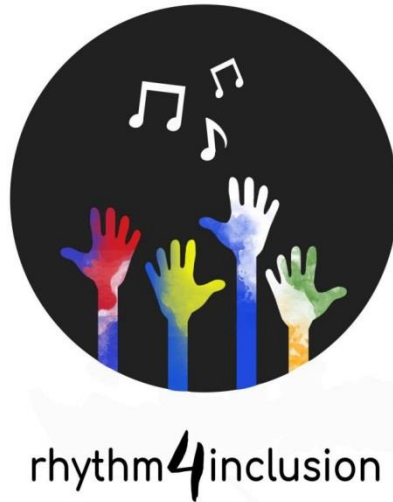


THE RHYTHM4INCLUSION CONSORTIUM



THE RHYTHM4INCLUSION CURRICULUM THEORETICAL RATIONALE

**PSYCHO-EDUCATIONAL GOALS AND GUIDELINES FOR TEACHERS
SCIENTIFIC FOUNDATION RESEARCH CONCLUSIONS ANNEX**

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An appendix to the rhythm4inclusion Curriculum: How to Promote Social, Emotional, and Learning Skills of Students with and without Special Education Needs by Developing Teachers' Capabilities in Music, Dance and Digital Competences. This curriculum has been implemented in collaboration with a series of primary and secondary schools in Cyprus, Greece, Sweden and the UK, a multidisciplinary team composed of experts from various European Institutions with a variety of academic and professional background and specialties - academics, educators, special educators, art therapists, musicians and school psychologists.



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Abbreviations

ASD	Autism Spectrum Disorder
ADHD	Attention Deficit Hyperactivity Disorder
MRBI	Music and Rhythm Based Interventions
SEN	Special Education Needs
SEND	Special Education Needs/Difficulties
SLD	Specific Learning Disability

The rhythm4inclusion Curriculum

I. THEORETICAL RATIONALE, PSYCHO-EDUCATIONAL GOALS AND GUIDELINES FOR TEACHERS

1. Introduction

The art based activities, when they are successfully implemented, seem very effective to enhance students' essential psychosocial skills (*communicational, emotional wellness, social relationships, personal strengths*), classroom engagement and learning motivation, as they are essentially playful and developmentally child-centered methods/means (Byrd, Christensen & Luke, 2021).

Music and rhythm based activities; body movement/kinetic and dance inspired interventions are well known and evidence-based practices that are commonly used in clinical or psycho-educational and school contexts (see Karkou, 2010; Wengrower, 2015).

They seem equally useful in helping students with difficulties or vulnerabilities to become more resilient and better adjusted to school environment. The activities can improve the students' relationship to their body and mind, as well as to their social-emotional expression through various means (verbal and non-verbal). Play and art based actions are likely to help "problem children" overcome their hostile, fearful or stressful feelings and negative behaviors, by increasing the pleasure to get in contact with their body reality/kinetic expression and feeling of being accepted by others (see Karkou, 2010).

Playing and engaging in rhythmic activities in the context of a stable, structured, and flexible framework is likely to enhance the potential of students, especially those who experience difficulties and vulnerabilities. More specific, both collective and individual rhythmic activities seem to be effective in reducing internal tensions and stresses, sense of marginalization and (overt or covert exclusion), as well as doubts on self-competences and value of students, both with and without SEND (Shore, 2012; Tortora et al., 2010). Dance movement/ kinetic activities and dance therapy in school context seem likewise very effective even for violent or very aggressive students (Koshland, 2010).

In addition, it has been widely established that these methods /practices, when applied in schools, can contribute to the development of self-knowledge, behavior control and problem solving skills as well as improving connection to/collaboration with others (Byrd et al., 2021).

Furthermore, such activities may enhance reality-orientation, improve interpersonal skills and self-esteem of vulnerable or "difficult" children involved by increasing both the ability to collaborate/connect with others and the sense of acceptance.

More specific, regarding students with ADHD, ASD, hyperactivity, behavioral and neurological disorders, the positive effects of art-based interventions/therapy have been well evidenced.



