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MUSIC THERAPY ASSESSMENT: PSYCHOLOGICAL ASSESSMENT WITHOUT WORDS

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Når klienter henvises til musikterapi, gennemgår de en assessment-procedure (en klinisk vurdering), som kræver terapeutens ekspertise inden for forskellige områder – med henblik på at stille en diagnose og identificere klientens behov og potentialer, samt at opstille realistiske forventninger til behandlingen. Inden for musikterapi findes der et antal publicerede assessment-metoder, som giver terapeuter mulighed for at anvende ikke-standardiserede redskaber såvel som målgruppe-specifikke metoder til at vurdere interventionens mulige effekt. Artiklen giver et koncentreret overblik over de vigtigste funktioner i musikterapeutisk assessment, og der gives eksempler på nogle af de metoder, der findes i musikterapilitteraturen. Et case-eksempel viser, hvordan børn med forstyrrelser inden for det autistiske spektrum vurderes med henblik på at afdække styrkesider, potentialer og ressourcer, som ellers muligvis forbliver skjult ved anvendelsen af andre, mere formaliserede assessment-metoder.

1. Introduction

Music Therapy is a discipline that has developed in a variety of fields, including health services, education and the social services. All of these areas of clinical practice require a degree of assessment by the professional in order to determine a number of important issues. Because music therapy has developed theory out of empirical practice, attention to the importance of assessment has, to date, been less in focus than the value, evaluation and effectiveness of clinical intervention and research. But the indicator for a therapeutic treatment in other professions relies on effective and systematic assessment, and an area of the author's research has been directed to diagnostic assessment in child and adolescent psychiatry, and in particular to the relevance and value of music therapy as a unique tool that provides both complimentary and unique information.

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Assessment, according to Collins English Dictionary (1991) is »..the act of assessing, an evaluation or estimation of something…«. Collins also describe assessing as »…to judge the worth, importance of something….«. The implication in the definition offered in the dictionary is that the process is rather quantitative, referring to such examples as assessing the value of something for taxation purposes, or the amount of something. Interestingly, it also refers to the language origin from French (*assesser)* and Latin (*sedere)* to sit beside.

In music therapy, there is a general agreement that assessment happens before, or at the initiation of therapeutic work with a client. This article will discuss assessment, illustrating this with clinical procedures and research findings from the field of Pervasive Developmental Disorder and Autism.

Assessment is an area where we find a loose and rather weak interface between the more humanistic model in music therapy and the natural science model found in medicine, psychology and other paramedical professions including occupational therapy, speech and language therapy and physiotherapy. But criteria for assessment in music therapy are becoming better defined. Even so, standardised tools for this process are not necessarily demanded or useful in music therapy. Music therapy assessment has developed through the employment of a frequently flexible protocol in order to allow the emergence of spontaneous and creative responses. This is particularly found within Europe where an improvisational approach is typical[1]. However the literature demonstrates that there are nevertheless predetermined expectations in music therapy assessment and evaluation in all clinical fields, ranging through autism and Pervasive developmental disorder (Oldfield, 2006a, 2006b; Kaplan, 2005; Wigram, 1999a, 2000, 2002), Hospice care (Maue-Johnson & Tanguay, 2006), hospitalized children (Douglass, 2006; Robb, 2000), school settings (Brunk and Coleman, 1999, 2000;Wilson and Smith, 2000) to adult psychiatry (Wilson, 1996) emotionally disturbed young adolescents (Wells, 1988), and geriatric care (Hintz 2000). There are also general guidelines on music therapy assessment (Cole, 2002; Loewy, 2000), criteria for assessment (Alvin, in Bruscia 1987) and standards of clinical assessment together with variable assessment approaches in the arts therapies (Bruscia, 1988; Wigram, 2000). As assessment tools develop in complexity and specificity, the rational underpinning them consolidates and the goals become clearer.

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1 Improvisational music therapy is where live music making occurs between the therapist and client(s), and the music is spontaneously created by the participants (Bruscia 1987; Wigram 2004).

2. The purposes and goals of assessment and evaluation

Music therapy is concerned with addressing the clinical, social and educational needs of clients with a variety of disorders and problems. It may be obvious to state this, but music therapy is almost never intended as a therapy to »improve someone's musical skills«, but to treat people for psychological, physical and emotional needs they may have. Therefore the assessment protocols that do exist concern themselves with important elements in the objectives of music therapy such as developing relationships, working on communication disabilities, physical disabilities, exploring psychological problems and addressing emotional needs. In such a holistic approach, taking the whole person into consideration, the question can arise as to the level of expertise in a music therapist in order to make comprehensive and broad ranging assessments. However it's important to identify first the reasons for the assessment. The purposes of assessment discussed by Bruscia (1999) linked with objectives relating either to diagnosis, description, interpretation, prescription or evaluation. Therapists undertake music therapy assessment for diagnostic purposes in order to detect, define or categorise a particular disorder or condition, and there are examples where music therapy demonstrates pathological characteristics in clients (Wigram 1999). In a broader sense, the assessment can be used to generally describe the client, giving a clear picture of a client within their own context. Music Therapists work within a variety of theories ranging from psychoanalytical to behavioural/developmental and analysis of assessment sessions will either throw up information to help understand underlying psychological and unconscious needs of the clients, while at the same time addressing very specific behavioural difficulties and needs. Assessments are also undertaken to ascertain whether it would be particularly relevant to prescribe a course of music therapy, identifying why music therapy should be used as an intervention with a particular client. Part of this type of assessment would be concerned with identifying the treatment approach that should be used with a particular client through music therapy, which can involve a wide range of different modalities ranging from Improvisational approaches (Wigram 2004), to Song Writing (Baker and Wigram, 2005) and Receptive Methods (Grocke and Wigram, 2007).

Identifying the domain for assessment also relies on a necessary expertise and competency in the music therapist undertaking the assessment, and to establish how well it relates to the referral criteria for which the client is being considered for intervention. Bruscia offered a comprehensive list of assessment domains that elicit specific forms of data.

	Domain	Focus of Assessment
1	Biographical	All those forms of data relating to the client's past
2	Physical/Medical	Physical Measures
3	Behavioural	All aspects of behaviour
4	Functional	Assessment of functional skills
5	Developmental	Where is the client in their growth pattern – their development stage
6	Musical	How does the client relate to music
7	Experiental	What is the client's perception, philosophy of life and awareness of their problems
8	Interpersonal	The intermusical and interpersonal relationship between the client and therapist, and the client and others.

Table 1: The domains and foci for assessment in music therapy

Depending on the clinical area within which the music therapist is working, any or all of these Domains may be relevant for assessment. Certainly, all clinical areas would be concerned with domains 1 and 8, and a majority with domain 3. Therefore the goals and purpose of assessment must be clearly articulated, and the domain identified, following which decisions regarding the relevant tool for the assessment and appropriate data to be gathered can be made.

