



### Special Issue

The Orff approach to special music education and music therapy:  
Practice, theory and research

## **Music Therapy in Special Education: Assessment of the Quality of Relationship**

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### **Abstract**

*This qualitative scientific study - by means of analysing recorded therapeutic sessions with children with autism or mental disability in a special school - examines the process of creating a relationship between the therapist and the child in the context of music-therapeutic moments. The analysis of therapeutic moments was carried out through the AQR-instrument (Assessment of the Quality of Relationship) and led to a) the evaluation of the quality of relationship between the therapist and the child with autism or mental disability during therapy, b) the evaluation of the correspondence of the therapeutic intervention to each child's developmental level (modus), and c) the appreciation of the differentiation in the relationship between the therapist and the child with autism or mental disability, as well as the size of that differentiation. Regardless of the pathology, it was observed that music therapy with children is advisable when the child shows disorders in his/her emotional development and in the ability to create a relationship. Music-therapeutic interventions that use the child itself as a starting point and follow the concept of elemental music, succeed in mobilising children's healthy part and promote their development, in many areas. Research data are based on the author's dissertation thesis: "Music therapy for children with psychological disorders in special education" (Fragkouli 2012).*

**Keywords:** music therapy; autism; mental disability; psychological disorder; AQR-instrument; quality of relationship; shaping of affect

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### **Introduction**

This article refers to a qualitative research dissertation which – via video analysis of music therapy sessions with children suffering from autism and children with mental disability – assesses the quality of the relationship between therapist and child with autism and/or mental disability in music therapy moments during sessions that took place in a special education

school. The assessment is performed through the AQR-instrument (Assessment of the Quality of Relationship), which is based on developmental psychology theories (Schumacher, Calvet & Reimer 2011).

The first section considers theories of developmental psychology and infant psychology that contribute to understanding as much of the social-emotional development of the child as the

deviations of development, by guiding the music therapy work. In addition, research data are also mentioned concerning the development of musical perception in the child. The pathology of autism and mental disability are presented as well as deviations in development. Further on, the concept of music therapy is defined as well as the principles of Karin Schumacher and Claudine Calvet's music therapy method for children based on developmental psychology following the principles of elemental music, as defined by Carl Orff (Schumacher & Calvet-Kruppa 2007). The concept of music therapy in special education is defined and the role of the therapeutic intervention for the formation of the therapeutic relationship is pointed out.

In the second part, music therapy sessions from the research study are presented. Via video analysis and under the AQR-instrument microscope, it really became clear how a child suffering from a disorder in perception and intellect may be approached initially through the music-somatic therapeutic interventions, which take into consideration the principles of Carl Orff and Gunild Keetmann's music and movement pedagogy and utilise the stimuli originating from the child itself.

### **Development in infancy**

The developmental psychological knowledge, which originates from the theories below—especially the ability for the regulation of emotional processes, as well as the development of the self—form the theoretical basis of the assessment AQR-instrument, which has led and supported the research of the present study of the application of music therapy in a special school.

#### ***Social-cognitive development in infancy***

According to Piaget (see Panopoulou-Maratos 1998), the development of children in the first years of their lives is considered the most decisive phase of their overall development.

The infant's discovery that there is a connection between its behaviour and the reactions of others is considered a primary form of learning. This discovery is founded on:

- the intermodal perception allowing the transfer of information between sensory channels;
- the infant's capacity to imitate;
- the increasing alertness of the infant to interact with the people around it (Ziegenhain, Fries, Bütow & Derksen 2006).

### ***Stern's theory of the development of the senses of self***

Stern (2007) describes the development of the senses of self, underlining that every sense is accompanied by particular characteristics as well as by a different form of relationship quality to the other person.

The first senses of self (from pregnancy until the 12<sup>th</sup> month) in the order they appear in are the senses of the emergent self, the core self and the (inter)-subjective self, revealed later to others, around the 18<sup>th</sup> month, through language (verbal self).

Intrinsic capacities such as amodal and physiognomic perception, as well as vitality affects, resulting only through inter-human contact, contribute to forming the sense of emergent self (birth – 2<sup>nd</sup> month).

Formation of the sense of core-self (2<sup>nd</sup> - 7<sup>th</sup> month) presupposes the development of the sense of self-agency, self-coherence, self-history, as well as self-affectivity.