An indicative conclusion of a research reviewing 10 studies of music based intervention/music therapy impact on people with autism spectrum disorder provided evidence that music therapy may help children with ASD to improve their skills in primary outcome areas, including social interaction, verbal communication, initiating behaviour, and social-emotional reciprocity (see Geretsegger et al., 2014).

Music therapy may also help to enhance non-verbal communication skills within the therapy context. Furthermore, in secondary outcome areas, music therapy may contribute to increasing social adaptation skills in children with ASD and to promoting the quality of parent-child relationships

Overall, music/rhythm based activities including body movement, music and dance therapy are considered and constitute an essential tool, method and strategy to help “vulnerable” children and “children struggling with internal or external difficulties and adversities” at school, in the family or society.

It is a child friendly and a child developmentally appropriate approach/method that can be used in order to “treat” or reduce various “symptoms”, “problems”, or “externalizing/internalizing and developmental disorders”, such as hyperactivity, stress, anxiety, fears of exposure, extreme shyness, aggressive behavior, emotional and behavioral disruptions, learning difficulties, and so on (Beer & Birnbaum, 2019; Chaiklin & Wengrower, 2009; MacDonald, Kreutz & Mitchell, 2013; Strange, Odell-Miller & Richards, 2017; Wengrower, 2015).

2. From theory to practice - psycho-educational goals

As previously explained, music/dance based activity and therapy involve and mobilize the human body, presupposes movement, requires participation, facilitates authentic and free communication in order to explore personal identity, which is the starting point/crucial foundation for fantasy and mentallization/ symbolization, the experience of emotions, and the expression of emotions (Wadeson, 1980).

The art based interventions seek to produce changes at three main levels:

- 1. the psychological/intrapersonal,**
- 2. the bio-physical/somatic understanding and**
- 3. the interactional/interpersonal level of child/teenager functioning.**



Some of the goals of art based interventions – music, dance or rhythmic activities therapy - are:

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- The improvement of memory function, attention and specific perceptual capacities
- The strengthening of the Ego and its functions/facilitated by
 - The increase/strengthening of sense of self-value, self-competence and self-esteem facilitated by the unconditional acceptance by teachers/school professionals, their trust on students' potential and their effort to improve students' social and learning inclusion/integration.
 - The development of spontaneous personal/kinetic expression (by overcoming anxiety/fear to be exposed), the control of impulsive behavior and the formation of positive patterns of behavior, relationships and connection to others.
- Encouragement of verbal and non-verbal expression of emotions and conflicts or management of inner difficulties and negative feelings that usually trigger disruptive and aggressive/anger reactions.
- The strengthening of the imaginary function/fantasy of children/teenagers that usually has a healing power/soothing effect for them, as the person learns how to express stress/negative or intense feelings with other means.
- Enhancing the expression of positive emotions/behaviors and drastically reducing feelings of guilt, anger, anxiety and aggression.
- The free expression of personal issues and issues concerning the body and the body-image.
- To facilitate the development of students communicational skills through the synchronization with the whole team and to become an active part of their group through counting altogether.
- To assist students to follow the teacher's instruction as an individual and as a whole team.
- To encourage students to retain their attention throughout the whole activity (increase attention/concentration skills).
- To develop observational and memory acoustic skills.
- To experience the importance of group synchronization, through constant speed, during the performance of the exercise.
- To improve motor coordination capacity, through the combination and timing of movement with pace.
- To gain better coordination within the group and understanding of the basic principle of synchronization and of rhythm, through repetition and observance of consistency in time.
- To facilitate new forms of connections with peers and promote the spirit/sense of team through playful and cheering methods
- To assist students' active participation in whole class and creative activities by developing their own potential/sense of spontaneity
- To facilitate the ability of improvisation by overcoming the fear or stress to be exposed to the group.
- To encourage students with SEND and vulnerabilities overcome their fears to expose their body/themselves to the others.



- To cultivate the ability to take initiatives, of autonomy and responsibility
- To help students build up self-confidence.
- To develop of creativity, imagination and the ability of improvisation, through the process of combining and restructuring previous knowledge.
- To cultivate students' memory skills and the ability to focus.
- To cultivate students' readiness for the purpose of early response.