3. Forms of assessment and data gathering

Bruscia discusses the importance of choosing an appropriate paradigm to be used for the assessment, whether it would be quantitative which would involve defining, measuring and explaining the objective prospective of what is being assessed, or qualitative where an explanation, interpretation and understanding is reached in order to find meaning in the clients behaviour and the therapeutic process. He also refers to the relevance of data gathering and how different forms of data can supply the assessment.

Wigram (2002) discusses different forms of assessment and evaluation based on the focus relating to diagnostic purposes, general purposes or specifically music therapy purposes as reported in Table 2.

FORM OF ASSESSMENT	FUNCTION OF ASSESSMENT
Diagnostic assessment	to obtain evidence to support a diagnostic hypothesis
General Assessment	to identify the general needs of the client from a holistic perspective, and recommend relevant intervention
Music Therapy Assessment	to obtain evidence supporting the value of music therapy as an intervention
Initial; period of clinical assessment in music therapy	To determine in the first two to three sessions a therapeutic intervention relevant to the client.
Long Term Music Therapy assessment	to evaluate over time the effectiveness of music therapy

Table 2. Forms of assessment and evaluation (Wigram 2002)

In all of these models music therapy has a role to play in diagnostic and clinical assessment and there are a number of existing music therapy tools that are available for application within these areas.

4. Diagnostic and clinical assessment

The collection of data will vary widely within and between these different models of assessment. Evaluation or assessment scales developed to date have focussed on a variety of aspects of the music therapy process, including musical interaction (Pavlicevic 1995), response, relationship and musical communicativeness (Nordoff and Robbins 1977; Steen-Møller, 1996), diagnosis (Raijmaekers 1993), psychological function (Sikström and Skille 1995), cognitive, perceptual, motor and visual skills (Grant 1995), sound-musical profiles (Di Franco 1999), and the analysis of improvised music (Bruscia 1987).

Typically, therapists will collect one or more of the following types of data in order to make their evaluation in any one of these models of assessment. The term behaviour is used here as a descriptor of all types of behaviour – physiological, emotional, cognitive, unconscious etc., and includes an understanding of human behaviour from both psychotherapeutic, medical and behavioural traditions:

Type of data	Origin	Example of data
Musical data	examples of musical events/ musical characteristics.	- Notated score of music - Tape recording - Video recording
Musical behavioural data	examples of clients behaviour without musical descriptors	- Description of how a client plays an instrument - Description of how a client vocalises - Description of how a client moves or dances to music
Behavioural data	characteristics of general behaviour in music therapy	- Facial expression - Body language - Physical behaviour including passive, aggressive or neutral attitude - emotional behaviour and attitude - initiatives and responses
Comparative data	comparison of clients behaviour in music therapy with behaviour in another situation	- All aspects of behavioural data compared with another situation (domiciliary, school, workplace. - Musical and musical behavioural data where a comparison can be made between musical activities in another situation and musical production, engagement and interaction in music therapy

Table 3: Data gathering in assessment and evaluation

In order to advance our ability to provide more specific evidence of what happens in music therapy related to the interpretation of behaviour and changes in behaviour, analysis of the musical events that occur in music therapy is a relevant starting point to formulate criteria for systematic assessment. In diagnostic and clinical assessment, some tools are designed to report musical material and some do not.

5. Assessment and evaluation tools

Paul Nordoff and Clive Robbins (1977) developed different scales drawn from their experience of working with learning disabled and autistic children, including the 13 Categories of response, the Child-therapist Relationship, Musical Communicativeness and Musical Response Scales. Amelia Oldfield has developed the Music Therapy Diagnostic Assessment (MTDA) (Oldfield 2001, 2006a) in work with children with Pervasive Developmental Disorder. Mercedes Pavlicevic developed the Musical Interaction Ratings (MIR's) for her research in schizophrenia, a nine-point scale for describing

the nature of inter-personal and inter-musical relatedness (Pavlicevic 1995). Karin Schumacher & Calvert-Kruppa (1999) developed the Analysis of the Quality of the Relationship (AQR). Anne Steen Møller (1996) has developed a method for describing 5 Levels of Contact.

One of the earliest pioneers of music therapy, Juliette Alvin (1975) formulated comprehensive lists for assessing children and adult clients responses to music therapy. Alvin really centred music therapy as originating from a fundamentally musical process, stressing the foundations of free improvisation (originating from the revolutionary developts of Stravinsky in the music world) and from a Freudian perspective as a medium to explore the different levels of consciousness. From a musical perspective, Alvin identified the types of responses that she felt music therapists should be assessing under four general headings – instrumental responses, vocal responses, listening responses and general behaviour. There is not enough space in this article to fully document the parameters that Alvin proposed in these different categories of response, but some can be useful to understand what music therapists are looking for:

Instrumental responses

1. The clients' understanding of cause-effect relations on the instrument.
2. Whether instrument playing is purposeful or random, free or rigid, controlled or uncontrolled
3. Preferences for particular instruments, manipulation techniques and instrumental sounds.
4. Associations stimulated by the instrument and sounds
5. Whether obsessions and compulsions are expressed through the instruments
6. Whether the instrument provides feelings of mastery, support, pleasure, intimidation or threat.

Vocal Responses

1. Evaluating the significance of the voice as a revelation of personality
2. Evaluating the
   - The placement, projection and quality of the voice
   - The control of pitch and intonation
   - Memory for melodies and lyrics
   - Song preferences

Listening Responses

1. Reflexive responses and automatic reactions to various musical elements
2. Attentional skills
3. Associations or memories aroused by particular compositions, performers, instruments or styles
4. Imagery stimulated by music

General Behaviour
1. Eye contact
2. Territoriality
3. A need for structure or freedom
4. Willingness to talk
5. General activity level (hyperactivity)
6. Leadership
7. Followship

(from Bruscia, 1987 pp 104-06)

For undertaking measurements and quantification of clinical intervention, the experimental research and clinical evaluation projects, predominately in the United States but also from other countries, have for many years employed a variety of test instruments. In an article in the Journal of Music Therapy, Gregory (2000) reported that 183 articles in the Journal during this period were research studies, 92 of which included a test instrument. She found a total of 115 different test instruments that were used in the evaluation of the effectiveness of music therapy. These were primarily psychological or psychometric methods of evaluation, and of the 92, only 20 were concerned with evaluating musical function. Of these 20, 50% were concerned with evaluating musical skills, or musical performance. Gregory commented that the variety of tests documented provided an all-encompassing range of client populations and a broad view of human behaviour which might be included in the practice of music as therapy.