Intersubjectivity (7<sup>th</sup> - 12<sup>th</sup> month), founded on the sense of core self, presupposes differentiation of the corporeal (somatic) and sensory self with the other.

Intellectual situations characterising development of a subjective and of an inter-subjective self are: sharing the focus of attention (inter-attentionality), sharing intentions (inter-intentionality), sharing affective states (inter-affectivity) as well as the phenomenon of social reference (Emde et al. 1978, cited in Stern 2007).

Stern (2007) introduces the term affect attunement in order to define a kind of intersubjectivity between mother and infant based on maternal empathy, contributing, via common emotional experiences, to promoting communication and linguistic expression of the child.

### ***The theory of behaviour organisation and its significance to development***

The infant's modes of behaviour reveal its emotional state, allowing adults to respond directly, by activating the respective, adequate and supportive strategies (Brazelton 1978, cited in Schumacher, Calvet-Kruppa & Stallmann 2006).

### ***The formation of interpersonal relationships***

A person, based on the character of his/her repeated experiences in interacting with parents, develops expectations of interactive forms with the others, a fact which is defined by Bowlby (2008) as an internal working model. This internal intellectual representation of the bond unconsciously affects the

person's capacity to trust others and connect to them.

### ***Emotional development theory***

Sroufe's (1997) emotional development theory approaches a person's emotional development without overlooking the importance of the social frame and parental behaviour in the possibility to regulate the infant's emotion, in the quality of the experience and the mode of elaboration of the emotional experience in children.

### ***The development of musical perception during infancy***

The way via which the mother tries to communicate with the infant is impressive, by instinctively offering it a musical environment corresponding to its developmental possibilities. Studies show that maternal singing attracts the infant's attention more than maternal verbal expression (Trehub 2003).

Musical elements such as melody, rhythm and tonality, which give an emotional colour to the dialogue with the mother, affect important functions in the developmental course of the child (Gembris 2005).

The creation of music by children shares many characteristics with a developmental notion of play, also operating as a transitional object, soothing and accompanying the children (Fragkouli & Panopoulou-Maratos 2012).

### **Deviations of development: Autism and mental disability**

#### ***Autism***

Autism has been characterised as a spectrum disorder, which means that its clinical picture is not homogeneous and may have diverse causes (Schmid 1998).

Individuals with diagnoses on the autism spectrum may display qualitative impairments in social interaction and communication and often manifest restricted repetitive and stereotyped patterns of behaviour, interests and activities (Dilling et al. 2000). Autism affects the coherence and flexibility of motivation and consciousness and it weakens the impulse of awareness to seek new experiences and reduces the capacity of a child's purposes to react in creative ways to the contingencies of experience (Trevanthen 2001). According to Rogers and Pennington (1991, cited in Kusch & Petermann 2002: 444) individuals with autism do not have the ability "to put themselves in others' shoes and to share with them the same feeling", as well as, the lack of ability of joint

attention, of symbolic or imaginative play and of imitating others' behaviour.

Autism appears in early childhood or during later childhood and it lasts a lifetime; it should not be considered as a static situation (Dilling et al. 2000; Remschmidt 2002).

#### ***Mental disability***

Mental disability is the state of incomplete development of the intellect. People with mental disability often present insufficient cognitive ability to solve emotional conflicts and may suffer from a whole spectrum of mental disorders (Parsons et al. 1984, cited in Stavrakaki 1988).

There are different degrees of mental disability: slight, average, serious and severe. The aetiology in cases of persons without apparent organic disorders is unknown (Stavrakaki 1988).

#### **Music therapy**

Music therapy sets and reaches therapeutic goals utilising the special properties of music (timbre, rhythm, melody, harmony and dynamics) as well as the abilities of music improvisation in the frame of a consciously formed therapeutic relationship (Vocke 2007).

Music therapy is a therapeutic method aimed at treating patients with psychological disorders – as well as other groups – supporting their need for expression (Schmölz 1971).

### ***Music therapy and children with autism and/or mental disability***

Since the disorder of autism as much as the disorder of mental disability may be considered disorders of a social and emotional nature (Stavrakaki 1988; Wing 1997), the therapeutic goals focus on promoting the child's emotional development as well as his/her ability to create a relationship.

