance-movement therapy.

Within a broader scientific and social context, the results of this study contribute to expanding knowledge in the fields of movement therapy and non-verbal communication and outline prospects for future research and the practical application of integrative therapeutic approaches when working with children diagnosed with ASD.

VII. PROSPECTS FOR FUTURE EXTENDED RESEARCH AND APPLICATION

The potential for future research to be conducted on the basis of this dissertation is twofold. Firstly, it may contribute to the expansion of scientific knowledge regarding the mechanisms of non-verbal communication in children diagnosed with autism spectrum disorders. Secondly, it may result in the development of applied models for integrating dance-movement therapy into contemporary therapeutic and educational practice.

A primary research direction is the advancement of interdisciplinary analysis of the relationship between motor synchronization, sensory integration, and social engagement in children diagnosed with ASD. A more comprehensive understanding of the mechanisms through which rhythm, movement, and body coordination influence communicative behaviour would be enabled by combining dance-movement therapy with neuropsychological and neurophysiological approaches.

A further promising avenue for exploration lies in the conduct of comparative studies between dance-movement therapy and other established intervention approaches, in addition to the analysis of the effectiveness of individual versus group-based work. The execution of such studies would facilitate a more precise positioning of the method within comprehensive therapeutic programs and to the determination of optimal conditions for its application.

It is recommended that future research should encompass different age groups and levels of functioning within the autism spectrum. This would allow for the examination of the adaptability of the developed programme to diverse developmental profiles. This would allow for a more flexible structuring of the movement and music components and would expand the method's scope of application.

A further significant facet pertains to the monitoring of the sustainability of the observed positive changes over time. A comprehensive analysis of the long-term effects would facilitate an assessment of the extent to which the developed non-verbal skills are transferred to broader social contexts and everyday communicative situations.

The practical significance of integrating the developed dance-movement programme into the educational environment and multidisciplinary therapeutic teams is also noteworthy. The methodology's adaptability engenders the conditions for its utilisation as a complementary instrument in comprehensive intervention models aimed at stimulating social participation and communicative development in children diagnosed with ASD.

A further possibility to consider is the creation of training resources and structured protocols for specialists and parents. The creation of these resources and protocols would support the wider dissemination of the approach and facilitate its systematic application in various institutional and family contexts.

VIII. CONTRIBUTIONS OF THE DISSERTATION

1. SCIENTIFIC CONTRIBUTIONS

1.1. To present an initial empirical overview of the potential of dance-movement therapy (DMT) to support nonverbal communication in children with autism spectrum disorder (ASD).

Although based on a limited sample, the results indicate a trend toward improvement in key behavioral indicators such as eye contact, facial expression, and initiative in communication.

1.2. Development and initial testing of a matrix for assessing nonverbal behavioral responses in children with ASD.

The instrument was created based on the principles of ICD-1 and shows potential for capturing changes during short intervention periods. Although validation is pending, the pilot application demonstrates its practical utility.

1.3. Identification of a possible link between motor synchronization and improved social engagement.

Observations suggest that rhythm, body coordination, and group dynamics can support attention and the regulation of social behavior, which corresponds to trends described in the international literature.

1.4. Pilot study of an approach to structuring movements suitable for children with moderate to high levels of functionality.

Through expert assessment and frequency analysis, movements with the highest utility for inclusion in therapeutic programs have been identified - a contribution that lays the foundation for future studies with larger groups.

SCIENTIFIC AND PRACTICAL CONTRIBUTIONS

2.1. Development of an integrated pilot methodology for working with children with ASD, including:

- a matrix for assessing nonverbal behaviors,
- an approach to selecting movements,
- principles for selecting music,
- a 12-week structured therapeutic program.

The methodology is practically applicable and adaptable to various therapeutic contexts.

2.2. Demonstration of the potential for effectiveness in a low-intensity therapeutic regimen.

Even with limited frequency (1 session per week, 30 minutes each), positive trends are observed, making the approach applicable in school, center, and family settings.

2.3. Creation of a “short list” of movements suitable for practical use.

The list serves as a valuable tool for specialists and parents, allowing for quick orientation regarding the movements that children perform with the greatest engagement and consistency.

2.4. Providing adaptive music playlists tailored to the children's responsiveness and attention.

The selection of music is not intuitive but based on observations and the participants' reactions, which facilitates therapists' practical work.

Acknowledgments

I would like to express my profound gratitude to **New Bulgarian University** for its invaluable academic support and the inspiring environment in which I had the opportunity to develop this work. I would like to express my profound gratitude to my advisors, **Assoc. Prof. Dr. Margarita Stankova** and **Assoc. Prof. Dr. Asya Ivanova**, for their unwavering dedication, exceptional expertise, and unparalleled kindness. The provision of professional advice, patience, and support by these individuals was instrumental in the successful completion of the research project, and the subsequent development of its academic and practical dimensions.

It is imperative to express profound gratitude to CLM Progressive Elementary School and **its teaching staff**, who exhibited unwavering enthusiasm and receptivity in embracing the concept of integrating dance and movement therapy with children diagnosed with autism spectrum disorders. I would like to express my sincere gratitude to **the children and their parents** for their participation, as well as for the sincerity, trust, and joy with which they engaged in the therapeutic sessions.

In addition, gratitude is extended to all members of the teaching faculty, as well as **tutors, specialists, and colleagues**, who contributed to the study through the sharing of observations, the organization of the study, and the demonstration that empathy and movement can serve as the medium for attaining profound comprehension.