Music therapists working in qualitative research have tried to develop a more phenomenological and experiential model for evaluating changes that occur in music therapy sessions over time (Bonde 2005). Lee has developed a method of analysing improvisations in music therapy which involves a nine-stage process (Lee, 2000). The first stage requires a holistic listening to the improvisation several times in order to obtain a sense of the whole of the piece of music that is being made and to look at those particular musical elements, properties or structures that are the most significant. Stage two involves the responses of the therapist to the music, whilst stage three requires the client to listen to their music and identify moments that they see as important. The fourth stage, used by Lee in his PhD study on the effects of music therapy with clients with HIV, involves taking improvisations to different experts such as a musician, psychotherapist or another music therapist and asking them to listen to an improvised section of a therapy session and identify significant points in the music as well as describing it. The final four stages of Lee's process involve a detailed transcription of the music, notating it and then analysing it to look at the structure and line of the music. This model is primarily used in detailed research studies requiring the assessment and analysis of musical material, as the time involved for the analysis precludes this from everyday clinical work.

An important model of assessment developed by Bruscia during the 1980s is the Improvisation Assessment Profiles (Bruscia, 1987). Here, the therapist can analyse the music from the point of view of different psychological constructs, as well as musical constructs, such as variability, autonomy, salience, integration, congruence and tension (Bruscia 1987, Bruscia 1993). The relationship of the different elements of music such as rhythm, melody, harmony and others is looked at in some detail through these different profiles and scales are used of musical parameters in order to identify salient and important aspects in music making. A short version of this tool was then published (Bonde 2005). An adapted use of this tool has been developed by Wigram (1999, 2000, 2004) for event based analysis in his work in assessing and diagnosing children with communication disorders. Analysing musical excerpts from improvised therapy sessions, particularly using the Autonomy profile to look at the interpersonal experiences that are going on between the therapist and the client, and the Variability profile to look at the degree of rigidity or freedom present in the music of the client have been of particular value in identifying musical elements and musical behaviour that can support or deny a hypothesised diagnosis (Wigram 1999, 2000, 2004).

Loewy has developed a model for music psychotherapy assessment (Loewy, 2000). She comments that though the music serves as a primary means of understanding process of the moment, it is the words that can be assigned to describe the musical experience that will help the therapist to interpret its significance. The words will represent the clinical work in medical records and reports on the patient's process. Loewy has described 13 areas of enquiry that are relevant for music therapy assessment, looking at the awareness of the self, others and of the moment, thematic expression, listening and performing, the collaboration between client and therapist, degrees of concentration, range of affect, investment and motivation, the use of structure, integration, self-esteem, risk taking and independence. She differentiates the individual areas of enquiry into sub-groups relating to the relationship, the dynamics, levels of achievement and cognition.

Music therapy clinical assessment with geriatric patients has been described by Michelle Hintz from Temple University in America, looking at an assessment of musical skills and related behaviours (Hintz, 2000). Her assessment addresses five main areas: expressive musical skills, receptive musical skills, behavioural/psychosocial skills, motor skills and cognitive memory skills. She is working on the basis that both active music-making and responses to music can be evaluated to look at levels of responsivity in the client, and their process in therapy. Unlike many assessment procedures, it involves scoring, which is a method common to other professions such as speech and language therapy and clinical psychology.

6. Assessment for diagnostic purposes

Many therapists define the process of assessment not in terms of a tool, but in terms of the development of a therapeutic interaction over the first two or three sessions. Some therapists have used assessment for primarily diagnostic purposes, either to explore evidence in music therapy session of the nature of the personality of the client or to look more carefully at their pathology and underlying difficulties.

Evaluating strengths and weaknesses through music therapy assessment, and music therapy as a tool for diagnostic assessment is productive and relevant. Wigram (1999, 2000) and Oldfield (2004, 2006) have each developed a model of assessment with children, where they have defined a process during a session for identifying pathological characteristics that are visible in musical engagement through live music making. They have defined specific activities to be included in an assessment, including free improvisation, structured improvisation, turn-taking activities, songs and movement. This also includes a choice of instruments, playing tonal music and atonal music, developing rhythmic interactions, singing and many other diverse elements. Music making is a rich medium for promoting creativity and, as a form of assessment, it offers significant strengths for assessing the areas of social engagement and non-verbal communication which are precisely the areas in which children with autism and Asperger Syndrome have some of their most profound difficulties. Music therapy can evaluate more than just social engagement because it looks quite specifically at musical events and musical behaviour, and makes detailed evaluations and interpretations of both quantitative and qualitative data on a client's activity. The frequency and duration of musical events that take place when therapist and client are playing can be counted for a quantitative analysis. Musical material, such as tempo changes, rigid or flexible rhythmic patterns, phrasing, changes in intensity, and general variability in style, can be analysed and measured (Bruscia, 1987; Wigram, 2000). One sees evidence of stereotypies and rigidity in musical play. For example, the typical non-functional use of toys is also found in the way an autistic child behaves with musical equipment: spinning and twiddling jingles on a tambourine, fiddling with the butterfly nut of a cymbal and spinning the cymbal, bunching and watching the swaying pattern of a set of bars suspended on a wooden frame (windchimes), stroking and fiddling with metallic instruments such as Indian cymbals or gongs, and even playing with parts of the piano such as the folding music holder or the lid are typical examples of this type of play (Wigram, 1999). Music making of this kind should not be construed as necessarily musically intentional or commnicative, and unless some element of creative musical process can be evoked in the development of the music making, one will typically see the child lost in rather repetitive and rigid patterns of movement, just as one sees in other aspects of their aimless activity.

Music therapy assessment can therefore identify limitations and weaknesses in clients, as well as strengths and potentials, and can spotlight aspects of behaviour and perception in the clients that clearly reflect pathology. Case reports further support the value of assessment and clinical intervention, and offer clinical examples of improvement in social engagement, attention and motivation through musical engagement in music therapy interventions in both short term and longer term interventions (Brown, 1999; Evers, 1992; Howat, 1995; Oldfield et al, 2003; Robarts, 1996; Schumacher & Calvert-Kruppa, 1999). Many of these authors report music therapy with autism spectrum disorder, and it is this population with which the remainder of this article is primarily concerned.

7. Music Therapy diagnostic assessment for Autism Spectrum Disorders (ASD)

Autistic children and adults have core impairments in social interaction, social communication and imaginative play, and while these deficits are typically picked up in psychology and speech and language therapy assessments, music therapy assessment can add a new dimension whereby social engagement and communication can be assessed without language impeding interaction. In ASD there is also normally the presence of rigid, repetitive patterns of activity, stereotypical play, an adherence to routine, and a significant difficulty in coping with change. The analysis of characteristics in musical interplay between the person with ASD and the therapist identifies and interprets musical events that can support diagnostic criteria, and can also reveal change over time. Children with pervasive developmental disorder demonstrate some of the same pathological problems in music making as they do in their everyday life and play.