Music therapy based on developmental psychology is considered a music therapy method, as it focuses on the emotional and developmental needs of the child, contributing to a new experience of emotions (Schumacher & Calvet-Kruppa 2005).

Music therapy for children based on developmental psychology uses the principles of Orff-Schulwerk as therapy (Schumacher & Calvet-Kruppa 2007). Orff-Schulwerk is not a "rational, prescribed scheme or work" (Liess 1966, cited in Benedict 2010: 202) but "rather a way in which to engage the child in the imaginative processes that derive from the natural self-expression of a child." It concerns "a way in which music, speech and movement are inextricably linked through the

engagement with language and the textual connection to nursery rhyme and folk song” (Benedict 2010: 202).

Carl Orff (1963, cited in Haselbach 2011: 144) states:

“Elemental music is never music alone but forms a unity with movement, dance, and speech. It is music that one makes oneself, in which one takes part not only as a listener but as a participant. It is unsophisticated, uses no big forms, is near the earth, natural, physical, within the range of everyone to learn and to experience it, and suitable for the child”.

Through improvisation and elemental music experiences, children are able to create rhythmic and movement patterns that emerge from their natural development. According to Orff, elemental music refers to the art of the muses and addresses the whole of the expressional abilities of man, affecting bodily and phonetic expression as well as expression via musical instruments (Schumacher & Calvet-Kruppa 2007).

The experience: "I hear myself," "I hear you" and "I hear us" that is made through the musical (instrumental and vocal) expression, "I sense and see me and you", as in the movement, dance experience is the basis of interpersonal relationships (Schumacher 1999, 2004). Elemental music facilitates the incorporation of senses, the perception of one's own body as creator of acts, as well as the experience that feelings can possibly be expressed and shared with the other (Schumacher 2001: 103).

These elemental music experiences that are so important for the development of the whole personality of a child necessitate the application of Orff-Schulwerk's principles in therapeutic work with children with psychological and emotional disorders (Schumacher 1999).

#### The formation of a relationship in music therapy with children with autism and/or mental disability

In music therapy the relationship of the therapist and the child with autism or mental disability is shaped via music and interventions (Töpker 2001).

The starting points of the therapeutic intervention are the stimuli originating from the child itself. Music-body and language games provide security, contributing, through repetitions

- to incorporating the isolated sensory impressions
- to regulating proximity-distance
- to regulating feelings (Schumacher 1994, 2004).

The therapist decides how he/she may adequately handle the musical instruments in order to succeed

in taking the music out of the child (Schumacher 2004), by meeting with the child musically at the child's own level (Schumacher & Calvet-Kruppa 2007).

#### Musical therapy in special education

According to Mahns (1998), music therapy in special education is a psychotherapy or promotional approach for children and youngsters studying in special schools.

Music therapy in schools presents the following advantages:

- immediate practice (i.e., handling with a certain behaviour at the moment it appears);
- practice in an environment that is familiar to the student.

The supportive role of music therapy in schools and special schools is enhanced through the conclusions of research studies as they appear in music therapy scientific publications (Hippel 2005; Hippel & Laabs 2006; Piontek 2004; Töpker 2009).

#### **The research study**

##### *Objectives of the study*

- To apply the AQR-instrument in a special school in order to assess the quality of the relationship during music therapy
- To draw conclusions:
  - a) on the positive demarcation of the quality of the relationship between therapist and child, and
  - b) on the size of the demarcation.

##### *Application frame*

The research programme was performed in a Greek public special school.

##### *Sample*

The research sample constituted of six students of the school aged 7 to 11 years old (three students diagnosed with autism and three students diagnosed with mental disability).

##### *The AQR-instrument*

The AQR is an observation and assessment instrument of the quality of relationship during therapy, created by the music therapist Karin Schumacher and the psychologist Claudine Calvet

(Schumacher, Calvet & Reimer 2011; Schumacher & Calvet 2007).

Assessment scales of the AQR-instrument are based on the theories of developmental psychology and focus on different expression phenomena (expression via a musical instrument, vocal-pre-lingual vocal expression, emotional-bodily expression). They aim to objectively assess the quality of the relationship during the therapy.

The therapeutic intervention is also assessed, which is the therapists' internal working model (Bowlby 2008) and reflects the therapist's countertransference of emotions, determining the intervention techniques.