- To understand the importance of synchronization/coordination with the others through the maintenance of a steady speed during the exercise.
- To improve the ability of motor coordination through the combination and the synchronization of the movement with the rhythm.
- To understand the basic principle of rhythmical geometry, through repetition and consistency in time.
- To discover the variety of sounds that can be produced with the body.
- To develop and reinforce the sense of belonging in a team by actively participating in the group activities and keeping pace with others.

- To acquire and develop self-expression skills in joyful activities.
- To acquire a sense of shared 'identity' within the group, provided by a playful character (sounds/movement/rhythm) and accompanied by an atmosphere of pleasure and "joy".
- To motivate all students but especially those who present difficulties in following the team and in actively participating into school activities by becoming productive and communicative.
- To develop communicative-interpersonal and emotional attunement, since the actions are not only maintained at the level of teaching the music but are enriched by a dimension of 'mental satisfaction and pedagogical perspective' for all children and especially for students with SEND.
- To cultivate students' social intelligence by encouraging them to take into account both the social and musical/rhythmic framework

- To encourage students to a better understanding of the other's rhythmic/movement capacities, as well as their weaknesses and difficulties to follow the dialogue/take part in collective activities
- To allow students feel more comfortable and flexible in their interactions with others, through the cheering way of acting.
- To enhance self-esteem and cultivate confidence by taking a leading role in the dialogue with the group. To encourage students to trust and to believe in themselves
- To affirm their own potential and establish their own identity through self-expression (in public).
- To help them realize the importance of individual participation/contribution.

On the whole, benefits of art and dance-music based interventions for all persons, regardless age, include “coping with pain, increasing personal autonomy, improving quality of life, changing thinking, and satisfying the innate tendency for creativity. Moreover the means of expression and materials used not only stimulate the senses, the cognitive and the motional functions, but also contribute to the revelation of unknown aspects of the Self.



3. Guidelines to implementation of music-dance based activities involving students with SEN

- Explain to your group of students the type of activities that you are planning to apply
- Introduce an initial discussion about what kind of activities the students would like to have and suggest yours by highlighting the enjoyable and pleasant character, as well as the benefits for both the students and the whole classroom
- Explain the main psycho-educational goals, translated into child's language, putting emphasis on the playful part and the resulting pleasure as well as the improvement of group functioning and classroom climate
- Put emphasis on the collective part of the activities and the importance of collaborating together in order to form a "special" group or a united-coherent team (you can give the team a nick name in order to promote engagement).
- Highlight the positive, pleasant and joyful aspects/elements of the activity as well as its non-competitive character by also putting emphasis on how important it is to follow the rules and respect the framework/guidelines.
- It is important to build a trustful relationship with vulnerable students, telling them
 - how you value the importance of their participation
 - how critical their role can be or
 - how much you count on them to successfully achieve the goals of the game
- Praise intimate, as possible as..., with the vulnerable or difficult student.
- Be flexible and try to integrate any inconveniences or shortcomings or exaggerated and reactive or provocative and humoristic hilarious behavior/reaction on students' part; however, try to insist how important it is to respect the "rules of the game" and the activity frame.
- Be both patient and firm in following the guidelines and rules of the activity
- If a student resists or refuses to participate, for various reasons, ask him just to be present in the activity and explain to him/her, that if he/she changes his/her mind, he/she can always be part of the game.
- Try to understand the reasons for which some students refuse to collaborate or participate
- Try to have an intimate discussion, without adopting a disapproving or critical attitude, with them in order to explore and better understand their reasons.
- Allow these students to have objection, or negative attitudes/resistances, and show empathetic understanding their reasons (usually fears); there is no sense to insist; give the chance to the child to be present and let him/her understand him/herself the value of the activity.
- Allow students to express their opinion about the activity and get a regular feedback from them
- Accept realistic demands/suggestions and adjust your activities to your classroom dynamics with the aim/hope to improve both the group and the individual dynamic/functioning in your classroom
- Discuss regularly and communicate with other professionals/school teachers regarding eventual difficulties or problems in implementing activities
- Ask feedback and framing from the program professionals/team that supports the psycho-educational work.