Through music therapy assessment, the relationship between healthcare needs and the assessment of the purpose and outcomes of therapy can be clearly established. In working with ASD, healthcare needs, based on the pathology, can be summarised as:

- Qualitative impairment in reciprocal social interaction
- Impairment in communication
- Impairment in imaginative activity
- Abnormalities and disorders in cognitive skills
- Abnormalities of posture and motor functioning
- Odd responses to sensory input
- Persistent and repetitive preoccupations, routines and play
- Significant difficulties in coping with change
- Poor ability to establish, build, and sustain meaningful relationships with others

- Attentional problems often co-morbid (ADD & ADHD)
- Hyperactivity, hyper-arousal (Rett Syndrome),
- Motor disability, Cerebral Palsy
- Developmental Disorders of Scholastic Skills

Music Therapy as a treatment addresses these specific health needs and problems, and has been demonstrating that within multi-disciplinary paediatric, child psychiatry and learning disability teams for the last 30 years. Music contains a large degree of rhythmic, harmonic, melodic and dynamic structure, and this provides an understandable frame for social interaction and joint attention in clients with ASD. Case histories and research studies in music therapy (Gold et al, 2006; Kim, 2006; Wigram 2002) help to establish a list of expected outcomes of therapy will include any of the following:

COMMUNICATION	• Activating intersubjective behaviours • Spontaneous initiation of contact • Development of meaningful gestures and signs • Development of communicative vocalisation • Emergence of language in songs
SOCIAL DEVELOPMENT	• Motivated interaction • Shared and understood experiences • Relationship building skills • Tolerance of change • Entrained responses • Flexibility
EMOTIONAL DEVELOPMENT	• Developed and Increased sense of self • Empathic synchronicity – shared emotions • Containment of emotional expression • Emergence of insight and self-esteem
COGNITIVE DEVELOPMENT	• Development of awareness, joint attention and concentration • Development of organisational skills • Development of memory
DEVELOPMENT SPECIFIC TO PATHOLOGICAL BEHAVIOUR IN AUTISM	• Tolerance of sounds (increasingly identified as a problem of perception by Donna Williams, Temple Grandin) • Meaningful use of objects – from stereotyped and unimaginative use of part-objects • To divert away from habitual, stereotyped, ritualistic, perseverative or obsessive behaviours.

Table 4. Expected Outcomes of Therapy

8. Case example of assessment

Joel was a seven year old boy referred to Harper House for assessment to evaluate his strengths and difficulties. He was diagnosed autistic, but Great Ormand Street Hospital for Children in London were uncertain about the degree of his disability. This case was more fully reported from a different perspective in a previous publication (Wigram 2002). A consultant paediatrician decribed him as a boy who demonstrated poor use of direct eye contact, a lack of socially imitative play, an inability to share enjoyment with others, stereotyped ritualistic play, and poor at relating to other people, especially his peers. He appeared unable to use non-verbal behaviour to regulate social interaction.

Speech and Language therapy
In the Speech and Language therapy assessment, Joel had poor concentration, and did not take the initiative in verbal communication. There was evidence that he understood instructions, but in the Clinical Evaluation of Language Fundamentals (Pre-School) he achieved an age level of 3.1 years.

Cognitive Psychology
In the Cognitive Psychology assessment (Kauffman ABC), Joel achieved an Intelligence Quotient equivalent of 79. This indicates that his overall intellectual ability is within the normal range, although poorly developed. He had Well Below Average scores in the achievement subtests of Arithmetic and Reading/Decoding.

Music Therapy
Joel was reported to be responsive to music. Music therapy assessment was recommended to see if there were potential strengths that would not be found in other assessments. The session I had with lasted 50 minutes, and the tables that follow describe thirteen events in the therapy session, giving a description of Joel's behaviour and way of making music. In the right hand column are the corresponding relevant »expectations« that can be proposed for future music therapy intervention. This is a method of defining the potential value of music therapy for a child, giving criteria that describe how the therapy will help the child overcome the difficulties inherent in his/her pathology, and make a clear explanation to other professionals involved, such as doctors, therapists and teachers, the function of music therapy.

The opening experience of the session found Joel exploring the grand piano. He is particularly interested in watching the hammers come up when pressing down the notes, such a preoccupation with the mechanical function of an object often being found in children with autism. The musical dialogue then continued on the two pianos. Joel began to play rigid sequences on the black notes, to which to the therapist provided a pentatonic harmonic frame.

He worked his way up to the top of the piano, gradually slowing down as he reached the top. The therapist provided a two chord accompaniment. There followed a short transition, followed by a melodic improvisation by Joel supported by a jazz chordal framework from the therapist . The structure of the harmony led to a clear (mutually anticipated) musical dialogue between therapist and client. This simultaneous style of dialogue emerged because the framework began to use the cycle of fifths more clearly, within jazzy 12 bar harmonic cycles. In reference to the description above of dialogue as a method, this dialogue actually never began as a 'turn-taking' dialogue, but developed as a 'continuous, free-floating' exchange of musical ideas that require the ability to quickly incorporate the other's musical materials into one's own playing – both in therapist and client. Table 5 illustrates the variety of interactions that occurred during the assessment session, and explains Joel's response to them, and how these linked to therapeutic expectations for outcome. The audio examples for this case are available on the disc accompanying this volume.

Events in music therapy assessment	**Response of Joel, and interaction**	**Expected outcomes of therapy based on assessment**
1. Speech and language therapy assessment	Joel has poor concentration, he is distracting himself, and there is a lack of initiation	• Answer questions • Understand language
2. Piano Duet	I am accompanying and supporting Joel matches tempo and rhythm Joel starts to reference me by looking	• Development of awareness • Development of concentration • Activating intersubjective behaviours
3. Piano Duet 2	Pentatonic improvisation Joel references more and more He moderates tempo and volume with me: From f to p, from allegro to adagio Joel takes over melody Joel starts moving his body Joel initiates change – kicking his legs	• Shared and understood experiences • Tolerance of change • Flexibility • Entrained responses • Motivated interaction
4. Continues Piano	Starts to vary – asks to stop Recognises a musical CADENCE: Stops Variable and interactive: Stable tempo – great sense of timing: Can play in phrases	• Development of organisation • Shared experience