The AQR-instrument contains four scales with different foci. These scales set their focus on the observation of specific characteristics creating a foundation and guidance for analysis and assessment.

1. The PEQR-scale (Physical-Emotional Quality of Relationship) for the assessment of the physical-emotional expression. The PEQR-scale focuses on the following specific characteristics:

- Relationship: intra- and interpersonal
- Sense of body/physical contact
- Affect
- Eye-contact

2. The VQR-scale (Vocal-pre-lingual and vocal Quality of Relationship) for the assessment of the vocal-pre-lingual expression. The VQR-scale focuses on the following specific characteristics:

- Voice
- Relationship: intra- and interpersonal
- Types of vocalisation and pre-speech expressions

3. The IQR-scale (Instrumental Quality of Relationship) for the assessment of the children's instrumental expression. The IQR-scale focuses on the following specific characteristics:

- Instrument
- Relationship to object
- Musical media
- Room for play

4. TQR-scale (Therapeutic Quality of Relationship) for the assessment of the therapeutic intervention. The TQR-scale focuses on the following specific characteristics:

- The starting point of the therapeutic intervention

- State of affect of the therapist
- Scenario
- Intervention focus
- Musical media
- Room for play

The type of quality of relationship is present on seven levels of development (modi), corresponding to the developmental stages of the sense of self, as stipulated in Stern's (2007) theory. The modi of the PEQR-, VQR- and IQR-scales are:

- Modus 0: Lack of contact/ contact refusal/ pause
- Modus 1: Contact-reaction
- Modus 2: Functional-contact
- Modus 3: Contact to oneself / sense of a subjective self
- Modus 4: Contact to others / inter-subjectivity
- Modus 5: Relationship to others / interactivity
- Modus 6: Joint experience / inter-affectivity

In corresponding sequences the modi of the TQR-scale are as follows:

- Modus 0: Musical space – surrounding
- Modus 1: Perception – connecting
- Modus 2: Affect attuning/ allowing oneself to be functionalised
- Modus 3: Contact to oneself / sense of a subjective self – aiding awareness
- Modus 4: Inter-subjectivity – being included as a person
- Modus 5: Musical dialogue – musically answering and questioning
- Modus 6: Playing space – playing/having fun

The AQR-instrument, in connection with special questions asked during its application, may be used for diagnostic purposes, for recording and assessing the therapeutic work, for controlling the correlation of the therapeutic intervention to the level of the child's development and capacity to create a relationship to the child, as well as for studying the research questions.

The AQR-instrument's reliability has been investigated and an important percentage of concordance has been found between the assessments of trainees in music therapy and the use of the instrument (Schumacher, Calvet-Kruppa & Stallmann 2006).

Videotaping music therapy sessions are a precondition for applying the AQR-instrument. A music therapy session may be analysed and assessed either as a whole or by selected parts of the session, as samples with durations of a few minutes. Microanalysis / video analysis of the short parts of the session concerns a detailed procedure of locating and understanding exceptionally small differentiations in interpersonal relationships as

well as interactions, and in the music (Plahl & Koch-Temming 2005).

A significant moment in therapy is the moment during which a change of quality in the relationship between therapist and child occurs (Schumacher & Calvet 2007).

### Specific research questions

In this particular project the following specific questions were examined:

- What is the child's stage of development (modus) and at which level of development (modus) is the therapist's intervention?
- Does a qualitative differentiation in the quality of the child-therapist relationship occur at the therapeutic moment?
- Which conditions does a musical therapy intervention have to satisfy in order to awaken motivation in children with peculiarities in their social-emotional behaviour, in order for them to come in contact with others?

### Data collection and analysis method

Music therapy sessions were videotaped for their whole duration with a digital video camera. Afterwards, the significant moments of the sessions were selected; their analysis followed with the AQR-instrument.

### Research programme sessions

The programme took place at the beginning of May 2010 and lasted three weeks. A personal session took place every week, of 30 minutes duration with each one of the children included in the sample. Eighteen sessions took place in total (three with every child).

### Selection of the therapeutic moments for analysis

In the therapeutic moments that were eventually selected – according to the opinion of the researcher / music therapist – what takes place instantly shows the positive differentiation in the quality of the relationship and, respectively, the transference of the child from one developmental level to a higher one showing thus that these are significant moments in the therapeutic procedure.