4. Students' specific developmental needs, school reality and the role of teacher



As children tend to spend a significant amount of time at school, teachers - as parental substitutes – play critical roles in their socio-emotional development. Improved relationships between students and teachers have been linked to improved student classroom behavior (Baker, Grant, & Morlock, 2008).

The development of secure and satisfying relationships with caregivers, teachers and school professionals is an important life task for young children as it fosters and promotes their socio-emotional growth and helps them develop a positive view of themselves and the world (Morrison & Bratton, 2010).

On the contrary, Hamre and Pinta (2001) found that children who developed negative relationships with their teachers were likely to disengage in class, do poorly academically, avoid school, and exhibit conduct problems.

Professional development programs usually focus on academic content rather than child development and relationship-building skills (Koles, O'Connor, & McCartney, 2009).

Interventions aimed at training teachers to meet their students' socio-emotional needs benefit teachers as well as children by promoting teachers' sense of competence and reducing their level of stress (Pianta, Downer, & Hamre, 2016). Whereas it is important to provide teachers with specific training geared at improving their relationship-building skills and promoting students' socio-emotional adjustment, professional development programs should also be tailored to meet children's unique maturational needs.

This includes employing developmentally appropriate programs, such as play-based interventions. There is a negative correlation between teachers' stress levels and their ability to create positive classroom environments (Friedman-Krauss, Raver, Morris, & Jones, 2014). This is important because positive classroom environments are linked to children's academic and socio-emotional development (Raver et al., 2009)

Zhai, Raver, and Li-Grining (2012) emphasized the importance of providing teachers with skills to best address students' mental health concerns within the classroom environment.

The authors stated that teachers' trainings serve "[to] reduce preschool children's disruptive behaviors and improve teachers' self-efficacy in classroom management, as well as the overall quality of classrooms with high concentrations of low-income children" (p. 442). When school counselors are unable to provide teacher trainings directly, they can build partnerships with outside stakeholders who can serve as direct providers.



II. SCIENTIFIC FOUNDATION RESEARCH CONCLUSIONS ANNEX

Music and rhythm based interventions are used to treat various children's dysfunctions/disorders, emphasizing the child's social, communicative, emotional and behavioral skills. Specifically, the use of music/rhythm based interventions focuses on the development of both interpersonal relationships and social interaction abilities in vulnerable children managing and reducing stereotypical behaviors. It also aims at developing the child's inner potential and creative skills, by promoting body movement and playful activities. It is worth noting that the MRBI¹ is also used as a multi-sensory method for relaxation of children with high levels of anxiety and intense outbursts (Caria, Venuti, & Falco, 2011).

At the same time, children and adolescents with developmental disorders also present a major difficulty in the field of communication, but music can act as a communication bridge and through musical synchronization to cultivate the child's ability to harmonize its behavior (Geretsegger, Elefant, Mössler & Gold, 2014). Several surveys indicate (Simpson & Keen, 2011) that through music, music improvisation can develop enough child skills. It is noted that a child improves its eye contact and its imitation ability by repeating the therapist's movements with the rhythm of the music. The emotional reciprocity grows and former stereotypical movements are reduced.

One of the main goals of music is to help the child understand its environment and take initiatives for social interaction, differentiating his/her social behavior. Psychologists and special pedagogues who use music as a means of intervention try to use the pronouns "ego" and "you" in the binary session, aiming to understand the child's boundaries of personal space (Geretsegger, Elefant, Mössler & Gold, 2014).

Researchers Kim, Wigram and Gold (2009) used their music as a basic method of intervention by recording their sessions. The results showed that children express intense feelings of joy and improved their behavioral responses while at the same time there was an improvement in children's motor and social skills.

1. Rhythm and dance-based activities to develop psycho-social skills

Lowry et al (2018) in a research which involved pupils who took part in a ten-week drumming programme apart from the significant improvements in dexterity, rhythm and timing also observed highly important benefits on behavioral management such as improved concentration and enhanced communication with peers and adults.