continues

Events in music therapy assessment	**Response of Joel, and interaction**	**Expected outcomes of therapy based on assessment**
5. Drum duet	Variable and interactive Stable tempo – great sense of timing Can play in phrases – Uses Cresendos ––	• Developed sense of self • Relationship building • Intersubjective behaviour
6. Drums and Piano	Watching and working WITH me Feels and plays the timing in the music Breaks his own patterns	• Empathic Synchronicity • Organisation and structure • Spontaneous initiation of contact
7. Dropping drum sticks on the Drum	Copies what I am doing Starts using language with cues Laughing when I fail to catch the stick	• Development of meaningful gestures • Shared emotions • Development of memory • Shared experience
8. Asking him to copy rhythmic patterns	Watching me carefully He is laughing at my reaction when he deliberately does it wrong Starts a repetitive pattern of behaviour – but related to me	• Awareness, attention • Empathic Synchronicity • Relationship building
9. Imaginative game: Going to sleep, waking up and having breakfast	Joel understands the idea of the game Simultaneously shares my »Ugghh« when I pretend to eat the drumstick Drinks the »imaginative« cup of tea	• Imaginative play • Shared emotions • Understood experience • Intersubjective behaviour
10. Piano and Drums	Joel started on the piano, then moved to the drums and cymbal. He became independent, allowing me to accompany him..	• Developed and increased sense of self • Containment of emotional expression
11. Microphone duet	Joel accompanies himself on the piano Develops vocal turn-taking with me More and more spontaneous language Imaginative: Ends with »I'll kick your bottom !!«	• Development of communicative vocalisation • Emergence of language in songs • Developed sense of self

continues

Events in music therapy assessment	Response of Joel, and interaction	Expected outcomes of therapy based on assessment
12. Joel singing with me on piano	Joel makes up his own words. He takes a solo role Role playing a style of singing	• Emergence of language in songs • Development of communicative vocalisation • Containment of emotional expression • Increased sense of self
13. »Hello« Interaction	Joel starts saying Hello to the speaker. I respond. He takes the microphone and sings Hello. He develops this, getting excited. It is like a recitative. His timing of phrases in musical structure is very developed.	• Intersubjective behaviour • Spontaneous initiation of contact • Shared and understood experience • Empathic synchronicity shared emotions

Table 5: Events in therapy illustrating responses and interaction relating to the expectations of therapy

The evidence of autistic spectrum disorder was present in the other assessment sessions undertaken as part of the multi-disciplinary diagnostic procedure (speech and language therapy and cognitive psychology) with this boy, and was also evident in the way Joel created sequential melodic patterns in his playing. But the flexible jazzy style I created for him as a framework typical of Jazz, and the predictable harmonic direction, allowed him to anticipate how he could 'fit in' his musical production with the initiatives of the therapist. This 'fitting in' or matching is part of the musical dynamic that 'draws out' or 'invites' the expression of communicative musicality. The use of the jazz framework became effective in offering structure, while allowing flexibility.

During this session, Joel demonstrated many potentials. He could share, take turns, initiate, use verbal language spontaneously, and concentrate for long periods – for example the first period of time he played on the piano lasted 13 minutes without stopping. He could also follow musical cues, anticipate, structure, go into imaginative play, and anticipate the way I was thinking and reacting, as well as, and share emotions with emotional synchronicity. This doesn't mean he was not autistic, it means that in music therapy interaction the individual behind the autistic pathology was allowed to come out – and demonstrate his potential.

9. Research

The case example above illustrated the findings from an assessment, and the consequential indicators for music therapy intervention. Experimental studies also offer significantly more detailed analysis of behaviour that evaluates responses to music therapy in children with ASD. Edgerton (1994) undertook a study on the effect of improvisational music therapy on the communicative behaviours of autistic children. This is one of the few research studies that have looked at the effect of improvisational music therapy. She chose to assess musical and non-musical communicative behaviour during individual music therapy sessions. Her results showed that improvisational music therapy is effective in increasing autistic children's communicative behaviour. She also showed that when music therapy was withdrawn for one session there was a large decrease in communicative behaviour in all 11 subjects. Communicative behaviour increased over the period of 10 sessions.

11 children from 6-9 years old were included as subjects in the study. Their language ability ranged from 0-5 years and 5 subjects had no language at all. The therapy was carried out as individual sessions, and Piano, drum, and cymbal were used as Cindy works using Nordoff-Robbins methods. She analysed videos and developed a Checklist of Communicative Responses and Acts Score Sheet which included 107 items – 91 musical items and 16 non-musical items. Inter-Observer reliability was established. A Behaviour Change Survey questionnaire was given to parents, teachers and speech therapists. The children had a 30-minute session once a week for 10 weeks. Session 6 was not a music therapy session, making this a research using a reversal design. 10 minutes sections were randomly sampled from each 30-minute session for video analysis. The results reported a mean improvement in communicative acts and responses in all subjects from 15 per session to over 50 per session. There was a steady improvement week by week, During the reversal session (session six) the mean score for communicative asts and responses fell to 15 again, from an average the week before of around 35. Then in session seven, the mean score resumed to 38 when improvisational music therapy was resumed. The change from first to last session was significant ($p < .01$).

The results show a consistent increase in communicative responses and acts over time. It is important that a marked fall in communicative acts and responses during the non-music therapy session (session 6) was revealed. It is also important to see that a consistent increase over time tells us that the children were learning and developing greater communication from session to session. It supports the argument that in music therapy we build up a »shared repertoire of events« between therapist and client that involves meaning and understanding. This 'shared repertoire' can include familiar

frameworks or musical structures (Wigram 2004) or interaction themes and patterns (Holck 2001).

Kim (2006) undertook a study to investigate the effects of improvisational music therapy on joint attention, and affect sharing behaviours in children with autism. Improvisational music therapy is reported to be effective at improving social communication skills in children with autism. Testing this premise formed the basis for Kim's doctoral study the objective of which was to compare the effects of improvisational music therapy and play sessions with toys on joint attention, social interaction and affect sharing behaviors in children with autism. Ten participants, aged between 3 and 6 with confirmed diagnoses of autism, were recruited from the Child and Adolescent Psychiatry of the Seoul National University Hospital. A repeated measures, within subject comparison design was used and children were randomly assigned to two groups. Group 1 had music therapy first, and then a free play session later, while Group 2 had free play first and music therapy afterwards. Sessions were equally divided into undirected and more directed parts. The children's responsiveness to both music therapy and play sessions was assessed with the Pervasive Developmental Disorder Behavior Inventory (PDDBI), the Early Social Communication Scales (ESCS), and DVD analyses of selected session data. The overall results from the PDDBI, the ESCS and session analysis were generally in favor of music therapy over play sessions, indicating improvisational music therapy was more effective at improving joint attention, social interaction and affect sharing behaviors in children than play sessions with toys. The most clinically relevant and important findings were that children showed markedly more and longer events of 'eye contact', 'joy', 'emotional synchronicity' and 'initiation of engagement' spontaneously in improvisational music therapy than play sessions, and during the undirected part of the session more than the directed part. Here, some of the results of the sampled video analysis for eye contact frequency, eye contact duration, and initiation of engagement will illustrate a medium for evaluating music therapy by measuring change over time in a specified behavioural parameter.