Three significant moments were selected for every child. The material to be analysed (18 therapeutic moments), was finally taken from the 16 sessions of the programme.

### Selection of assessment scale

The analysis and assessment of each significant moment were performed according to

- The scale of the AQR-instrument which focuses on the phenomenon of the child's expression via which the differentiation in the quality of the relationship is ascertained, and
- The TQR-scale, which assesses the intervention.

### Data analysis

Upon detailed observation, the procedure was as follows:

- The mode of expression of the child is analysed, focusing on the specific characteristics defined by each assessment scale of the relevant instrument (e.g., eye-contact).
- The aforementioned analysis is compared to the description assessment of each characteristic as presented in the seven levels (modi) of the instrument's assessment scale.
- It is necessary to see to which level (modus) of the scale the analysis of the child's mode of expression corresponds, and thus
- The quality of the child-therapist relationship at the therapeutic moment is assessed.

In order to find out the differentiation of the quality of the relationship, we assessed the start and the end of the therapeutic significant moment separately, on the child's mode of expression assessment scale and on the intervention assessment scale.

The first seconds were defined as the start (initiation) or initial phase of the moment, during which the child's mode of expression was observed.

The final seconds of the significant moment were defined as the end or final phase, during which a quality of expression of a different developmental stage was observed to the one at the start, showing that the therapeutic moment concerned a significant moment of the therapy.

As a result, every moment's assessment was expressed in four numbers:

- The two first numbers (one for each phase of the moment) correspond to modi of each scale of the AQR-instrument which assesses the child's mode of expression and state the level of the child's development as it appears from the start to the end of the therapeutic moment.
- The other two numbers concern the assessment of the intervention for the start and the end of the therapeutic moment.

Each one of the four numbers may take the value from 0 to 6, since there are seven modi on each scale. It should be noted that the first two numbers, which concern the assessment of the child's mode of expression and behaviour, are those that should be mainly differentiated in order to define the therapeutic moment as a significant moment.

### ***Reliability***

The reliability control of the researcher and music therapist was performed via comparison with the assessment of six German trainees in music therapy, in the application of the AQR-instrument. A high degree of accordancy was observed (0.9 to 1) and, according to Fleiss (1979, cited in Schumacher, Calvet-Kruppa & Stallmann 2006], a level above 0.74 is considered very high.

### **Hypotheses**

1. The way of working in this music therapy based on elemental music activates healthy elements in children with mental disorders; it provides an internal motivation to approach the other as well as the possibility to experience positive experiences of interpersonal relationships.
2. The AQR-instrument helps the music therapist to understand the causes of a successful or unsuccessful event of the session.

### **Results**

Table 1 shows the eighteen significant therapeutic moments of the six children included in the sample (three sessions per child) which were selected, analysed and assessed through the scales of the AQR assessment instrument.

Sample	Significant moment (s.m.)	Time duration (t.d.)	AQR-scale	Modus of the initial phase of the s.m.	Modus of the final phase of the s.m.	Time duration of the initial phase of the s.m.	Time duration of the final phase of the s.m.
S pathology: autism	1 <sup>st</sup> (session 3)	00:56,00	VQR TQR	0 1	1 1	00:51,00	00:04,00
	2 <sup>nd</sup> (session 1)	01:20,00	PEQR TQR	0 1	3 (pick <sup>1</sup> ) 1	00:14,00	01:05,00
	3 <sup>rd</sup> (session 2)	00:42,00	PEQR TQR	0 1	3 3	00:25,00	00:15,00
V pathology: autism	1 <sup>st</sup> (session 2)	02:54,00	IQR TQR	0 4	4 4	01:00,00	01:54,00
	2 <sup>nd</sup> (session 3)	01:08,00	PEQR TQR	1 3	4 4	00:37,00	00:70,00
	3 <sup>rd</sup> (session 2)	00:56,00	PEQR TQR	4 4	6 (pick) 4	00:20,00	00:30,00
P pathology: autism	1 <sup>st</sup> (session 1)	01:15,48	IQR TQR	0 1	1 1	00:22,00	00:53,00
	2 <sup>nd</sup> (session 2)	00:48,64	PEQR TQR	1 1	4 (pick) 3	00:18,40	00:30,00
	3 <sup>rd</sup> (session 3)	01:26,96	PEQR TQR	0 0	4 3	00:26,24	00:60,66
T pathology: mental disability speech disorder	1 <sup>st</sup> (session 1)	01:06,96	PEQR TQR	4 4	5 5	00:35,84	00:30,96
	2 <sup>nd</sup> (session 2)	05:05,28	PEQR TQR	2 2	4 4	01:14,00	03:51,28
	3 <sup>rd</sup> (session 3)	01:04,16	PEQR TQR	2 2	4 4	00:42,16	00:22,00
D pathology: mental disability	1 <sup>st</sup> (session 1)	01:09,76	IQR TQR	5 5	6 6	00:17,30	00:52,31
	2 <sup>nd</sup> (session 2)	04:46,16	VQR TQR	0 4	5 5	00:11,12	04:35,00
	3 <sup>rd</sup> (session 3)	02:00,56	IQR TQR	3 3	4 4	00:30,40	01:30,00
Z pathology: mental disability syndrome SOTOS	1 <sup>st</sup> (session 2)	01:37,44	PEQR TQR	3 3	4 4	00:20,80	01:16,44
	1 <sup>st</sup> (session 2)	02:07,28	PEQR TQR	4 4	5 5	00:23,76	01:43,00
	3 <sup>rd</sup> (session 3)	00:30,72	IQR TQR	3 3	5 (pick) 5	00:21,12	00:19,60