Dr. Ruth Lowry, a Reader in the Psychology of Active Living at the University of Chichester, involved in this study, refers to the impact of drumming: "The opportunity to see this group of children progress and develop through developing skills in music is powerful. We hope that this project will provide further evidence that not only does rock drumming have positive benefits in terms of changes in dexterity and concentration but that wider social and behavioral conduct benefits can also be observed."



Boos et al (2007) in a study involving 8 young adults with autism who took part in a total of 52 weekly active music therapy sessions lasting 60 minutes, suggest that these sessions were of significant aid and reduced behavioral difficulties that these adults were facing.

Fitzpatrick et al (2017) raise an important issue regarding the ASD-specific social deficits and how these may interrelate with the social motor synchronization that takes place when interact physically with others. Amongst their findings, what seems relevant to this review is that objective dynamical measures of synchronization ability and motor skill could provide new insights into understanding the social deficits in ASD that could ultimately aid clinical diagnosis and prognosis.

Srinivasan and Bhat (2013) suggest that most of therapy sessions in and out of the classroom environment involve rhythm-based activities which enable children with ASD as well as with other developmental disorders to develop communication, social-emotional and motor development skills.

Willemin et al (2018) presenting a pilot study which involved eight one-hour sessions of a novel dyadic within-group drumming program called 'Drumtastic' for children with ASD concluded that children who participated in the study significantly improved in the domains of enjoyment and fun, and showed a positive trend for developing improved social relationships with peers and adults.

2. Rhythm and dance-based activities to acquire linguistic skills

Ruddock (2018) drawing on Gadamer and Dewey's theory suggests that music enables cultural development and questions the value of a practice that leaves many of us musically disabled. He shows that the use of rhythm and/or dance activities facilitate the acquisition of linguistic skills for typically and non-typically developing students.

Linavally et al (2018) also argues that rhythm and dance based activities can promote skills such as syllable discrimination, verbal memory, and acquisition of prosody in young children with and without SEN.

Furthermore, Corrigan et al (2011), Anvari et al (2002) and Gromko (2005) present their studies where it is shown that children who systematically attend rhythm and dance based activities seem to develop early reading skills, vocabulary as well as phonemic awareness.

It is well proven that music and language are characterized by common aspects such as grammar and a system of common conventions and thus as Harisson and Pound (1996) suggest the integration of music in every-day school activities can play a determinative role in the acquisition of abilities relative to speech especially for children with SEN.

Register et al (2007) determine the efficacy of using music as facilitating activity to enhance the reading skills of second-grade students and students who have been identified as having a specific learning disability (SLD) in reading. Analysis of pre/post test data revealed that students with SLD in reading improved significantly from pre to post on three subtests: word decoding, word knowledge and reading comprehension.



3. Rhythm and dance-based activities for the acquisition of mathematic skills

Miller (2013) suggests that carefully planned mathematic sessions where music-based activities are integrated alongside with the general curriculum's objectives can promote engagement and understanding for all students with regard to the area of mathematics. In her account, when music-based activities are integrated in the instruction of mathematics, students and teachers benefit in terms of academic and social skills

Chahine and Montiel (2015) conducted a study where they examined the impact of the use of music on teachers' efficacy. 15 mathematics teachers were trained in order to students' understanding of mathematical modeling using musical rhythms. They showed that when teachers are engaged in teaching mathematic skills through less traditional ways, including the context of music, they were confident that such experiences can be effective in stimulating student learning. Furthermore, the study argues that the use of musical rhythm in teaching mathematics has a great impact on teachers' self-efficacy.

4. Rhythm and dance-based activities for the acquisition of motor skills

Gradinaru (2015) suggests that integrating rhythm in every-day physical exercise in schools is the key to the development of motor skills (including direction skills, coordinative and expressive skills). She argues that the use of music in school sport classes can improve kinetics and vestibular sensitivity

A similar study shows that gymnastics through rhythm facilitate the development of motor skills focusing specifically on the development of sensor, motion (physical) artistic and creative abilities, and capacities (Novotna & Slovakova, 2016).

ⁱ Abbreviations

ASD	Autism Spectrum Disorder
ADHD	Attention Deficit Hyperactivity Disorder
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SLD	Specific Learning Disability