Table 6 presents the result of a repeated measures ANOVA assessing frequency of eye contact.

Variable	**Numerator Degrees of Freedom**	**Denominator Degrees of Freedom**	**F-value**	**p-value**
Condition	1	135	57.15311	<.0001***

Table 6: A repeated measures ANOVA of eye contact frequency

Table 6 shows that a significant effect (p<.0001) was found comparing the music therapy condition with the free play condition. Inter-observer reliability reached 0.96 agreements in eye contact frequency data; therefore, it was very reliable data. The figures that follow show the differences between conditions for selected dependent variable in the study. Condition refers to music therapy or free play; Session part refers to the unstructured (undirected, or child led) part of the session and the structured (directed and therapist led) part. Session refers to any significant difference between data from the sampled (1,4,8,12) sessions. Figure 2 shows this result in a boxplot. The y-axis scores represent the scoring range in frequencies of eye contacts made by the whole group in the selected samples from the selected sessions, charted in the boxplots by condition. The x-axis represents the two conditions – music therapy (MT) and free play.

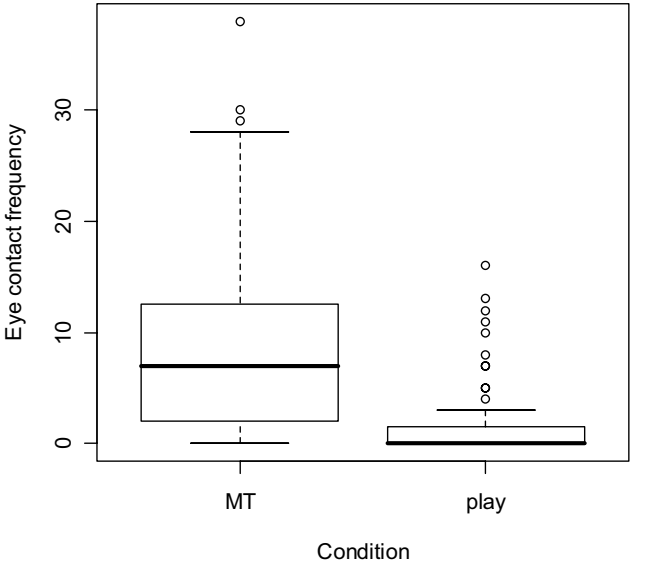

Figure 1: Eye contact frequency

The boxplot shows more spontaneous eye contact frequencies in the music therapy condition than the free play condition where the median value of eye contact was zero.

Eye contact duration

The analysis of eye contact duration was conducted using a repeated measures ANOVA to find out whether variables and interactions of variables were significant. Table 7 shows that a significant effect (p<.0001) was found comparing the music therapy condition with free play. Inter-observer reli-

ability reached 0.96 agreements in eye contact duration; therefore, it was very reliable data.

Variable	Numerator Degrees of Freedom	Denominator Degrees of Freedom	F-value	p-value
Condition	1	135	51.45844	<.0001***

Table 7: A repeated measures ANOVA of eye contact duration

Figure 2 shows this result in a boxplot illustrating the difference between music therapy and free play for Eye contact duration. The portrayal in the boxplot is similar to Figure 1 (eye contact frequency). Spontaneous eye contact between the therapist and the child occurred for a longer period of time in the music therapy condition than in the free play condition where the median value for eye contact duration is zero. The median value of eye contact duration is located below the middle of the box. This means that there were lengthier durations of eye contact happening than the median value. The overall impression of this boxplot shows that the effect of music therapy is much better at improving the visual joint attention behaviours of the children with ASD than the free play condition.

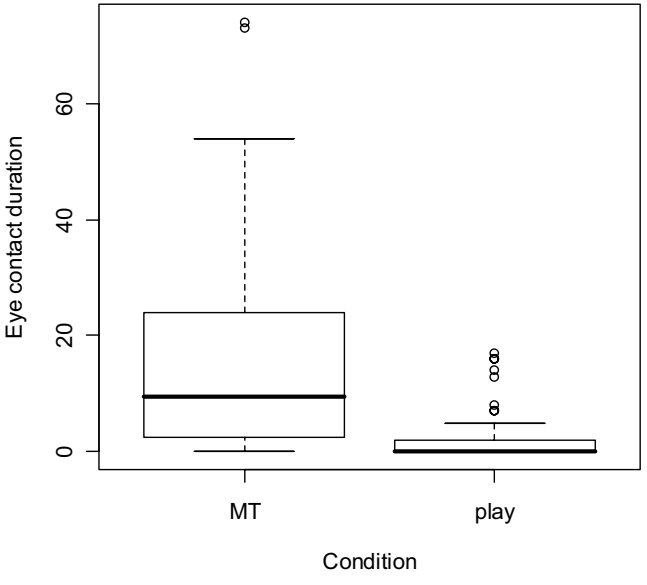

Figure 2: Eye contact duration

Initiation of engagement frequency

The children's tendency to initiate engagement during music therapy and free play has been compared and the results are presented in table 8 from a repeated measures ANOVA.

Variable	Numerator Degrees of Freedom	Denominator Degrees of Freedom	F-value	p-value
Condition	1	135	54.95554	<.0001***
Session part	1	135	4.85572	0.0292*
Session	3	135	5.73023	0.0010**

Table 8: A repeated measures ANOVA of initiation of engagement frequency

A significant effect was found comparing the condition (p<.0001), the session (p= .0010) and the session part (p= .0292). Inter-observer reliability reached 0.93. Figure 3 presents this result in a boxplot and, demonstrate that music therapy was significantly better than free play at improving joint attention behaviours, there were observable and measurable changes in one session, especially when comparing the unstructured/undirected part with the structured/directed part, and there were changes in response over time from the early to late period of music therapy. Four of the 12 sessions were sampled for analysis (sessions 1,4,8,12), and in each session the first 15 minutes was undirected (unstructured), followed by 15 minutes of directed (structured) work.

The results here demonstrate that music therapy has a greater effect in improving initiation of engagement than does free play. Overall, the children were slightly more able to show initiatives in the undirected parts of the sessions in both conditions, and the initiatives are markedly more frequent in music therapy than in free play.