**Table 1: The significant moments (s.m.) of the research project and their assessment**

<sup>1</sup> Scarce, small duration quality of the relationship showing developmental possibilities of the child.

**Analysis and assessment of a significant therapeutic moment of the student S. (age: eight years old / diagnosis: autism)**

face down on the swing. Progressively, S. lifts his head, looking towards the direction from where the melody comes from and expresses himself vocally with the vowel (i) as a phoneme of joy. The therapist responds by singing the same vowel (i) of the lullaby.

**Description of a significant moment**

The therapist sings a lullaby while, at the same time, rocking S. at the same tempo; the child lying

VQR-scale	Modus	Significant moment of S. (time duration: 00:56,00)
		Specific observation characteristics
Modus of the final phase of the significant moment (time duration: 00:51,00)	0 lack of contact	<p><u>Voice:</u> S. does not have any vocal reaction.</p> <p><u>The quality of relationship:</u> does not present neither intrapersonal nor interpersonal character.</p> <p><u>Types of vocalisation and pre-speech expressions:</u> are not perceived.</p>
Modus of the final phase of the significant moment (time duration: 00:04,00)	1 contact-reaction	<p><u>Voice:</u> First vocal expressions under the form of vowels of joy.</p> <p><u>The quality of relationship:</u> intrapersonal quality of relationship is created between the voice and the body. S. vocally expresses himself (short period of time) and, at the same time, he moves his head.</p> <p><u>Types of vocalisation and pre-speech expressions:</u> First attempts to shape joy phonemes.</p>

**Table 2: Significant moment analysis and assessment of S.**

**Short analysis and assessment of the intervention**

The TQR-scale intervention was assessed at Modus 1 (Perception – connecting). The therapist’s lullaby meets the rhythm of the child’s movement on the swing; it created positive coordination experiences, leading to an intermodal connection, where the sensory impressions of the child (I feel, I hear) reached full harmony.

children (with autism and mental disability) of the research sample.

Furthermore, we reached the conclusion that through the application of the AQR-instrument not only the assessment of the quality of the relationship between child and therapist can be achieved but also the process as to how the relationship created during therapy is investigated and understood..

**Conclusions**

**Assessment of the interventions as to the quality of the child’s relationship**

**Application of the AQR-instrument**

The AQR-instrument during the research process substantially contributed a) to localising therapeutic significant moments, b) to the objective assessment of the quality of the children’s relationship during the significant moments, c) to observing the therapeutic intervention as to its correspondence to the level of development of the child, d) to drawing conclusions of the music therapy work, as well as e) to drawing diagnostic conclusions via the comparison of the results of the assessments of

In Table 1 the results of the research study are shown. One may ascertain that the following were analysed and assessed during all therapeutic moments:

- a) A positive differentiation in the quality of the relation between children with autism or mental disability and the therapist/researcher is observed between the initial and the final phase of the therapeutic moment, a fact allowing us to characterise the selected therapeutic moments as significant moments.