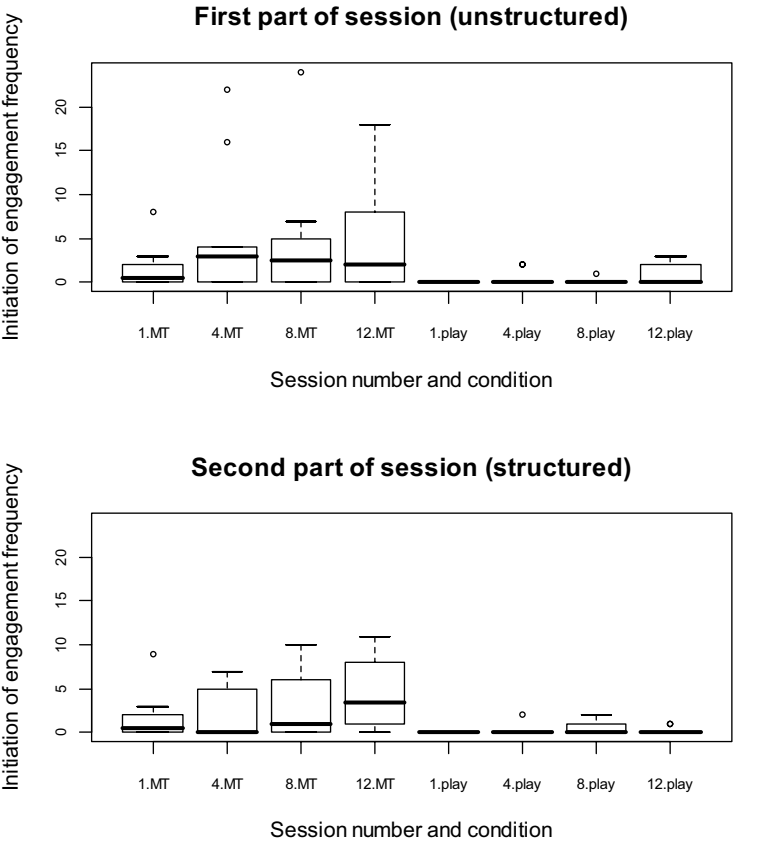

Figure 3: Initiation of engagement frequency

10. Conclusion

Music Therapy assessment has an important and unique contribution to make to the diagnosis, assessment and treatment of physical, psychological and emotional illnesses, handicaps and disturbances. Music therapy provides an important part of the clinical picture, and the array of assessment protocols is steadily increasing and improving. Music therapy is still a young profession, and the scientific side is generally weaker than the clinical and empirical documentation. But at the same time, the spontaneity, flexibility and less protocol based approach to assessment offers other aspects to the clinical picture of the client. Clients often find music therapy assessment less 'testlike', and allow more of their strengths and potentials to shine through. Music offers a medium for creative and adventurous activities, and unique aspects of a client can be seen. The rigidity of a pathology can be

broken down and facets of a client seen that were previously not visible. In all clinical areas, the need for an assessment is recognised as the first stage in determining the »indication« or appropriateness of therapeutic intervention. Music therapists have developed some protocols for this, and through research, are further developing skills and tools in this area.

Supplerende materiale til denne artikel findes på www.musikterapi.aau.dk/musikogpsykologi – se side 636.

REFERENCES

ALVIN, J. (1975): *Music Therapy.* London: Constable.

BAKER, F. & WIGRAM, T. (2005): *Songwriting: Method, Techniques & Clinical Applications for Music Therapy Clinicians, Educators and Students*. London: Jessica Kingsley Publishers.

BONDE, L. O. (2005): Approaches to Researching Music. In B. L. Wheeler (Ed.), *Music Therapy Research. Quantitative and Qualitative Perspectives. 2nd Edition*, pp. 489-525. Gilsum NH: Barcelona.

BROWN, S. (1999): 'The Music, The Meaning, and the Therapist's Dilemma'. In T.Wigram & J.De Backer (Eds.), *Clinical Applications of Music Therapy in Developmental Disability, Paediatrics and Neurology.* London & Philadelphia: Jessica Kingsley Publishers.

BRUNK, B. & K. & COLEMAN, K. A. (1999): *Special education music therapy assessment process handbook*. Grapevine, TX: Prelude Music Therapy.

BRUNK, B & K & COLEMAN, K. A. (2000): Development of a special education music therapy assessment process. *Music Therapy Perspectives*, 18(1), 59-68.

BRUSCIA, K. (1987): *Improvisational Models of Music Therapy'*. Springfield: Charles C. Thomas Publications.

BRUSCIA, K. (1988): Standards for clinical assessment in the arts therapies. *Arts in Psychotherapy* 15, 5-10.

BRUSCIA, K. (1994): *IAP. Improvisational Assessment Profiles. Kartlegging gjennom musikkterapeutisk improvisation* (B. Stige & B. Østergaard, Trans.). Sandane: Høgskula på Sandane.

BRUSCIA, K (1999): Why Make an Assessment, (1997) American Music Therapy Association Conferences. Los Angeles. Personal Communication.

BRUSCIA, K. (2002). Response to the Forum Discussion of the »IAPs« in The Nordic Journal Web-site. *Nordic Journal of Music Therapy, 11*(1), 72-82.

COLE, K. (2002): *The music therapy assessment handbook.* Columbus, OH: Southern-Pen Publishing.

COLLINS ENGLISH DICTIONARY (1992). Glasgow: HarperCollins.

DI FRANCO, G. (1999): Music and Autism. Vocal improvisation as containment of stereotypes, In: T.Wigram & J. De Backer (Eds.), *Music Therapy Applications in Developmental Disability, Paediatrics and Neurology***.** London & Philadelphia: Jessica Kingsley Publishers**.**

DOUGLASS, E.T. (2006): The Development of a Music Therapy Assessment Tool for Hospitalized Children. *Music Therapy Perspectives, 24,* pp. 73-79.

EDGERTON, C.L. (1994): The Effect of Improvisational Music Therapy on the Communicative Behaviours of Autistic Children*. Journal of Music Therapy,* 31, 31-62.

EVERS, S. (1992): Music Therapy in the treatment of autistic children: Medico-sociological data from the Federal Republic of Germany. *Acta Paedopsychiatrica: International Journal of Child and Adolescent Psychiatry*, **55**, 157-158.

GRANT, R. (1995): Music therapy assessment for developmentally disabled adults. In: *The Art and science of music therapy: A handbook* (ed. T. Wigram, B. Saperston, & R. West), pp. 273-287. London: Harwood Academic Publishers.

GREGORY, D (2000): Test Instruments Used by *Journal of Music Therapy* Authors from 1984-1997. *Journal of Music Therapy 37(2),* pp. 79-95.

GROCKE, D., & WIGRAM, T. (2007): Receptive Methods in Music Therapy: Techniques and Clinical Applications for Music Therapy Clinicians, Educators and Students. London & Philadelphia: Jessica Kingsley Publishers.

HINTZ, M.R. (2000): Geriatric music therapy clinical assessment: Assessment of music therapy skills. Music Therapy Perspectives, 18(1), 31-40.