b) We observe that the therapeutic intervention as well follows, to a great extent, the differentiation of the relationship quality during the significant moment.

c) We observe that the level of development (modus) to which the intervention is addressed seems to agree completely with that of the children with mental disability as much at the beginning, as at the end of the significant moment. (In the paragraph below the disagreement that is observed at the beginning of the assessment of the second significant moment of student D. between the VQR-scale and TBQ-scale is explained and justified).

d) In children with autism – during the initial phase of a fair number of significant moments – the intervention is assessed with a higher modus in comparison to the one of the child. Contrary to the end phase of some significant moments with children with autism, we observe that the intervention is assessed with a lower modus than the one in regard to the child with autism.

From the group of children with mental disability (according to Table 1) we observed, at the second significant moment of student D., a disagreement of the level of development (modus) of the student (at the VQR-scale/vocal-pre-speech expression) and the modus to which the intervention was assigned. It must be made clear that modus 0 in the VQR-scale, with which D is characterised, does not concern a lack of contact or contact refusal but a pause. The basic quality, which is the quality usually characterising D.'s behaviour is modus 4 (intersubjectivity), given that D.'s behaviour is intensely characterised by the social reference phenomenon (assertive glances towards others) and his desire to act along with the other. At the initial phase of this particular significant moment, D (if assessed with the IQR-scale / instrumental expression) is at modus 4.

During other sessions, the aim was to take the initial situation and the child's reactions and emotional content into consideration before the intervention, for the musical offer of the therapist to correspond to the child's developmental level.

### *The therapist's emotional state*

In the sessions with the children with autism, and mainly in those sessions, there were a fair number of moments of insecurity and uncertainty. Within a positive work hypothesis for the final advent of the therapy, in these particular children possibilities were observed, a fact which sometimes, at the start of the therapeutic moment, led to the intervention targeting a little higher than the objectively diagnosed (via the AQR-instrument) level of the development.

Of course, when, in the frame of the moments, developmental leaps were observed on behalf of the children with autism to higher developmental levels (apices), the intervention did not always follow this differentiation, choosing to continue to aim at the stabilisation of the basic qualities via the therapeutic work, on which the unfolding of the child's capacities could be founded.

It should be noted that the student V. (even though it is a child with autism) caused another quality of emotions in the therapist during sessions. Thus, we come to the conclusion that it is a different case and this is something to take into account seriously in music therapy.

### *Discussion*

According to the results of the study, it was ascertained that the children with autism, included in the research sample:

- at the initiation of the significant moments, were at the first levels of development (modi) of the AQR-instrument assessment scales, corresponding to the first levels of development of the senses of self, according to Sterns' theory;
- during the end phase of the significant moments that may come close to modus 3 (contact to oneself), they may reach modus 4 (intersubjectivity), but also reach modus 6 (inter-affectivity).

It was observed that modus 5 (musical dialogue) concerns a rare quality of relationship for children with autism, as modus 6 (inter-affectivity). It was also ascertained that the children with mental disability may:

- be at modus 2 at the beginning of the significant moment (functional-contact) or modus 3 (contact to oneself) but also modus 4 (intersubjectivity), and
- reach up to modus 5 (musical dialogue) or even modus 6 (inter-affectivity).

We observed that the children with mental disability started off with a difference in comparison to the children with autism, a difference of at least two levels of development (modus) of the AQR-instrument scales, an affirmation connected to the selection of the intervention by the therapist.

Video analysis showed that at the final phase of the significant moment both children with autism and children with mental disability may reach the highest levels of the AQR-instrument scales, which are modus 5 (musical dialogue) and modus 6 (inter-affectivity).

It is stressed that the quality of the relationship of a child with autism, when having reached a high level of development, is different to the one of a child with mental disability, even though it concerns the same modus of the AQR-instrument scales. This is related to: a) the duration of staying at the new developmental level (modus), and b) the quality of the child's eye-contact.

Certainly, and independently from pathology, each child's case is different and this is why it should be approached differently.

Using the AQR-instrument it became clear that the child's developmental level determined the respective intervention, the aim of which was to create a musical meeting space adequate for experiences: (a) of self-agency and self-functionality, (b) regulation of proximity – distance, (c) regulation, formation, assonance and sharing of feelings, for the children with autism as well as for the children with mental disability. This was according to their developmental capacities and their developmental deficits, in order for them to experience their first contact reactions, to sing and come close to the other even without eye-contact, but also to develop the symbolic play and interactive capacity, reaching the level to be able to share emotional states and improving the quality of their relationship with the other.

### **Conclusions**

From the results of the assessments, the two basic hypotheses of this research were confirmed.

1. The way of working in this music therapy based on elemental music activates healthy elements in children with mental disorders; it provides an internal motivation to approach the other as well as the possibility to experience positive experiences of interpersonal relationships.
2. The AQR-instrument helps the music therapist to understand the causes of a successful or unsuccessful event of the session.

Furthermore, in all selected significant moments, it was obvious that the children with autism, as well as the children with mental disability need support and attendance in order to organise their experiences and regulate their feelings, in order to succeed in developing or improving their capacity to create relationships.

The components of music (rhythm, dynamics, timbre and pitch) provide a different channel via adequate therapeutic techniques in the frame of a therapeutic relationship that helps the child in communicating and elaborating unconscious drives.

Another relationship, with a child with autism, has a different quality and may be created

exclusively and only at the level of development in which the child is at.

The different types of music or pre-discourse parameters which resemble the maternal voice at the beginning of life determine the space where the child is entitled to be as it is, and move as it desires. This state of the child becomes the starting point of each therapeutic intervention.

This particular therapeutic start is also valid for children with mental disability, who, due to their pathology, often suffer from mental disorders which restrict their ability to process emotional states and internal conflicts, making it difficult for them in social interactions and in the creation of relationships to others.

The video analysis of the significant moments showed that therapeutic interventions, where the first offer of a contact was performed via an intermodal connection – where bodily stimuli and the child's emotion come to a musical agreement – cause the first positive contact reactions of the child.

Via the video analysis of the significant moments it became apparent how important the first work with the body is in children's therapy (mainly with autism, but also in the case of mental disability). Children who present a disordered sense of their body, often develop bodily stereotypic movements in their attempt – amongst others – to subdue intense feelings of their internal world on their own.

Body games, swinging movements in time to the pulse or rhythm of the music, allow a child to calm down, to limit stereotypic movements, and to be led, via experiences of affect attunement, and resonance, to have self-agency experiences, self-functionality, and to perceive and describe their own acting, reinforcing their sense of self.

In the frame of such musical interactive activities, it is possible to develop a shared game which is fun and which is accompanied by emotions of joy, safety and trust. The child experiences emotions which motivate it to seek for repetition, in order to find the chance to feel something similar again. According to the case of each child, such kinds of repeated experiences can be internalised by the child, affecting in time its personality.

This experience to feel and share emotions with the other mobilises the child to express itself vocally (by singing) and via an instrument. Thus, it is pushed beyond linguistic development and correct use of the object, and a way is thus opened to the child with autism as well as to the child with mental disability for relationships of a different quality.

Video analysis showed that through specific intervention techniques, according to the case of

every child with autism, the following can be achieved: (a) the development of the sense of body cohesion, (b) emotional development, and (c) development of the ability to interact with the other.

In addition, using musical games and improvisation, the children with mental disability were able (a) to express and share their feelings, (b) to have self-agency experiences, (c) to express phobias, stress and desires through the symbolic game and to make amusing associations, (d) to develop their ability for interaction through the musical game and have experiences that promote linguistic development and expression.

Music therapy could act supportively to the special school and special education in general by (a) reinforcing the child's motivation for action, (b) helping his emotional stability, (c) supporting the child mentally and emotionally even preventively, before the first signs become symptoms, (d) to prepare the ground for pedagogical or other types of therapeutic approaches, such as speech therapy.

The AQR-instrument can be applied in the frame of special education schools: (a) to record, analyse and assess therapeutic sessions, (b) to assess the type of relationship quality, independently from each child's developmental age level during the session, (c) to have an effect on the diagnostic conclusions, and (d) for research on specific questions as to the effect of music therapy on some pathologies and on the therapeutic course during the study of each case.

In this study, via the AQR-instrument, successful significant therapeutic moments were detected. We underline the fact that there were also many unsuccessful moments during the therapy, which may become the object of a future scientific project.

Similar studies on the application of music therapy to children with autism / mental disability would also be useful in further investigating the effect of music therapy as much on the pathology of autism as on mental disability.

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