HOWAT, R. (1995): *'Elizabeth: A Case Study of an Autistic Child in Individual Music Therapy'.* In: T.Wigram, B.Saperston & R.West (Eds.), *The Art and Science of Music Therapy: A Handbook.* London & Toronto: Harwood Academic Publishers.

KIM, J. (2006): Joint attention in improvisational music therapy with autistic children. PhD Thesis, Aalborg University, Denmark.

LEE, C. (2000): A Method of Analyzing Improvisations in Music Therapy. *Journal of Music Therapy 37(2),* pp. 147-167.

LOEWY, J. (2000): Music psychotherapy assessment. *Music Therapy Perspectives*. 18(1), 47-58.

MAUE-JOHNSON, E.L. & TANGUAY, C.L. (2006): Assessing the Unique Needs of Hospice Patients: A tool for Music Therapists. *Music Therapy Perspectives, 24,* pp. 13-21.

NORDOFF, P. & ROBBINS, C. (1977): *Creative music therapy*. New York: John Day.

OLDFIELD, A. (2001): Music therapy with young children with autism and their parents: Developing communications through playful musical interactions specific to each child. In: *Music Therapy in Europe* (Eds. D. Aldridge, G. Di Franco, E. Ruud & T. Wigram), pp. 47-62. Rome: Ismez.

OLDFIELD, A (2001): Music Therapy with young children with autism and their parents. Developing communications through playful musical interactions specific to each child. In: D. Aldridge, G. Di Franco, E. Ruud and T. Wigram (Eds), *Musicoterapia in Europa*. Rome: Ismez.

OLDFIELD, A., Bunce, L. & Adams, M. (2003): An Investigation into short-term music therapy with mothers and young children. *British Journal of Music Therapy*, **17**, 26-45.

Oxford Centre for Evidence Based Medicine (2001) *Levels of evidence and grades of recommendations*. Available: http://www.cebm.net/levels_of_evidence.asp [2005, February 10].

OLDFIELD, A. (2004): *A comparison of Music Therapy Diagnostic Assessment (MTDA) and the Autistic Diagnostic Observation Schedules (ADOS).* Unpublished PhD Dissertation. Cambridge: Anglia Polytechnic University.

OLDFIELD, A (2006a): *Interactive Music Therapy in Child and Family Psychiatry: Clinical Practice, Research and Teaching*. London & Philadelphia: Jessica Kingsley Publishers.

OLDFIELD, A (2006b): *Interactive Music Therapy- a Positive Approach*. London & Philadelphia: Jessica Kingsley Publishers.

PAVLICEVIC, M. (1995): Interpersonal processes in clinical improvisation; towards a subjectively systematic definition. In T. Wigram., B. Saperston., & R. West. (Eds.), *The Art and Science of Music Therapy: a Handbook*. London & Philadelphia: Harwood Academic Publishers.

RAIJMAEKERS, J. (1993): Music therapy's role in the diagnosis of psycho-geriatric patients in the Hague. In: *Music therapy in health and education* (Eds. M. Heal & T.Wigram), pp. 126-136. London & Philadelphia: Jessica Kingsley Publishers.

ROBARTS, J. (1996): Music therapy for autistic children. In: *Children with autism: Diagnosis and interventions to meet their needs* (ed. C. Trevarthen, K. Aitken, D. Papoudi & J. Robarts), pp. 132-160.. London, Philadelphia:Jessica Kingsley Publishers.

ROBARTS, J. (1998): Music Therapy for Children with Autism. In: C. Trevarthen, K. Aitkin, D. Papoudi and J. Robarts (Eds), *Children with Autism: Diagnosis and Interventions to Meet their Needs.* London & Philadelphia: Jessica Kingsley Publishers.

ROBB, S. (2000): The Effect of therapeutic Music Interventions on the Behaviour of Hospitalized Children in Isolation: Developing a Contextual Support Model of Music Therapy. *Journal of Music Therapy 35*,2, pp. 118-147.

SCHUMACHER, A. & CALVERT-KRUPPA, C. (1999): The AQR – an analysis system to evaluate the quality of relationship during music therapy. *Nordic Journal of Music Therapy*, 8, 188-191.

SIKSTRÖM, M. & SKILLE, O. (1995): The Skille Musical Function Test as a tool in the assessment of psychological function and individual potential. In: *The Art and science of music therapy: A handbook* (Eds. T. Wigram, B. Saperston, & R. West), pp. 395-405. London: Harwood Academic Publishers.

STEEN MØLLER, A. (1996): 'Music as a Means of Contact and Communication with the Physically and Mentally Handicapped'. In I.N. Pedersen & L. O. Bonde (Eds.), *Music Therapy within Multi-Disciplinary Teams*. Aalborg: Aalborg Universitetsforlag.

WELLS, N.F (1988): An individual music therapy assessment procedure for emotionally disturbed young adolescents, Arts in Psychotherapy, 15, 47-54.

WIGRAM, T. (1999a): 'Assessment methods in music therapy: a humanistic or natural science framework?' *Nordic Journal of Music Therapy*, 8 (1), p. 6-25.

WIGRAM, T. (1999b): 'Variability and autonomy in music therapy interaction: Evidence for diagnosis and therapeutic intervention for children with autism and Asperger's syndrome'. In R. Pratt and D. Erdonmez Grocke (Eds*.) MusicMedicine 3. MusicMedicine and Music Therapy:: Expanding Horizons*. Melbourne, Faculty of Music, University of Melbourne.

WIGRAM, T. (2000): A method of music therapy assessment for the diagnosis of autistic and communication disordered children. *Music Therapy Perspectives, 18*, 13-22.

WIGRAM, T. (2002): Indications in music therapy: Evidence from assessment that can identify the expectations of music therapy as a treatment for Autistic Spectrum Disorder (ASD): Meeting the challenge of Evidence Based Practice. *British Journal of Music Therapy, 16*, 11-28.

WIGRAM, T. (2004): *Improvisation: Methods and techniques for music therapy clinicians, educators and students.* London & Philadelphia: Jessica Kingsley Publishers.

WIGRAM, T. & GOLD, C. (2006): Title: Research evidence and clinical applicability of Music Therapy for Autism Spectrum Disorder *Child: Care, Health and Development* 32,5, pp. 535-542.

WILSON, B. (1996): Assessment of Adult Psychiatric Clients: The Role of Music Therapy. In R. Unkfer (Ed.) *Music Therapy in the Treatment of Adults with Mental Disorders* (pp. 126-144). New York: Schirmer Books.

WILSON, B. & SMITH, D. (2000): Music Therapy Assessment in School settings. *Journal of Music Therapy 37,*2, pp. 95-117.